CHILD AND ADOLESCENT PSYCHIATRY FOR THE SPECIALTY BOARD REVIEW

FOURTH EDITION

HONG SHEN AND ROBERT L. HENDREN

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This new, thoroughly revised edition of *Child and Adolescent Psychiatry for the Specialty Board Review* offers updated information along with the most recent references and knowledge reflected in those changes. The authors especially incorporate new information and changes from DSM-5. Both general and child/adolescent psychiatrists will find this new edition invaluable, not only as a guide for preparing for their first successful board examination, but also as a review in preparing for important recertification exams. The book includes hundreds of multiple-choice questions modeled after the types of questions on the actual boards. This challenging update, with new references and more relevant questions, will help readers to learn new information and be better prepared for their board examinations. Because the authors rewrote the majority of questions to cover a broader knowledge base, readers may find it useful to use the fourth edition as a companion book to the third edition.

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Fourth Edition

Hong Shen and Robert L. Hendren

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INTRODUCTION

Child and Adolescent Psychiatry for the Specialty Board Review is a study guide for the child and adolescent specialty board review and has been highly regarded and popular since the first edition was published approximately 20 years ago. Six years have passed since the third edition was published. Tremendous advances and changes in the field of child and adolescent psychiatry have occurred in the past few years. The two principal child and adolescent psychiatry textbooks referenced in the third edition have new editions. More important, the American Psychiatric Association's (APA) revised DSM-5 was published in May 2013. In contrast to DSM-IV, which was similar to its predecessors, DSM-5 embodies the first significant changes to psychiatric diagnoses in more than 30 years. This new edition is carefully revised, which offers not only updated information, along with the most recent references and knowledge reflected in those changes, but also incorporates DSM-5 to ensure coverage of the major advances in the classification and diagnoses of child and adolescent disorders represented in DSM-5.

General and child/adolescent psychiatrists, residents, medical students, and other professionals will find this new edition not only invaluable as a study guide in preparing for board examinations, recertification examinations, PRITE exams, and the medical students' clerkship shelf exams but it will also serve as an excellent review of the latest knowledge in the field for those wishing an up-to-date review. The revised book includes a slightly larger number of multiple-choice questions modeled after the types of questions on the actual boards. This revision updates references and the majority of the questions are brand-new, which will help readers review and learn new information and be better prepared for their examinations and their practice. The revised book covers similar subject matter and is divided into similar sections/chapters as the previous edition. However, because The American Board of Psychiatry and Neurology has phased out the oral examinations, the section for mock examinations is eliminated from this new edition. Instead, problem-based clinical cases are used as springboards to cover clinical assessment, differential diagnosis, formulation, and treatment planning.

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REFERENCES

Note: With dramatic advances continually being made in the clinical sciences, it is a challenge for physicians to keep abreast both of the modifications in treatment that such advances require and of the new drugs being introduced each year. The authors and publisher of this volume have taken care to make certain that the doses of drugs and schedules of treatment are correct and compatible with standards generally accepted at the time of publication. However, it is essential for the reader to become fully cognizant of the information on the instruction inserts provided with each drug or therapeutic agent prior to administration or prescription.

Further, as some of the topics are by nature ambiguous, it is suggested that the reader consult the indicated reference sources for clarification should there be a discrepancy between the answer selected and that which appears in the book.

Each question, answer, and explanation can be found in one or more of the basic books on child and adolescent psychiatry, reference books, and published journal articles listed here or in the answers to the questions. The references are cited by number, indicating the appropriate page numbers, with each appropriate answer in the text.

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3. A. Martin, F. R. Volkmar, and M. Lewis (Ed.). *Lewis' Child and Adolescent Psychiatry: A Comprehensive Textbook* (Fourth Edition). Lippincott Williams & Wilkins, Philadelphia, PA, 2007.
4. *Diagnostic and Statistical Manual of Mental Disorders (5th Ed)* (DSM-5) American Psychiatric Association, American Psychiatric Publishing, Inc. Washington, DC, 2013.

5. B.J. Sadock, V.A. Sadock, and P. Ruiz (Ed.) *Kaplan & Sadock's Comprehensive Textbook of Psychiatry* (Ninth Edition). Lippincott Williams & Wilkins, Philadelphia, PA, 2009.
6. B.J. Sadock and V.A. Sadock (Ed.) *Kaplan & Sadock's Synopsis of Psychiatry* (Tenth Edition). Lippincott Williams & Wilkins, Philadelphia, PA, 2007.

PART I

MULTIPLE-CHOICE QUESTIONS

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1

NORMAL GROWTH AND DEVELOPMENT

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QUESTIONS

Directions: Select the best response for each of the questions 1–70.

1. What percentage of genes in humans is responsible for regulating the growth and development of the central nervous system (CNS)?

a. About 5%
b. About 10%
c. At least one-third
d. At least 50%
e. At least 75%

2. All of the following statements regarding migration of neurons are correct *except:*

a. During corticogenesis the newly formed glutamatergic projection neurons migrate along with radial glial cells guides.
b. Migration of neurons starts during late-stage embryonic development of the nervous system.
c. Some cytoskeletal proteins, molecular motor, and adhesion molecules are needed for the process.
d. Decreased expression of certain microtubule-binding protein can interfere with the migration process.
e. Abnormal distribution of GABAergic neurons could be underlying the pathogenesis of certain psychiatric conditions.

3. Which of the following neurotransmitters can impact coordinating the modulation of the entire neocortex and regulate theta rhythms on EEG?

a. Dopamine
b. Serotonin
c. Norepinephrine and epinephrine
d. Histamine
e. Acetylcholine

4. Which of the following neurotransmitters inhibits prolactin release?

a. Dopamine
b. Serotonin
c. Norepinephrine and epinephrine
d. Histamine
e. Acetylcholine

5. Which of the following neurotransmitters is responsible for the regulation of arousal state, vigilance, and stress response?

a. Dopamine
b. Serotonin
c. Norepinephrine and epinephrine
d. Histamine
e. Acetylcholine

6. Which of the following neurotransmitters is responsible for the regulation of autonomic and neuroendocrine processes?

a. Dopamine
b. Serotonin
c. Norepinephrine and epinephrine
d. Histamine
e. Acetylcholine

7. Which of the following neurotransmitters may be implicated in Alzheimer's disease and rapid eye movement (REM) sleep?

a. Dopamine
b. Serotonin
c. Norepinephrine and epinephrine
d. Histamine
e. Acetylcholine

8. By the age of 3 years, most children can perform all of the following tasks *except:*

a. Riding a tricycle
b. Copying a square
c. Copying a circle and a cross
d. Building a tower of 9 to 10 cubes
e. Feeding self well and putting on shoes

9. Piaget postulated four stages of cognitive development. Which one of the following sequences of development describes the stages given by Piaget? (> = progression)

a. Concrete operational > sensorimotor > preoperational > formal operational
b. Preoperational > sensorimotor > concrete operational > formal operational
c. Sensorimotor > preoperational > formal operational > concrete operational
d. Sensorimotor > preoperational > concrete operational > formal operational
e. Sensorimotor > concrete operational > preoperational > formal operational

10. Lawrence Kohlberg described three major levels of moral development: (I) preconventional morality, (II) morality of conventional role conformity, and (III) morality of self-accepted moral principles. He proposed two types/stages in each level, going from type 1/stage 1 as the lowest to type 6/stage 6 as the highest. His theory integrated the concepts of development of which of the following theorists?

a. Jean Piaget
b. Carol Gilligan
c. Harry Harlow

d. John Bowlby
e. Mary Ainsworth

11. Margaret Mahler described an attachment theory based on psychoanalytic theory including a complex sequence that infants gradually develop step by step. Which one of the following sequences are the corresponding stages of "separation-individuation" proposed by Mahler? (> = progression)

a. Symbiosis > normal autism > differentiation > practicing > reapproachment > object constancy (individuation)
b. Differentiation > reapproachment > symbiosis > practicing > normal autism > object constancy (individuation)
c. Practicing > differentiation > symbiosis > normal autism > reapproachment > object constancy (individuation)
d. Normal autism > differentiation > reapproachment > symbiosis > practicing > object constancy (individuation)
e. Normal autism > symbiosis > differentiation > practicing > reapproachment > object constancy (individuation)

12. Fetus brains and brains of toddlers have a larger number of neurons and synaptic connections than brains of adults. What term is used to describe the process by which the overproduction of synapses is reduced?

a. Extermination
b. Pruning
c. Excitotoxicity
d. Enucleation
e. Trimming

13. Based on the "temperament theory" developed by Stella Chess and Alexander Thomas, all of the following are behavioral dimensions of young children *except:*

a. Activity level
b. Adaptability
c. Intensity
d. Mood lability
e. Rhythmicity

14. Based on neuroanatomical distribution, all of the following neurotransmitter systems originated from small groups of densely packed neurons that project to their target areas using long-ranged projection fibers *except:*

a. Glutamatergic system
b. Serotonergic system
c. Dopaminergic system
d. Noradrenergic system
e. Cholinergic system

15. Which of the following serotonin receptors is coupled to an ion channel?

a. 5-HT_1
b. 5-HT_2
c. 5-HT_3
d. 5-HT_4
e. 5-HT_5

16. Operant conditioning is *best* described by which one of the following phrases?

a. Behaviors that are strengthened or weakened as a function of the events that follow them
b. Presentation or removal of an event after a response that increases the frequency of the response
c. Removing the presence of a reinforcing event after a response decreases the frequency of the previously reinforced response
d. Certain stimuli coming to elicit reflex response
e. Reinforcement of the gradual approximation of a desired behavior

17. All of the following are the stages of systemic desensitization *except:*

a. Relaxation training
b. Constructing the anxiety hierarchy
c. Desensitization in imagination
d. Self-talk
e. In vivo desensitization

18. Based on cognitive behavioral theory, Spivak and Shure proposed five problem-solving steps that children can be taught. All of the following are those steps *except:*

a. Problem identification, definition, and formulation
b. Negative thought elimination
c. Choosing a new strategy
d. Implementing the new strategy
e. Evaluating the new strategy

19. At which of the following age ranges do children start to show an understanding of object permanence?

a. Age of 0–2 months
b. Age of 2–7 months
c. Age of 7–18 months
d. Age of 18–36 months
e. Age of 36–48 months

20. There are many forces that may interfere with normal developments of infants and toddlers, such as regulatory disturbances. The followings are all such regulatory disturbances *except:*

a. Sleep disturbances
b. Excessive crying or irritability
c. Eating difficulties
d. Low frustration tolerance
e. Prolonged separation from caregivers

21. Mary Ainsworth developed a research instrument known as the Strange Situation procedure to assess the security of attachment in infancy. All of the following statements are accurate *except:*

a. Attachment can be defined as secure and insecure.

b. Within insecure attachment, there are three types: *avoidant/dismissive, resistant/anxious-ambivalent,* and *disorganized/disorientated.*
c. Securely attached infants tend to be more resilient, self-reliant, emphatic, and confident in developing adult relationships.
d. *Avoidant or dismissing* infants tend to develop excessive dependency and fear of abandonment.
e. *Disorganized-disorientated* infants may be associated with unresolved and disorganized pattern in adults.

22. As a member of the mitogen-activated protein kinase (MAPK) pathway the extracellular-signal regulated kinase (ERK) plays a key role in memory formation. It is activated after growth factors bind to specific receptors at the outer surface of a cell's membrane. Upstream regulatory signaling proteins are needed to lead to the activation of ERK. All of the followings are the upstream regulators of ERK *except:*
a. Raf1
b. Rap
c. B-Raf
d. MEK 1/2
e. RSK2

23. Which one of the following enzymes is the rate-limiting enzyme responsible for the synthesis of serotonin?
a. Tyrosine hydroxylase
b. Tryptophan hydroxylase
c. Monoamine oxidase (MAO)
d. Catecholamine-O-methyltransferase (COMT)
e. Dopamine hydroxylase

24. Which of the following is the metabolite of serotonin?
a. Vanillylmandelic acid (VMA)
b. Homovanillic acid (HVA)
c. 3-methoxy-4-hydroxyphenylglycol (MHPG)
d. 5-hydroxyindoleacetic acid (HIAA)
e. 3,4-dihydrophenylacetic acid (DOPAC)

25. Which of the following neurotransmission systems is crucial for inhibiting excitatory neurons?
a. Cholinergic neurotransmission
b. GABAergic neurotransmission
c. Noradrenergic neurotransmission
d. Cholinergic neurotransmission
e. Glutamatergic neurotransmission

26. Which of the following neurotransmission systems is crucial for forming of memory?
a. Cholinergic neurotransmission
b. GABAergic neurotransmission
c. Noradrenergic neurotransmission
d. Cholinergic neurotransmission
e. Glutamatergic neurotransmission

27. Which of the following ages represents the time when children first begin to be involved with pretend play?
a. 2 years
b. 4 years
c. 6 years
d. 8 years
e. 10 years

28. By which of the following ages do *most* children develop a stable gender identity?
a. 12–18 months
b. 3 years
c. 5 years
d. 7 years
e. 9 years

29. Which of the following neuroimaging methods requires the administration of radioactive tracers?
a. Magnetic resonance imaging (MRI)
b. Magnetic resonance spectroscopy (MRS)
c. Computer tomography (CT)
d. Single photon emission computed tomography (SPECT)
e. Magnetoencephalography

30. Diffusion tensor imagining (DTI) utilizes which of the following neuroimaging methods?
a. Magnetic resonance imaging (MRI)
b. Magnetic resonance spectroscopy (MRS)
c. Computer tomography (CT)
d. Single photon emission computed tomography (SPECT)
e. Magnetoencephalography (MEG)

31. All of the following statements about magnetic resonance spectroscopy (MRS) are correct *except:*
a. In contrast to MRI, MRS provides biochemical information of the subject in the form of a spectrum.
b. ^{31}P MRS is the most widely used technique.
c. Using spatial encoding and localization, MRS is able to acquire not only a spectrum of a single voxel, but also spectra of 2-D matrix and 3-D multiple voxels.
d. MRS can measure the concentrations and distributions of metabolites within the brain, such as N-acetyl aspartate (NAA), total creatine (tCr), and total choline (tCh).
e. Reduction of NAA and tCh are found in adolescents with bipolar disorder.

32. All of the following statements regarding electroencephalography (EEG) and magnetoencephalography (MEG) are correct *except:*
a. EEG has superior ability to measure brain electrical activity more directly than those of PET and SPECT.
b. EEG has poorer spatial resolution than PET, SPECT, and MEG.

c. EEG is relatively inexpensive, and becomes a more expansive procedure when combined with MRI.
d. MEG measures extraneuronal current flow while EEG measures intraneuronal current flow.
e. Neither EEG nor MEG can measure activity in subcortical structures.

33. All of the following are the stages of children's understanding of the concepts of death *except:*
a. Irreversibility
b. Finality (nonfunctionality)
c. Causality
d. Inevitability (universality)
e. Acceptability

34. At what age had children acquired the concepts of irreversibility, nonfunctionality, and universality related to death?
a. Years 2–3
b. Years 3–5
c. Years 5–7
d. Years 7–9
e. Years 9–11

35. During which of the following age ranges do children acquire the ability to understand conservation?
a. The first year of life
b. Years 1–2
c. Years 2–7
d. Years 7–11
e. Years 11–end of adolescence

36. During which of the following age ranges do children develop the ability for symbolic thought?
a. Birth to 5 months
b. 5–9 months
c. 9 months–1 year
d. 1 year–18 months
e. 18 months–2 years

37. During which of the following age ranges do children begin using hypotheticodeductive thinking?
a. The first year of life
b. Years 1–2
c. Years 2–7
d. Years 7–11
e. Years 11–end of adolescence

38. All of the following statements regarding neurobiological changes in adolescence are correct *except:*
a. Recent studies show dramatic neurobiological changes in the adolescent brain especially in regions of the forebrain and mesocortical and limbic systems.
b. Massive pruning leads to the loss of about 50% of the cortical synaptic connections prior to puberty.
c. Loss of inhibitory GABAergic inputs in the prefrontal cortex is prominent.
d. A longitudinal MRI study of youth age 7–19 years showed that intelligence was associated with the trajectory of cortical development.
e. Executive functioning continues to improve throughout adolescence.

39. Which of the following developmental sequences correctly describes the process of puberty in girls?
a. Menarche> pubic hair> breast development> height spurt
b. Breast development> pubic hair> height spurt> menarche
c. Breast development> height spurt> menarche> pubic hair
d. Height spurt> breast development> pubic hair> menarche
e. Menarche> height spurt> breast development> pubic hair

40. In general, studies of the effects of the timing of maturation suggest that early maturation is more advantageous in terms of popularity, self-esteem, and intellectual ability for:
a. Boys
b. Girls
c. Both boys and girls
d. Neither boys nor girls
e. Unknown because no clear pattern has been identified

41. Which of the following descriptions correctly defines the concept of polymorphisms:
a. One of the variant types of a gene at a particular locus on a particular chromosome
b. A suspected gene that might be involved in a disease
c. The location of a specific gene that is located on a chromosome
d. A variable segment of DNA with known physical location, and its inherence can be followed
e. A common variation of DNA in the sequence that occurs ≥1% among individuals

42. All of the following statements of linkage analysis are correct *except:*
a. Linkage studies analyze the probability of a given phenotype being transmitted together from one generation to another.
b. Parametric and nonparametric linkage analyses are two basic approaches.
c. Using nonparametric linkage analysis, results are expressed as a logarithm of the odds (LOD) score.
d. LOD score of 3 and above indicates a linkage to a marker (1000:1 odds in favor).
e. Parametric approach is powerful in investigating Mendelian disorders, while nonparametric approach is more robust in investigating disorders with no known clear mode of inheritance.

43. Fluorescence in situ hybridization (FISH) is primarily used in which type of the following genetic studies?

a. Study of patterns of inheritance and transmission
b. Linkage analysis
c. Genetic association
d. Molecular cytogenetics
e. Sequencing of human genome

44. All of the following statements regarding genomic microarray technology are accurate *except:*

a. Genetic polymorphisms can be arrayed on glass or nylon substrates/slides.
b. Numerous reactions are needed to identify many genetic markers.
c. In genome-wide studies, it increases the efficiency and lowers the cost.
d. It can conduct genome-wide gene expression profiling.
e. It can help to identify and characterize the functions of newly identified genes.

45. Based on contemporary theories and studies, all of the following statements regarding the cultural impact on developmental stages are accurate *except:*

a. "Precocity baby phenomenon" occurs more commonly in Europeans and Americans.
b. Japanese and Chinese American infants are less excitable using rhythmicity and activity as measurements of their temperament.
c. While Japanese parents believe their children's academic achievement depends on effort, American parents believe in their children's innate ability.
d. To avoid cultural bias *cultural-free tests* and *culture-fair tests* have been developed to evaluate children's IQ across cultures.
e. Girls in industrial countries have a tendency of reaching menarche earlier than girls in developing countries.

46. All of the following statements regarding the evaluation/assessment of development of infants and toddlers are correct *except:*

a. There is a characteristic developmental pattern for children with *failure to thrive.*
b. Social environmental disturbance can interfere with language and communication development.
c. Qualitative observation of children's interactions is important in evaluating children with seemingly appropriate developmental profiles.
d. Qualitative observation is also important in children with *scattered* developmental profiles across different domains.
e. Assessment of the development of young children should serve a role in facilitating referrals to appropriate educational or rehabilitative services and collaborations among providers.

47. From approximately which of the following ages have children achieved the development of a theory of mind?

a. Years 3–4
b. Years 4–5
c. Years 5–7
d. Years 7–9
e. Years 9–11

48. All of the following statements regarding children's play are correct *except:*

a. Pretend play requires children's ability to symbolize.
b. Children under age 3 are more likely to choose to play by themselves or be involved in parallel play.
c. Children 3 to 4 years old start engaging more with other children.
d. During therapeutic play with children, the therapist may join in with children's play, which can be more productive than interpreting the play.
e. It is easy to distinguish whether preschool children play with a normative imaginary friend by asking them if the friend is real or not.

49. All of the following statements regarding separation are accurate *except:*

a. With limited coping capacity preschoolers face more difficulties in dealing with separation than older children.
b. Emerging symbolic capacity and capacity of object constancy help young children to cope with separation.
c. Continued contacts with a previous teacher or nanny make it harder for children to get familiar with a new teacher or nanny, thus a clean break would be a better approach.
d. Separation is more difficult for children with parents who are separated or divorced.
e. Consistency, structure, and predictability are critical for visitations of young children with their parents who are divorced.

50. All of the following statements regarding aggression in children are correct *except:*

a. As one of the most common reasons for child psychiatric consultation, aggression may reflect a balance between the child's reaction to frustration versus assertiveness and individuation.
b. Aggression in children always expresses some of their needs and feelings.
c. Younger children with few words may exhibit more physical aggression than their counterparts who are more verbal.
d. By age 5 or 6 aggression tends to diminish.
e. Preschoolers' aggression usually leads to aggression in grade school children.

51. Which of the following concepts did Piaget use to describe the preoperational child?

a. Mastering the concept of conservation
b. Abstract thinking

c. Egocentrism
d. Circular reactions
e. Seriation and classification

52. Clinically, attachment theory is useful in all of the following circumstances *except:*

a. Predicting the inevitable consequences/outcomes of early insecure attachment
b. Understanding the nature of development of child psychopathology
c. Understanding child abuse/neglect
d. Understanding delinquency
e. Treatment of mental illnesses in childhood

53. Temperament is viewed as individual differences in the reactivity and behavioral style that individuals utilize in different situations. Which of the following statements about temperament is *not entirely accurate?*

a. Temperament is determined by three primary dimensions: activity level, adaptability, and sense of humor.
b. Temperament can be categorized into three constellations: easy, difficult, and slow to warm up.
c. *Goodness of fit* is used to describe the compatibility of traits between children and their parents.
d. Genetic factors, as well as environmental factors, contribute to temperament.
e. Certain alleles of a dopamine receptor gene DRD4 are associated with novelty-seeking temperamental traits.

54. All of the following statements regarding early adolescent development are correct *except:*

a. Early adolescence starts around the ages of 12–14 years.
b. Growth spurt occurs 1–2 years earlier in girls than in boys.
c. Youngsters in this stage tend to show more interest in spending time with peers and to be more aware of appearance and style.
d. At this stage some youngsters experiment with tobacco, alcohol, and marijuana.
e. Epidemiologic studies show that at this stage adolescents are characterized by overwhelmed alienation, profound angst, and significant disruptive family relationships.

55. All of the following statements regarding middle adolescent development are correct *except:*

a. Middle adolescence roughly covers the ages of 14 to 16 years.
b. A lot of adolescents in this stage have clear goals of being independent.
c. Solid identity formation occurs.
d. Boys are more prevalent in using cocaine than girls based on the Youth Risk Behavior Surveillance System (YRBSS-2005).
e. Their drive for autonomy may create conflicts between them and their parents.

56. All of the following statements regarding late adolescence development are correct *except:*

a. Late adolescence generally covers the ages of 17 to 19 years.
b. Identity formation is gradually solidified with openness for refinement during young adulthood.
c. Completion of high school and transition into college or job training often occurs.
d. The use of tobacco, alcohol, and marijuana is lower than middle adolescence.
e. Neuroimaging studies showed continued prefrontal cortex neural network development during this stage.

57. All of the following statements regarding adolescent pubertal development are correct *except:*

a. Surge of gonadotropin-releasing hormone (GRH) from the hypothalamus starts the puberty development.
b. GRH stimulates pituitary glands to release the gonadotropin-luteinizing hormone (GLH) and follicle-stimulating hormone (FSH).
c. GLH and FSH stimulate the secretions of a variety of androgens, testosterone, estradiol, and other peptides.
d. Two additional hormones (thyroxin and prolactin) play pivotal roles in regulating growth hormone.
e. The increase of both weight and height is a sign of puberty, which is often called growth spurt.

58. All of the following statements regarding adolescent sexual development are correct *except:*

a. In boys, secondary sexual characteristics (increased length and width of penis) occur after a surge of androgens from enlarged testes.
b. Tanner staging rates sexual maturity into five stages (1–5).
c. Tanner staging uses genital maturity to rate boys and uses breast development to rate girls.
d. The primary sex characteristic in females is ovulation, or the release of eggs from ovaries.
e. The primary sex characteristic in males is development of facial hair.

59. At which of the Tanner stages does menarche usually occur?

a. Tanner stages 1–2
b. Tanner stages 2–3
c. Tanner stages 3–4
d. Tanner stages 4–5
e. After stage 5

60. According to Lawrence Kohlberg, morality can be divided into three levels: preconventional, conventional, and postconventional. Each level can be further divided into two stages (up to a total of six stages—also called types). If an adolescent has an ability to interpret moral dilemmas—that is, the concept of *extenuating circumstances* is understood—which level and stage of moral development has the adolescent reached?

a. Preconventional Level, stage 1
b. Preconventional Level, stage 2
c. Conventional Level, stage 3
d. Conventional Level, stage 4
e. Postconventional Level, stage 5

61. All of the following statements regarding adolescents' self-esteem are correct *except:*

a. The primary features of good adolescent self-esteem are related to their perceptions of positive physical appearance and high value to peers and family.
b. The secondary features of adolescent self-esteem are related to their academic achievement, athleticism, and other special talents.
c. Adolescents' self-esteem is mediated by external factors, such as feedback from peers and family.
d. A recent report indicated that younger adolescents (ages 13 to 17) have higher self-esteem than older adolescents (ages 18 to 22).
e. During adolescence, boys have a more significant drop in their self-esteem than do girls.

62. All of the following statements regarding adolescent brain development are correct *except:*

a. Abstract reasoning, planning, and affect modulations are the most dramatic changes of cognition in adolescents.
b. In the frontal cortex, increased myelinization of axons occurs during puberty, which increases transmission speed.
c. There is a linear increase in white matter in the frontal and parietal cortexes and a nonlinear decrease in gray matter density (synaptic pruning) in the frontal lobes.
d. Being responsible for mediating executive function, the prefrontal cortex matures more slowly than the other areas of the brain.
e. Functional MRI showed that boys have diminished activities in the amygdala when presented with fearful faces.

63. The dysfunction of the hypothalamic-pituitary-adrenal axis (HPA) neuroendocrine pathway may be related to the following psychiatric disorders/conditions *except:*

a. Major depressive disorder (MDD)
b. Posttraumatic stress disorder (PTSD)
c. Schizophrenia
d. Psychosocial dwarfism
e. Substance-related and additive disorders

64. Initiation of neurotransmission is accomplished by all of the following actions *except:*

a. Release of presynaptic neurotransmitter
b. Binding of the neurotransmitter to the presynaptic receptor
c. Binding of the neurotransmitter to the postsynaptic receptor
d. Activation of the postsynaptic receptor
e. Regulation of the second messengers

65. All of the following statements regarding the basal ganglia are correct *except:*

a. They modulate motor and some cognitive functions.
b. The basal ganglia include the caudate nucleus, putamen, globus pallidus, subthalamic nucleus, and sustantia nigra.
c. Portions of the basal ganglia may be involved in the etiology of obsessive-compulsive disorder (OCD).
d. They may be involved in the etiology of attention-deficit/hyperactivity disorder (ADHD).
e. They can initiate particular movements.

66. All of the following statements regarding memory in children are correct *except:*

a. Children's lack of conscious memory of the first 3 years of their life is referred to as infantile amnesia.
b. The nondeclarative memory is not fully developed until age 3.
c. Infantile amnesia seems to be related to the failure of the storage of memory.
d. Gradual development and differentiation of the neocortex limits the appearance of declarative memory during infancy.
e. Memory capacity increases with increased language ability.

67. All of the following statements regarding masturbation, genital self-stimulation, and sex play are correct *except:*

a. Genital self-stimulation is normal in babies, and increases between the ages of 15–19 months.
b. Younger children may acquire playmates and show curiosity about their own and others' genitalia.
c. It is unusual for couples with steady relationships to masturbate.
d. Masturbation becomes pathological when it becomes a compulsion.
e. In early adolescence teenagers may engage in sex play with partners both of the same sex and of the opposite sex.

68. Which of the following is *not* a phrase of normal physiological responses to sexual stimulation?

a. Desire
b. Excitement
c. Orgasm
d. Resolution
e. Desire aversion

69. All of the following statements regarding adolescent homosexuality are accurate based on the current state of our knowledge *except:*

a. Homosexual play and contacts are most frequent in early adolescence, which does not necessarily lead to a homosexual orientation in adulthood.
b. Following APA's suit WHO finally removed homosexuality as a disease from ICD-10 in 1992.
c. There are both genetic and environmental influences in homosexuality.

d. Research data shows strong correlations between different levels of sex hormones among heterosexual and homosexual individuals.
e. Homosexuality may be strongly influenced by the amount and time of certain prenatal hormonal exposure.

70. Which of the following statements regarding resilience is *incorrect?*
a. There are two fundamental components of resilience: significant risk (or adversity) and positive adaptation.
b. The authoritative parenting style is considered less optimal in fostering children's resilience.
c. There is an important genetic influence on resilience.
d. Community factors such as mentors and informal support groups, religious affiliations, and strong teacher-child relationship can positively influence resilience.
e. Internal locus of control, feeling of self-efficacy, and high emotional intelligence are protective factors.

Matching

71–75. Match the following descriptions or examples to the corresponding frequently used terminology in the preschool period:
a. Animism
b. Attachment
c. Egocentrism
d. Parallel play
e. Symbolic play

71. Children use play objects in representational ways, such as using a doll as a baby.
72. A child plays with a truck while another child is stacking up blocks, and they are both aware of each other.
73. The capacity of a child having an internal representation of the availability of their caregivers.
74. A child tells his mother that a rock needs to drink water just like his dog.
75. Lack of understanding of others' perspectives

76–79. Match each term used by Freud to describe a developmental stage with one of the following corresponding descriptive terms used by Erikson:
a. Identity
b. Autonomy
c. Basic trust
d. Initiative

76. Oral
77. Anal
78. Phallic
79. Adolescence

80–86. Match each of the following hormones to one of the following corresponding regulating hormones:
a. Corticotropin-releasing hormone
b. Thyrotropin-releasing hormone
c. Luteinizing-hormone-releasing hormone
d. Gonadotropin-releasing hormone
e. Somatostatin
f. Growth-hormone-releasing hormone
g. Progesterone, oxytocin

80. Adrenocorticotropic hormone
81. Prolactin
82. Growth hormone (stimulated)
83. Growth hormone (inhibited)
84. Follicle-stimulating hormone
85. Luteinizing hormone
86. Thyroid-stimulating hormone

87–92. For each of the named major figures in developmental psychiatry, choose from the following terms or descriptions the one that is *most* associated with his or her theory:
a. Transitional object
b. Attachment theory
c. Assimilation, accommodation
d. Developmental lines
e. Reparation
f. Goodness of fit

87. Bowlby
88. Piaget
89. Winnicott
90. Melanie Klein
91. Chess and Thomas
92. Anna Freud

93–108. Match each defense mechanism listed with the one of the following examples that *best* describes it:
a. An adolescent "forgets" to tell her parents about a failing grade in school.
b. An adolescent who is angry with a teacher berates a sibling for no apparent reason.
c. An adolescent denies any feeling of abandonment or rejection by the noncustodial parent after a divorce.
d. An adolescent returns to childish and dependent behavior following a family move to a new city.
e. An adolescent mother resents the demands that caring for her child makes on her. However, she repeatedly tells herself and others how wonderful motherhood is. At times, she worries unnecessarily that some harm will come to her child.
f. An adolescent experiencing repeated trouble with the law claims that all of the problems are the fault of law enforcement officers, who have it in for him.
g. An adolescent with a terminal illness volunteers to work as a hospital aide.
h. When asked about the automobile accident in which his father was killed, an adolescent begins discussing the mechanics of trauma, velocity of impact, safety rules, and changing trends in life expectancy.

i. An adolescent, in a cool and unemotional manner, describes the circumstances of a serious automobile accident in which he received multiple injuries.

j. A hospitalized adolescent views each member of the medical staff as being all "good" or all "bad."

k. An adolescent repeatedly engages in risk-taking behavior.

l. An adolescent laughs about an embarrassing encounter with a teacher.

m. An adolescent explains her drug abuse by saying that "everybody" does it.

n. An adolescent girl who is angry at her family after being grounded runs away from home without verbally expressing her anger.

o. An adolescent identifies with a rock star or an athletic coach whom he admires.

p. An adolescent whose father recently died of a myocardial infraction begins a vigorous exercise program.

93. Denial
94. Projection
95. Splitting
96. Acting out
97. Regression
98. Counterphobia
99. Identification
100. Reaction formation
101. Repression
102. Displacement
103. Isolation of affect
104. Rationalization
105. Intellectualization
106. Sublimation
107. Humor
108. Altruism

109–112. For each of the brain regions listed, select from the following the neurotransmitter that is *most* associated with it:

a. Dopamine
b. Serotonin
c. Norepinephrine
d. Acetylcholine

109. Locus ceruleus
110. Substantia nigra
111. Raphe nuclei
112. Nucleus of basalis of Meynert

ANSWERS AND EXPLANATIONS

1. **(c)** Even though the exact number of genes expressed within CNS is unknown, it is estimated that at least one-third of the human genes is involved in regulating the growth and development of the CNS. *(Ref. 3, p. 183)*

2. **(b)** The migration of neurons starts in the early embryonic development. It has been established that the newly formed glutamatergic projection neurons migrate along with radial glial cells providing guidance during corticogenesis. Doublecortin is a microtubule-binding protein, which is a necessary component in the neuron's migration process. Replicated data show abnormal GABAergic cells in prefrontal regions of the cortex could be underlying the pathogenesis of certain psychiatric conditions, such as schizophrenia. *(Ref. 3, p. 185)*

3. **(b)** Only a limited number of neurons produce serotonin, but these neurons innervate different target fields and have enormous influence in all aspect of CNS function. Serotonergic neurons have different cellular morphologies; some of them have fine fibers, while others have beaded varicosities. Innervated by both fiber types, each cortical neuron is modulated by at least 200 serotonergic varicosities, and each serotonin neuron may affect up to half a million target neurons. Serotonin has an impact on the coordinated modulation of the entire neocortex, and regulates theta rhythms. *(Questions 3–7: Ref. 5, pp. 65–67)*

4. **(a)** Dopamine neurons locate in the midbrain substantia nigra and ventral tegmental area (VTA) along with some other areas, and their degeneration is responsible for Parkinson's disease; blockage of their receptors by antipsychotics may induce extrapyramidal effects, and their mesoaccumbens pathway is responsible for reward. Blocking dopamine release may also disinhibit prolactin release that causes hyperprolactinemia, sometimes found in patients taking certain antipsychotics.

5. **(c)** Norepinephrine is produced by neurons in the locus ceruleus (LC) and the lateral tegmental noradrenergic nuclei. These neurons provide projections to the neocortex, hippocampus, thalamus, and midbrain tectum, where they play a role in the regulation of arousal state, vigilance, and stress responses.

6. **(d)** Known for its involvement with allergies, histamine is produced in tuberomammillary nucleus, and histaminergic fibers project diffusely to many different areas of the brain and spinal cord, but the hypothalamus receives the densest innervation, where histamine plays a role in the regulation of autonomic and neuroendocrine processes.

7. **(e)** Projecting to either distant brain regions (projection neurons) or contacting local cells (interneurons), cholinergic neurons are found in both the forebrain complex and the mesopontine complex. Degeneration of nucleus basalis of Meynert is found in patients with Alzheimer's disease, and the degree of neuronal loss correlates with the severity of dementia, which indicates a cholinergic deficit may be underlying pathology of the disease, which is also supported by the fact that drugs that promote acetylcholine signaling are beneficial to the disorder. Cholinergic neurons in the mesopontine complex continue to fire in REM sleep and may have a role in inducing REM sleep. Cholinergic neurons have local contact projections to the striatum (interneurons) and modulation of their cholinergic transmission may play a role in the anti-Parkinsonian effects of anticholinergic agents.

8. **(b)** By the age of 3 years, children can ride a tricycle, jump from the bottom steps, and alternate feet going up steps. A child at 2 can imitate vertical and circular strokes; by age 3, a child can copy a cross, and by age 5, a square. At age 3 children can build towers of 9 to 10 cubes, and also can put on their shoes, unbutton buttons, and feed themselves. *(Ref. 6, p. 23)*

9. **(d)** Four major stages of cognitive development are described by Piaget. They are (1) a sensorimotor stage (0 through 18–24 months), (2) a preoperational stage (2 through 5–7 years), (3) a stage of concrete operations (6–7 through 11 years), and a stage of formal operations (11 years to adulthood). *(Ref. 6, p. 26)*

10. **(a)** Piaget believed moral development parallels the four major stages of cognitive development that he described. Having integrated Piaget's concepts of cognitive development, Lawrence Kohlberg proposed three levels of morality. The levels are as follows:

Level I. Preconventional morality
Type 1/Stage 1. Punishment and obedience orientation
Type 2/Stage 2. Agreement to obey in return for reward
Level II. Morality of conventional role conformity
Type 3/Stage 3. Good-boy morality
Type 4/Stage 4. Authority-maintaining morality
Level III. Morality of self-accepted moral principles
Type 5/Stage 5. Morality of democratically accepted law
Type 6/Stage 6. Morality of individual principles of conscience. *(Ref. 6, p. 39; Ref. 5, pp. 3354–3355)*

11. **(e)** Margaret Mahler described an attachment theory based on psychoanalytic theory including a complex sequence that infants gradually develop step by step as *Stages of Separation-Individuation* including: normal autism (ages 0 to 2 months), symbiosis (ages 2 to 5 months), differentiation (ages 5 to 10 months), practicing (ages 10 to 18 months), reapproachment (ages 18 to 24 months), and object constancy (individuation) (ages 2 to 5 years). *(Ref. 5, pp. 3348–3349; Ref. 6, pp. 28–29)*

12. **(b)** Studies of a variety of mammalian species support the hypothesis that competitive interactions between two or more populations of neurons early in development play a significant role in the elimination of the initial population of axons and in the later segregation of their synapses. This competitive elimination process is referred to as *pruning.* Some of the cells that have served their function during brain development by producing neurotropic or growth factors are programmed to die and are eliminated, which is a process named *apoptosis. (Ref. 6, p. 19)*

13. **(d)** Having observed the inborn differences and variety of autonomic reactivity and temperament among infants and toddlers, Chess and Thomas proposed nine reliable behavioral

dimensions, including activity level, distractibility, adaptability, attention span, intensity, threshold of responsiveness, quality of mood, rhythmicity, and approach/withdrawal. Mood lability is not one of them. *(Ref. 6, p. 27)*

14. (a) Neurotransmitter systems can be divided into two groups based on anatomic distributions. The first group originates from small, densely packed neurons in certain areas of the forebrain or brain stem, projecting to the target areas with long-ranged projection fibers, which includes serotonergic, dopaminergic, cholinergic, and noradrenergic systems. The second group includes glutamatergic and GABAergic systems that are more widely distributed throughout the brain. *(Ref. 3, pp. 235, 238)*

15. (c) All serotonin receptors are coupled either to phospholipase C or to G-protein but 5-HT_3 receptors are coupled to an ion channel. *(Ref. 3, pp. 238–239)*

16. (a) Answer (a) is a definition of operant conditioning. Operant has some influence (operate) on the environment; answer (b) is a definition of reinforcement; answer (c) is a definition of extinction; answer (d) is a definition of classical conditioning that is concerned with stimuli (such as noise, light, taste) that evoke involuntary or automatic responses; and answer (e) is a definition of shaping. *(Ref. 3, pp. 797–798)*

17. (d) Self-talk is one of the cognitive strategies that can be used to treat children with anxiety disorders in that they identify maladaptive thoughts in order to correct their misinterpretations and biases. Relaxation training, constructing the anxiety hierarchy, desensitization in imagination, and in vivo desensitization are the stages of systemic desensitization. *(Ref. 3, pp. 805, 807)*

18. (b) Negative thought elimination is not a step that was proposed by Spivak and Shure. Problem identification, definition and formulation, generation of alternative solutions, choosing a new strategy, implementing the new strategy, and evaluating the new strategy are the five steps that are often the foundation of behavioral skills training strategies in group and individual therapies of children. *(Ref. 3, p. 807)*

19. (b) Between the age of 2–7 months, infants start to show understanding of object permanence when they gradually achieve cognitive ability to create mental representations of objects and people that can exist even when they are no longer within their sight. This allows infants to play peek-a-boo with their caregivers, and it is a prerequisite skill for imaging and visual differentiation between caregivers and strangers. By age 18 months, they solidly grasp the concept. *(Ref. 3, p. 257)*

20. (e) Many forces may interfere with the normal development of infants and toddlers, such as regulatory disturbances, social/environmental disturbances, psychophysiological disturbances, developmental delays, genetic and metabolic disorders, exposure to toxins, CNS damage, and prematurity. A prolonged separation from caregivers is a social/environmental disturbance but is not necessarily a regulatory disturbance. Sleep disturbances (frequent waking), excessive crying or irritability, eating difficulties (finicky eating or food refusal), low frustration tolerance, and self-stimulatory/unusual movements (rocking, head banging, excessive finger sucking) are considered regulatory disturbances. *(Ref. 3, p. 258)*

21. (d) Attachment can be defined as secure and insecure. Within insecure attachment, there are three types: *avoidant/dismissive, resistant/anxious-ambivalent,* and *disorganized/disorientated.* Securely attached infants tend to be more resilient, self-reliant, emphatic, and confident in developing adult relationships. *Avoidant or dismissing* infants tend to develop a pattern of aloofness and detachment to defend against loss and separation, and may be more vulnerable to adult disorders such as borderline, histrionic, and dependent personality disorders. *Resistant/anxious-ambivalent* infants tend to experience their past attachments through confusion, anger, and fear of abandonment, and develop excessive dependency and fear in their adult life. *Disorganized-disorientated* infants may be associated with unresolved and disorganized pattern in adults, which can lead to more disturbed self-object relations. *(Ref. 5, p. 826)*

22. (e) Ribosomal S6 kinase (RSK2) is protein kinase that is one of ERK downstream targets, and its mutation can lead to Coffin-Lowry syndrome. *(Ref. 3, pp. 200–202)*

23. (b) Serotonin is produced from hydroxylation and decarboxylation of amino acid tryptophan. The rate-limiting step is the hydroxylation of tryptophan to form 5-hydroxytryptophan, catalyzed by the enzyme tryptophan hydroxylase. Tyrosine hydroxylase, on the other hand, is the rate-limiting enzyme for the synthesis of dopamine and norepinephrine. *(Ref. 3, p. 238)*

24. (d) The serotonin metabolite on the list is 5-HIAA. Metabolites of neurotransmitters can be found in cerebrospinal fluid, blood, and urine. Studies measuring metabolites of neurotransmitter ontogeny have helped us understand neurochemistry of normal development. Monoamine Oxidase (MAO) and Catecholamine-O-Methyltransferase (COMT) are two main enzymes responsible for the metabolism of many neurotransmitters. The metabolites of norepinephrine are MHPG and VMA. HVA is the principal metabolite of dopamine. *(Ref. 3, pp. 239–243; Ref. 5, pp. 68–69)*

25. (b) GABAergic interneurons (short-ranging neurons) can be found in the cortex, thalamus, striatum, cerebellum, and spinal cord; long-ranging neurons can be found in the basal ganglia, septum, and substantia nigra. GABAergic neurons in the cortex and thalamus are crucial for inhibiting the excitatory neurons. This inhibition is believed to benefit the treatment of anxiety disorders, insomnia, and agitation. *(Ref. 3, p. 245)*

26. (e) Glutamatergic neurons can be located in different areas throughout the brain, affecting brain functions in many ways by binding to NMDA, AMPA, and Kainate receptors. Binding of glutamate to glutamatergic neurons and NMDA receptors in the hippocampus is crucial in the formation of memory resulted from the creation of long-term potentiation. *(Ref. 3, p. 243)*

27. (a) Children begin pretend play around age 2 when they have the capacity to allow a real object to stand for another or for something imaginary, such as brushing the hair of a doll (real object), to represent a real action (something imaginary). *(Ref. 3, p. 263)*

28. (b) A child's basic sense of self as male or female is defined as gender identity regardless of chromosomal constitution, gonadal/hormonal secretions, or genitalia. With both biological and environmental psychosocial influences, most children develop a stable gender identity by age 3. *(Ref. 3, p. 79)*

29. (d) Both single photon emission computed tomography (SPECT) and positron emission tomography (PET) require the administration of radioactive tracers. Even with limited exposure to radiation (less than the dose of a chest X-ray) they are much less acceptable in research than other neuroimaging methods, such as magnetic resonance imaging (MRI), magnetic resonance spectroscopy (MRS), functional MRI, and EEG/magnetoencephalography. CT uses conversational x-ray (not radioactive tracers). New technology combines PET and CT to image blood flow and neurotransmitter systems. *(Ref. 3, pp. 215–229)*

30. (a) As a modality of MRI, DTI uses mathematically described directional diffusion of water in brain tissues in vivo, and it can provide information on the direction and integrity of neural fiber tracks. Thus, it is useful in studying the connectivity of white matter and its color-coded maps can help parcellate some tissues that are difficult to segment with conventional methods. *(Ref. 3, pp. 224–225)*

31. (b) ^{1}H (not ^{31}P) MRS is the most widely used technique because of its greatest sensitivity in detecting signals compared to other nuclei used in vivo, such as phosphorus (^{31}P) and carbon 13 (^{13}C). Studies show alternation of NAA, rCh, glutamate, glutamine, and GABA in patients with certain mental illnesses, such as major depression, bipolar disorder, panic disorder, and attention hyperactive/impulsive disorder, etc. *(Ref. 3, pp. 225–226)*

32. (d) MEG is the imaging modality that measures intraneuronal current flow quantities in contrast to EEG that measures extraneuronal current flow. MEG also has better spatial resolution than conventional EEG, and it is less prone to motion artifact because it does not require scalp electrodes. But the hardware of MEG is much more expensive than that of EEG and a magnetically shielded room is required. *(Ref. 3, pp. 228–229)*

33. (e) Acceptability is not a stage in children's understanding of the concepts of death. But irreversibility, finality (nonfunctionality), causality, and inevitability (universality) are the four stages that have been consistently noted in the studies. *(Ref. 3, p. 972)*

34. (c) A review by Speece and Brent indicated that children between ages of 5 and 7 can acquire the concepts of irreversibility, nonfunctionality, and universality, and found out that the earlier studies that cited older age of acquisition had significant methodological flaws. *(Ref. 3, p. 972)*

35. (d) Children acquire the concept of conservation between the ages of 7 and 11, which is equivalent to the concrete operational stage of cognitive development proposed by Jean Piaget. With the understanding of conservation children can recognize that objects are still the same (characteristics of the objects are conserved) even if their shape has changed. Around the same time, children usually achieve an understanding of the concept of reversibility where they recognize that one thing can turn into another and back again, i.e. water and ice. *(Ref. 6, pp. 134–135)*

36. (e) During the last part of the sensorimotor stage proposed by Jean Piaget, between the ages of 18 months and 2 years, children develop symbolic thought while they use symbolic representation of event and objects, and attain object permanence. *(Ref. 6, p. 134)*

37. (e) Hypotheticodeductive thinking is the highest organization of cognition, and occurs after children reach formal operational stage (age 11 through the end of adolescence) based on the cognitive development theory of Piaget. At this stage some children can use deductive and inductive reasoning, and can make hypotheses and test them. However, some children may regress to an earlier stage of thought process, and some adolescents or adults may never reach this stage. *(Ref. 6, pp. 135–136)*

38. (c) Loss of excitatory glutamatergic inputs especially predominant in the prefrontal cortex is one of the results of synaptic remodeling. Neuropsychological tasks of executive functioning as well as inhibition that are associated with prefrontal cortical functioning continue to improve in adolescence. Developmental changes in GABAergic neurons and their synapses may play a role in fine-tuning of inhibitory control. Disruption of such developmental changes may be linked to people with schizophrenia. *(Ref. 3, p. 281)*

39. (b) In girls, puberty begins with breast development followed by the growth of pubic hair, height spurt, and finally the onset of menstruation. The timing of each physical characteristic relative to the others can vary from individual to individual. For girls, puberty begins at an average of 9 to 11 years of age, approximately 2 years earlier than in boys. Boys follow the developmental sequence of pubic hair, penile and testicle growth, and height spurt. *(Ref. 3, p. 280)*

40. (a) Studies show that early maturation is more socially advantageous for boys especially in terms of their popularity, self-esteem, and intellectual ability. However, it is also associated with increased risk for delinquent behaviors. Early maturation in girls is associated with lower self-esteem, increased risk for developing depression and anxiety, and risk-taking behaviors, although the impact also depends on social and environmental factors. *(Ref. 3, p. 281)*

41. (e) A polymorphism is a common variation in the sequence of DNA that occurs in ≥1% of the population. Single nucleotide polymorphisms (SNPs) are variations at a single nucleotide that occur in approximately 1/1000 bases in human DNA. These variations are commonly used to track inheritance in families, and have been widely used in linkage studies. They are considered as common SNPs if the frequency is greater than 1% in a population. Answer (a) is the definition of allele. Answer (b) is the definition of candidate gene. Answer (c) is the definition of locus. And answer (d) is the definition of marker. *(Ref. 3, p. 191)*

42. (c) Parametric linkage analysis uses LOD scores to describe the level of linkage, 2.2–3.6 being considered as suggestive linkage, 3.6–5.4 statistically significant, >5.4 highly significant. While a parametric approach is more useful in studying Mendelian disorders, a nonparametric approach has greater advantage in studying disorders without any known clear mode of inheritance. *(Ref. 3, pp. 192–193)*

43. (d) Fluorescence in situ hybridization (FISH) is one of the most popular and useful techniques in molecular cytogenetic studies. The technique uses molecular probes to identify susceptible genes by identifying individuals with particular chromosomal abnormalities, such as translocations, deletions, and duplications, etc. *(Ref. 3, pp. 195–196)*

44. **(b)** Arrays of SNPs can be fabricated on glass or nylon slides, which allows researchers to investigate hundreds of thousands of genetic markers simultaneously in a single reaction. This provides a systemic way to screen and survey polymorphisms across the entire genome. This technology has transformed molecular biology into a new era, and significantly improved efficiency and decreased cost in genome studies. *(Ref. 3, p. 197; Ref. 5, p. 317)*

45. **(a)** Precocity of babies occurs in traditional and nonindustrialized societies; that is, African babies raised in traditional fashions reach more advanced levels of motoric functioning during infancy than do their European and American counterparts. This was believed to be due to the deliberate teaching of infants by caregivers in African countries regarding how to walk and sit and the encouragement of practice. *(Ref. 3, pp. 59–60)*

46. **(a)** Children with failure to thrive may present with developmental difficulties in many areas, but do not have a characteristic diagnostic developmental pattern. Language/communication development is linked with social/environmental factors and influences. Qualitative observation of children's interactions with others in different settings, such as their motivations, problem-solving processes, and affective states, is an important part of assessing children even if they have average developmental profiles. It is also important in evaluating children with discrepancies across different developmental domains. *(Ref. 3, p. 259)*

47. **(b)** Development of a theory of mind is a developmental achievement that allows children to see the world in both physical and nonphysical ways through the lens of mental states. Their understanding of themselves and others are greatly expanded. During an early stage, the capacity can fluctuate, especially in stressful situations. The development of this capacity can be delayed in disadvantaged children, such as children with severe traumas and/or neglect. *(Ref. 3, p. 262)*

48. **(e)** Preschool kids may play with imaginary friends when there are no real friends nearby. Some surveys show that they often insist on their reality and their boundary between reality and fantasy is often blurred. Creating imaginary friends may reflect their concerns and anxiety. It is often *not* easy to distinguish whether their use of imaginary companionship is normal or not, especially in younger children, which may require evaluating them in multiple settings over time. *(Ref. 3, pp. 263–264)*

49. **(c)** Preschoolers need reassurance that indicates their teachers or nannies did not leave because of them, and visiting with their previous teachers and nannies may be helpful, as well as pictures, letters, and phone calls. "Clean breaks" rarely help with their separations. *(Ref. 3, p. 264)*

50. **(e)** Even though certain significant behavioral problems in early childhood are predictive of later behavioral difficulties, aggression in preschoolers does not necessarily predict aggression in school-aged children. Actually, by ages 3 and 4 children's physical aggression is transformed into more verbal aggression, such as shouting, yelling, and name calling because of their improved language skills. By ages 5 and 6 overall aggression diminishes and tends to focus more on their social situations and needs, compared to younger children, whose aggression focuses on their physical needs and desires. *(Ref. 3, pp. 265–266)*

51. **(c)** Piaget characterized the preoperational child as having two substages: the substage of symbolic activity (2–4 years old) and the substage of decentration (4–7 years old). The preoperational child is extremely egocentric. Piaget used the concept of circular reactions in describing the sensorimotor stage. Children are not capable of mastering the concepts of conservation, classification, and seriation until the concrete operational stage. The ability to think abstractly does not fully appear until the stage of formal operations. *(Ref. 6, pp. 26, 133–136)*

52. **(a)** Clinical studies of attachment are helpful in understanding most of situations listed. Insecure attachment can potentially foreshadow later development problems; however, the outcomes may be influenced by many factors and may not be necessarily fixed or inevitable. *(Ref. 3, pp. 711–718; Ref. 6, pp. 137–141)*

53. **(a)** Measures of temperament developed by Chess and Thomas include nine dimensions: activity level, rhythmicity, approach-withdrawal, adaptability, responsiveness, intensity of reactions, quality of mood, distractibility, and attention span. Three constellations of temperament were proposed including: easy temperament, difficult temperament, and slow-to-warm-up temperament. Recent studies showed that certain alleles of a dopamine receptor gene DRD4 are associated with novelty-seeking temperamental traits, which highlighted the genetic influences on temperament. However, studies also showed significant environmental influences. *(Ref. 5, pp. 3344–3345)*

54. **(e)** Epidemiologic studies did not provide any evidence to show that at this stage adolescents are characterized by overwhelmed alienation, profound angst, and significant disruptive family relationships even though most striking changes can be seen in terms of their physical, emotional, and behavioral presentations. *(Ref. 5, pp. 3357–3358)*

55. **(c)** Adolescents in late adolescence may gradually move to solid identity formation when they continue to actively explore their academic pursuits, musical and artistic talents, athletic participations, and social bonds. The rest of the statements in the questions correctly describe the characteristics of middle adolescence. *(Ref. 5, pp. 3358–3359)*

56. **(d)** Unfortunately the 2005 YRBSS study showed the use of tobacco, alcohol, and marijuana in late adolescence is higher than in middle adolescence, and also showed that about 17% of 12th graders drove after consuming alcohol and 30% of 12th graders also took rides with drivers who had been drinking. *(Ref. 5, p. 3359)*

57. **(d)** Two additional hypothalamic peptides (growth-hormone-releasing hormone and somatostatin) play a role in puberty development by promoting growth hormone from the pituitary gland. *(Ref. 5, p. 3359)*

58. **(e)** The primary sex characteristic in males is development of sperm by the testes and ejaculation. Thickening of the skin, broadening of shoulders, and the development of facial hair are all secondary sexual characteristics in males. *(Ref. 5, pp. 3359–3360)*

59. **(c)** Adolescent girls' ovarian follicles produce sufficient estrogen in Tanner stages 3–4 when menarche occurs. During these stages ovulation occurs every 28 days until menopause. *(Ref. 5, p. 3360)*

60. (e) Lawrence Kohlberg proposed three levels of morality, which are further divided into six types/stages. In the postconventional level and in stage 5, adolescents are more flexible in their thinking of "right" or "wrong" and they have achieved abilities to interpret complex moral dilemmas, and the concept of "extenuating circumstances" is understood. Here are the stages:

Level I. Preconventional morality
Type 1/Stage 1. Punishment and obedience orientation
Type 2/Stage 2. Agreement to obey in return for reward
Level II. Morality of conventional role conformity
Type 3/Stage 3. Good-boy morality
Type 4/Stage 4. Authority-maintaining morality
Level III. Morality of self-accepted moral principles
Type 5/Stage 5. Morality of democratically accepted law
Type 6/Stage 6. Morality of individual principles of conscience. *(Ref. 5, pp. 3354–3355, 3361; Ref. 6, p. 3)*

61. (e) During adolescence girls have more significant drop in their self-esteem than boys according to a recent study on global measures of self-esteem in adolescence and young adulthood. The data might reflect the "inflated" self-esteem of school-aged children, which was realized by late adolescents when they became more aware of their shortcomings and had more realistic views of themselves. *(Ref. 5, pp. 3361–3362)*

62. (e) Based on recent functional MRI studies of social cognition, girls (not boys) not only demonstrated diminished activities in the left amygdala when presented with fearful faces, but they also showed higher activities in the dorsolateral prefrontal cortex, which may reflect increased maturity in the regulation of emotions compared to their male counterparts. *(Ref. 5, p. 3362)*

63. (d) Neuroendocrine influence in the early stage of development can be long lasting and permanent. The HPA axis is one of the neuroendocrine pathways (among others, such as the somatotropic axis, hypothalamic-pituitary-thyroid axis, and hypothalamic-pituitary-gonadal axis) that may play important roles in regulating brain development. All the listed conditions can be related to the dysfunction of the HPA axis *except* for the psychosocial dwarfism that is believed to be associated with the hyposecretion of growth hormone (a dysfunction of the somatotropic axis). *(Ref. 3, pp. 164–165)*

64. (b) The initiation of transmission is accompanied by (1) the release of the presynaptic neurotransmitter, (2) the binding of the neurotransmitter to postsynaptic receptors, (3) the activation of receptors, and/or (4) the regulation of secondary messengers. The termination of the transmission is the result of (1) the ending of the excitation of the presynaptic terminal, (2) the depletion of the neurotransmitter, (3) the binding of the neurotransmitter to the presynaptic receptors, which turns off the release of the neurotransmitter, (4) the reuptake of the neurotransmitter by the presynaptic terminal, and/or (5) metabolism of extracellular enzymes, which depletes the neurotransmitter available in the synaptic cleft. *(Ref. 3, pp. 235–236)*

65. (e) The basal ganglia, consisting of five subcortical interconnected parts (caudate nucleus, putamen, globus pallidus, subthalamic nucleus, and substantia nigra), plays an important role in maintaining and regulating motor and some autonomic functions through its connections/circuits to the cortex. It is also believed that dysfunction of the basal ganglia or/and the associated circuits are involved in some neuropsychiatric conditions (especially the conditions related to motor and attention dysfunctions) such as Parkinson's disease, OCD, and ADHD. The basal ganglia appear to participate in enabling particular movements and controlling their sequencing, rather than directly initiating their occurrence. *(Ref. 3, pp. 433–436; Ref. 6, pp. 29–34, 3672)*

66. (b) The capacity for declarative memory is not fully developed during the first 3 years of children's life. Instead of having difficulty in retrieving early memories, children do not store their conscious declarative memories in organized ways. The early memories are formed in very fragmented ways, which are tied to the specific context of an infant's understanding of the world, and not imbued with meaning or a complex understanding of the events. *(Ref. 5, p. 672)*

67. (c) Even though condemned by many cultures for a long time, masturbation is very prevalent throughout people's lifetime. Studies showed couples in a steady relationship continue to masturbate. When masturbation becomes a compulsion and out of the person's willful control it is considered pathological. It is also considered to be abnormal if it is the only sexual activity of the person who has an available intimate partner. *(Ref. 5, 2033–2055)*

68. (e) Desire aversion or sexual aversion is not a phase of normal physiological responses to sexual stimulation. The normal phases include *desire, excitement, orgasm,* and *resolution.* Under DSM-5 major sexual dysfunctions include delayed ejaculation, erectile disorder, female orgasmic disorder, female sexual interest/arousal disorder, genito-pelvic pain/penetration disorder, male hypoactive sexual desire disorder, premature (early) ejaculation, and substance/medication-induced sexual dysfunction. *(Ref. 4, pp. 423–450; Ref. 5, pp. 2035–2040)*

69. (d) The overwhelming majority of research examining the endocrine system failed to show significant correlations between atypical levels of sex hormones and homosexuality. However, recent studies showed possible correlations between the timing and amount of prenatal exposure to certain hormones (such as androgen) and subsequent sexual orientation. Homosexual contacts are more frequent in early adolescence, some of which are transient and do not necessarily lead to sexual orientation as gay/lesbian or homosexual. Strong evidence exists to support both genetic and environmental influences in the establishment of homosexuality based on twin studies. *(Ref. 5, pp. 2060–2073)*

70. (b) The authoritative parenting style is considered as generally optimal in fostering children's resilience, which is characterized by the appropriate balance of parental warmth and firm, consistent, and reasonable supervision and control. Warmth and control are two essential elements of "good parenting." High warmth plus lax discipline and control or low warmth plus strict discipline/control are both less optimal approaches. *(Ref. 3, pp. 293–296)*

Matching

71. (e); 72. (d); 73. (b); 74. (a); 75 (c) Symbolic play emerges in infancy when children begin to combine words and gestures in

order to label objects in relationship to their needs, and to use the objects in representational ways. In younger children, parallel play is more dominant than reciprocal play that involves interactive reciprocal exchanges among the children. Secure attachment depends on the children's capacity of having a stable internal representation of the availability of their caregivers. The tendency of children's attribution of living qualities to a nonliving object is called animism. Egocentrism refers to the lack of ability of young children to see others' perspectives, being self-centered. *(Ref. 1, p. 20)*

76. (c); 77. (b); 78. (d); 79. (a) In addition to the foregoing relationships, Piaget's sensorimotor stage correlates with Freud's oral stage, his preoperational stage correlates with Freud's anal and phallic stages, his concrete operational stage correlates with Freud's latency stage, and his formal operational stage correlates with Freud's adolescence stage. *(Ref. 6, pp. 26, 196, 200, 209)*

80. (a); 81. (g); 82. (f); 83. (e); 84. (d); 85. (c); 86. (b) Hormonal production and secretion are regulated by neuronal secretory products from the hypothalamus. Such products are considered as regulating hormones that are responsible for acting on the pituitary to regulate the release of target hormones that in turn directly act on other peripheral endocrine organs. *(Questions 80–86: Ref. 5, p. 162)*

87. (b) John Bowlby utilized developmental psychology and evolutionary biology to propose that infant-mother attachment not only is a result of the mother's association with the gratification of urges, but also is due to species-typical behaviors that evolved to promote infant survival. *(Questions 87–92: Ref. 5, pp. 788–870; Ref. 6, pp. 26–29, 191–226)*

88. (c) "Assimilation" and "accommodation" were terms Piaget used to describe the way the organism creates and adapts to new knowledge.

89. (a) Winnicott used the term "transitional object" to describe the first "not-me" object, such as a soft blanket or a cuddly toy used for comfort when the mother is unavailable to provide comforting.

90. (e) Klein postulated a rich inner life of the infant with many sexual and aggressive fantasies. "Reparation" was a term she used to refer to the return to the mother after she became the object of the infant's fantasized attacks for withholding gratification.

91. (f) In their New York Longitudinal Study, Chess and Thomas utilized the terms "goodness of fit" and "poorness of fit" to describe the match of the infant's temperament with the environment/caregivers.

92. (d) Anna Freud strove to create a developmental theory based on the unfolding of sexual and aggressive urges in relationship to the child's parents and environment.

93. (c) Denial is an unconscious mechanism that allows the adolescent to avoid awareness of thoughts, feelings, wishes, needs, or external reality factors that are consciously intolerable. *(Questions 93–108: Ref. 5, pp. 810–811; Ref. 6, pp. 202–203)*

94. (f) Projection (projection of guilt) is the unconscious mechanism whereby an unacceptable impulse, feeling, or idea is attributed to the external world.

95. (j) Splitting occurs when the adolescent unconsciously views people or events as being at one extreme or the other.

96. (n) Acting out takes place when unconscious emotional conflicts or feelings are expressed in an arena that is different from the one in which they arose. Generally, acting out is a feeling expressed in actions rather than in words.

97. (d) Regression is a partial or symbolic return to more infantile patterns of reacting or thinking.

98. (k) Counterphobia is seeking out experiences that are consciously or unconsciously feared.

99. (o) Identification occurs when a person unconsciously patterns himself or herself after some other person (role modeling or imitation is similar to identification, but is a conscious process).

100. (e) Reaction formation unconsciously transforms unacceptable feelings, ideas, or impulses into their opposites.

101. (a) Repression (unconscious) and suppression (conscious) occur when unacceptable thoughts, wishes, or impulses that would produce anxiety are pushed out of awareness.

102. (b) Displacement takes place when emotions, ideas, or wishes are transferred from their original source or target to a more acceptable substitute.

103. (i) Isolation of affect is the separation of ideas or events from the feelings associated with them.

104. (m) Rationalization uses reasoning and "rational" explanations, which may or may not be valid, to explain away unconscious conflicts and motivations.

105. (h) Intellectualization controls affects and impulse by analyzing through excessive thought without experiencing the feeling.

106. (p) Sublimation unconsciously replaces an unacceptable feeling with a course of action that is personally and socially acceptable.

107. (l) Humor is used defensively to relieve anxiety caused by the discrepancies between what one wishes for himself or herself and what actually happens.

108. (g) Altruism is a seemingly unselfish interest in the welfare of others.

109. (c) Most noradrenergic neurons in the brain arise from the locus ceruleus and are thought to play a role in anxiety and panic disorders. *(Questions 109–112: Ref. 3, pp. 238–243)*

110. (a) Dopamine is the major neurotransmitter in the pigmented substantia nigra that degenerates in Parkinson's disease.

111. (b) The midline raphe nuclei contain serotonin, which is important in sleep and some types of depression.

112. (d) Cholinergic neurons have both long-ranged projections and short-ranged projections, and locate in the basal forebrain (septum, diagonal band, and nucleus basalis of Meynert).

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2

NEURODEVELOPMENTAL DISORDERS

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QUESTIONS

Directions: Select the best response for each of the questions 1–78.

1. Significant changes have been made in DSM-5. Which of the following statements is *not* a correct description of such changes?

a. DSM-5 dropped the Axis system.

b. Attention-deficit/hyperactivity disorder (ADHD) is included in a group of conditions under "neurodevelopmental disorders."

c. DSM-5 is organized on developmental and lifespan considerations, and it no longer contains a section for "disorders usually first diagnosed in infancy, childhood, or adolescence" as DSM-IV did.

d. Clinicians can use "other specified" and "unspecified disorder" based on their clinical decision, which provides maximal flexibility for clinicians to make diagnoses.

e. Oppositional defiant disorder (ODD) and conduct disorder (CD) are included in a group of conditions under "neurodevelopmental disorders."

2. Significant changes have been made in DSM-5 regarding diagnosing autism spectrum disorders. All of the following descriptions reflect such changes *except:*

a. DSM-5 uses the term "autism spectrum disorder" to replace the pervasive developmental disorders in DSM-IV.

b. Autism spectrum disorder and ADHD are no longer mutually exclusive.

c. Asperger's disorder was singled out and was categorized somewhere else.

d. DSM-5 uses three levels to specify the severity.

e. DSM-5 also includes specifiers to describe patients' additional deficits in different areas.

3. Based on DSM-5 clinicians may use all of the following guidelines to evaluate children with possible intellectual disabilities *except:*

a. The term "mental retardation" can be used interchangeably with the term "intellectual disability."

b. Children have to meet three criteria to be diagnosed with an intellectual disability.

c. The three criteria include Criterion A: deficits in intellectual functions, Criterion B: deficits in adaptive functioning, and Criterion C: onset of the deficits during the developmental period.

d. Clinicians should use specifiers to identify the severity of the intellectual disability.

e. There are four levels of severity: mild, moderate, severe, and profound.

4. All of the following statements regarding the diagnostic Criterion A (deficits in intellectual functions) of intellectual disability are correct *except:*

a. Intellectual functions are measured by tests of intelligence that give IQ scores.

b. Individuals with intellectual disability must have approximate scores of less than two standard deviations from population mean.

c. "Flynn effect" may lower the test scores.

d. Invalid scores can be due to the use of brief intelligence screening tests, and the overall IQ score becomes invalid if there are significant discrepancies across subtest scores.

e. Factors that can influence IQ scores include co-occurring disorders, the individual's social cultural background, and the individual's native language.

5. All of the following statements regarding the diagnostic Criterion B (deficits in adaptive functioning) of intellectual disability are correct *except:*

a. Adaptive functioning involves adaptive reasoning in three domains: conceptual (academic) domain, social domain, and practical domain.

b. Both clinical evaluation and psychometric measures are used to assess adaptive functioning.

c. Unspecified intellectual disability is considered when standardized testing is difficult or impossible to administer.

d. Impairments in at least two of the three domains are needed to qualify for Criterion B.

e. The impairments in Criterion B must be directly related to the intellectual deficits in Criterion A.

6. While overall general population prevalence of intellectual disability is approximately 1%, what is the approximate prevalence of severe intellectual disability?

a. 0.05%

b. 0.1%

c. 0.3%

d. 0.6%

e. 0.9%

7. Which of the following disorders or syndromes is *most* likely to have a progressive worsening course of intellectual functioning?

a. Global developmental delay

b. Unspecified intellectual disability

c. San Phillippo syndrome

d. Rett syndrome

e. Cerebral palsy

8. All of the following are genetic or physiological risks and poor prognostic factors associated with intellectual disability *except:*

a. Certain chromosomal disorders
b. Inborn errors of metabolism
c. Neonatal encephalopathy related to delivery
d. Hypoxic ischemic injury
e. Female gender compared to male gender

9. All of the following statements regarding the differential diagnosis of intellectual disability are accurate *except:*

a. A diagnosis of intellectual disability can be assumed with the existence of a medical or genetic condition that commonly causes intellectual disability.
b. Intellectual disability falls under the category of neurodevelopmental disorder, which is distinct from the neurocognitive disorders.
c. Both intellectual disability diagnosis and specific learning disorder diagnosis should be made if full criteria for both conditions are met.
d. Intellectual disability is not unusual among children with autism spectrum disorder.
e. IQ scores of children with autism spectrum disorder can be unstable. Reassessment across developmental stages is important.

10. Which of the following conditions is the *least* common comorbidity with intellectual disability?

a. ADHD
b. Anorexia nervosa
c. Depressive and bipolar disorders
d. Anxiety disorders
e. Stereotypic movement disorder

11. Which of the following conditions is *only* diagnosed at the age of 5 years and older?

a. Autism spectrum disorder
b. Global developmental delay
c. Unspecified intellectual disability
d. Down syndrome
e. Fragile X syndrome

12. In DSM-5 the communication disorders include all of the following conditions *except:*

a. Language disorder
b. Phonological disorder
c. Speech sound disorder
d. Childhood-onset fluency disorder
e. Social (pragmatic) communication disorder

13. Difficulty with discourse is often shown in individuals with language disorder, and is also an important diagnostic criterion for language disorder. Which of the following situations accurately describes the meaning of "impairment in discourse"?

a. A child of age 8 only speaks about 20 single words.
b. A child of age 8 talks about past events using present tenses.
c. A child of age 8 speaks sentences with incorrect sequences of words.
d. A child of age 8 can understand better than he can talk.
e. A child of age 8 cannot summarize an event using a narrative.

14. By which of the following ages are individual differences in language ability *first* felt to be stable and the diagnosis of language disorder more reliable over time into adulthood?

a. At the age of 2
b. At the age of 4
c. At the age of 6
d. At the age of 8
e. At the age of 10

15. Which of the following genetic syndromes or conditions has the *least* impairing effects on language and speech?

a. Williams syndrome
b. Fragile X syndrome
c. Down syndrome
d. Landau-Kleffner syndrome
e. Autism spectrum disorder

16. All of the following descriptions are important aspects of the difficulties found in children with social communication disorder *except:*

a. Children cannot greet people or share information either verbally or nonverbally in social contexts.
b. Children always speak in the same fashion, and are unable to adjust their communication to fit into different settings or contexts.
c. Children often use monosyllabic whole-word repetitions.
d. Children cannot take turns while conversing with their peers, and often miss verbal or nonverbal cues to regulate interaction.
e. Children have difficulty understanding inexplicit or ambiguous meanings of language (e.g., humor, metaphors, idioms, and making inferences).

17. Many studies have been conducted to investigate and explore the etiology of autism spectrum disorder. All of the following are neurobiological findings found in autism *except:*

a. Decreased peripheral serotonin levels more likely than increased
b. Increased head size (macrocephaly)
c. Failure to activate fusiform face region
d. Persistent "primitive" reflexes
e. High rates of EEG abnormality/seizure disorder

18. The performance deficits in face and facial expression recognition in people with autism spectrum disorder have been documented in many research studies that attempted to examine the responsivity to the human face. Compared to typically developing individuals, a child with autism spectrum disorder is *more* likely to focus on which area of a frightening person's face?

a. Hair
b. Forehead
c. Upper half of the face (including eyes)
d. Ears
e. Mouth area

19. Which one of the following factors is the *most* consistently related to the outcome of autism spectrum disorder?

a. Amount of time spent in school
b. Rating of social behavior
c. Comorbid neuropsychiatric disorders
d. Communicative skills
e. Rating of social maturity

20. Which of the following is *least* likely to have co-occurring autism spectrum disorder?

a. Down syndrome
b. Angelman syndrome
c. Tuberous sclerosis
d. Fragile X syndrome
e. Phenylketonuria (PKU)

21. Which of the following genetic variations is *strongly* associated with Rett syndrome?

a. Mutations of MECP2 gene
b. Mutations of FMR1 gene
c. Deletion of an elastin gene
d. Deletion of chromosome 15p11q13
e. Trisomy 21

22. Treatment of autism spectrum disorder can often be challenging. All of the following statements regarding interventions used in treating autism spectrum disorder are accurate *except:*

a. Controlled clinical trials on secretin showed significant improvements compared to placebo.
b. Appropriate educational interventions foster the acquisition of basic social, communicative, and cognitive skills.
c. Behavioral modification procedures can help to promote appropriate behaviors and decrease inappropriate behaviors.
d. Psychotherapy is not usually indicated for children with autism spectrum disorder.
e. No pharmacologic agents used in the treatment of autism spectrum disorder are curative.

23. Modifications of diagnostic criteria for autism spectrum disorder have been made in DSM-5. All of the related statements are correct *except:*

a. More than a total of five core deficits (all three from Criterion A and at least two from Criterion B) must be present.
b. Criterions A, B, and C cover the areas of (1) qualitative impairment in social interaction; (2) qualitative impairments in communication; (3) restricted repetitive and stereotyped patterns of behavior, interests, and activities, respectively.
c. Comorbid diagnosis of intellectual disability should only be made when the intellectual functioning is below that expected for the general developmental level.
d. All of the DSM-IV diagnoses of pervasive developmental disorders such as autistic disorder, Asperger's disorder, and pervasive developmental disorder not otherwise specified are under autism spectrum disorder in DSM-5.
e. Specifiers should be used to identify children with autism spectrum disorder associated with a medical or genetic disorder, e.g., Rett syndrome, Fragile X syndrome.

24. Which of the following numbers reflects an accurate estimate of the population prevalence of autism spectrum disorder across the United States and non-U.S. countries?

a. 0.1%
b. 0.2%
c. Around 0.5%
d. Approaching 1%
e. Approximately 1.5%

25. Autism spectrum disorder is usually a lifelong disorder. Individuals with autism spectrum disorder may have different pathways, courses, and outcomes. All of the following statements regarding the development and course of autism spectrum disorder are correct *except:*

a. Onset of the symptoms is usually recognizable during the second year of life, but may be apparent earlier than 12 months if developmental delays are severe.
b. Most regression or deterioration occurs after the age of 2 years.
c. Initial symptoms frequently involve delayed language accompanied by lack of social interests or unusual social interactions.
d. Autism is not a degenerative disorder, and learning and compensation tend to continue to improve throughout life.
e. Autism spectrum disorder can be first diagnosed in adulthood.

26. About 70% of individuals with autism spectrum disorder may have one co-occurring mental disorder, and 40% of them may have two or more comorbid mental disorders. At times, differential diagnoses can be difficult and confusing. All of the following related statements are correct *except:*

a. In contrast to autism spectrum disorder, in selective mutism early development is usually not disturbed and social reciprocity is not usually impaired.

b. In contrast to autism spectrum disorder, in "language disorder and social communication disorder" nonverbal communication is not usually impaired, and restricted, repetitive patterns of behaviors are absent.
c. In intellectual disability without autism spectrum disorder there is no apparent discrepancy between the level of social-communicative skills and other intellectual skills.
d. Stereotypic movement disorder diagnosis should be given when stereotypic movements exist in children who are diagnosed with autism spectrum disorder.
e. Comorbid diagnosis of ADHD should be given when inattention and hyperactivity exceeds that typically seen in children of comparable mental age.

27. Which of the following tests does *not* specifically measure adaptive functioning during the process of assessing children who might have intellectual disability?
a. Kaufman Assessment Battery for Children, 2nd Edition (K-ABC-II)
b. Vineland Adaptive Behavior Scales, 2nd Edition
c. Battele Developmental Inventory, 2nd Edition
d. Scales of Independent Behavior-Revised (SIB-R0)
e. Supports Intensity Scale (SIS)

28. Which of the following standardized tests of intelligence can be used with children who are nonverbal?
a. Stanford-Binet Intelligence Scales, 5th Edition (SB5)
b. Wechsler Preschool and Primary Scale of Intelligence (WPPSI)
c. Kaufman Assessment Battery for Children, 2nd Edition (K-ABC-II)
d. Differential Ability Scales, 2nd Edition (DAS-II)
e. Leiter International Performance Scale-Revised (Leiter-R)

29. As with other neurogenetic syndromes, Angelman syndrome's clinical presentation can be varied. However, all of the following symptoms are commonly present in individuals with Angelman syndrome *except:*
a. Severe speech delays
b. Ataxia of gait and/or tremulous movements of limbs
c. Frequent irritable and sad demeanor
d. Short attention span
e. Hand flapping

30. Which of the following is *not* a known genetic mechanism that causes Angelman syndrome?
a. Maternal deletion of chromosome 15q11-q13
b. Paternal chromosome 15 uniparental disomy
c. UBE3A
d. Imprinting defects
e. Maternal chromosome 15 uniparental disomy

31. Which of the following is the *least* likely characteristic of Down syndrome?
a. Triplication of chromosome 21 as a common genetic cause
b. Increased risk of Alzheimer's dementia at an early age
c. "Gene-dosage effect"
d. Significant impairments in visual processing and strengths in language skills
e. Relative strengths in social skills

32. All of the following statements regarding Fragile X syndrome are accurate *except:*
a. As a leading cause of inherited intellectual disability, Fragile X syndrome has an incidence of 1/4000 in males and 1/8000 in females.
b. Up to one-fourth of individuals with Fragile X syndrome meet criteria for autism spectrum disorder.
c. Responsible gene: FMR1 is a mutation in the X-linked gene (Xq27.3).
d. Females with the above gene are more likely to have intellectual disability than their male counterparts.
e. Individuals with Fragile X syndrome show more impaired short-term memory, sequential information processing than long-term memory and theory of mind abilities.

33. All of the following statements concerning Rett syndrome are correct based on current knowledge and understanding of the condition *except:*
a. Rett syndrome primarily affects females and rarely occurs in males.
b. X-linked gene MECP2 mutations are responsible for all the cases.
c. Mutations of MECP2 gene lead to inappropriate expression of the gene.
d. Diagnosis is usually made based on clinical features, supported by identified genetic mutation.
e. Rett syndrome is associated with a higher risk of developing scoliosis and arrhythmias with QTC prolongation.

34. Support services for families of individuals with intellectual disabilities are usually available through the Division of Developmental Disabilities of each state. All of the followings are useful resources more geared toward the families and individuals with intellectual disabilities *except:*
a. American Association on Intellectual Disability and Developmental Disabilities (AAIDD)
b. The ARC of the United States
c. Division on Developmental Disabilities of the Council for Exceptional Children
d. Wrightslaw Special Education Law and Advocacy
e. National Alliance for the Mentally Ill (NAMI)

35. All of the following are common characteristics of fetal alcohol syndrome *except:*
a. Microphthalmia (small eyeballs)
b. Short palpebral fissures
c. Midface hyperplasia

d. Smooth or short philtrum
e. Thin upper lip

36. All of the following statements regarding velocardiofacial syndrome are accurate *except:*

a. Velocardiofacial syndrome is also known as Shprintzen syndrome, DiGeorge syndrome, craniofacial syndrome, and 22q11 deletion syndrome.
b. Deletion or mutations of the TBX1gene at 22q11 is believed to be responsible for the phenotypic features of the syndrome.
c. Receptive language skills are more delayed than expressive language skills.
d. The prevalence of this syndrome is between 1/10,000 and 1/4,000 in the United States.
e. Up to 30% of people with this syndrome may develop major psychiatric disorders such as schizophrenia and bipolar disorder.

37. Williams syndrome is caused by a deletion on chromosome 7 and is characterized by distinct facial features, varied degree of intellectual disabilities, connective tissue abnormalities, failure to thrive, growth deficiency, cardiovascular diseases, and a unique cognitive profile. All of the following are accurate descriptions of Williams syndrome *except:*

a. Deletions can occur to a number of genes at 7q11.23 on chromosome 7, thus it is one of the contiguous gene syndromes.
b. Individuals with Williams syndrome have more delayed visuospatial construction whereas they have strengths in verbal short-term memory and language.
c. Individuals with Williams syndrome may have excessively friendly and anxious personality traits.
d. Prefrontal cortices are more impaired compared to the posterior structures.
e. Some studies show deletion of the elastin gene may be responsible for certain characteristics of Williams syndrome.

38. There are no FDA-approved medications that are specifically indicated for individuals with intellectual disability. However, studies show that one-third of this population receives at least one psychotropic drug, which creates significant public concern for "overmedication." Based on the most recent studies, all of the following related statements regarding psychopharmacologic treatment in this population are correct *except:*

a. Risperidone and aripiprazole are not FDA approved for intelligence disability but for the treatment of irritability in individuals with autism spectrum disorder.
b. One recent survey in the United Kingdom showed risperidone was the most commonly prescribed medication by child and adolescent psychiatrists specializing in intellectual disability.
c. The approach of "do not fix something that isn't broken" should be adopted because most patients who receive long-term treatment with antipsychotics do not do well after tapering or discontinuation of the antipsychotics even if they are not used for psychotic symptomologies.
d. Behavioral activation to selective serotonin reuptake inhibitors (SSRIs) occurs more often in children and in individuals with intellectual disability.
e. Clonidine may have a role in treating impulsivity and hyperactivity in children with intellectual disability.

39. All of the following are considered as X-linked recessive disorders *except:*

a. Fragile X syndrome
b. Lesch-Nyhan syndrome
c. Lissencephaly (double cortex)
d. Spinobular muscular atrophy
e. Wilson disease

40. All of the following statements concerning lissencephaly are accurate *except:*

a. Lissencephalies consist of several syndromes such as isolated lissencephaly (ILS), Miller-Dicker syndrome (MDS), and X-linked lissencephaly (double cortex).
b. Disruption of neuronal migration occurs in these conditions.
c. Cortical surfaces have more gyri and sulci due to an increased number of layers.
d. LIS-1 was identified in MDS and was believed to be associated with disruptions of cytoskeletal proteins.
e. X-linked lissencephaly (double cortex) is associated with intellectual disability and epilepsy.

41. DSM-5 has made some modifications in categorizing and diagnosing ADHD. All of the following statements correctly reflect such modifications *except:*

a. ADHD is categorized under neurodevelopmental disorders and separated from oppositional and defiant disorder and conduct disorder (which are under "disruptive, impulse-control, and conduct disorders").
b. Six of nine criteria have to be met for children under age 17.
c. Five of nine criteria have to be met for individuals age 17 and older.
d. Several of the symptoms have to be present prior to age 7.
e. Specifiers can be used to distinguish different presentations (combined, predominantly inattentive, predominantly hyperactivity/impulsivity) and to describe severity (mild, moderate, and severe) and progress (in partial remission).

42. All of the following statements regarding ADHD are accurate *except:*

a. Before age 4, ADHD symptoms are more difficult to distinguish from normative behaviors.
b. Environmental risk factors may include extreme low birth weight, history of child abuse, neglect, multiple foster placements, neurotoxin exposure, infections, and prenatal alcohol exposure.

c. African Americans are more likely to be identified with ADHD than Caucasian populations in the United States.
d. ADHD is highly heritable with elevated prevalence in first-degree relatives.
e. ADHD occurs more frequently in males than in females (with a male:female ratio approximately of 2:1 in children).

43. Family adoption studies, twin studies, and molecular genetic studies on the genetics of ADHD indicate ADHD has a very high heritability. Many genes have been suspected to be related to ADHD and have been studied extensively. People who carry any of the following alleles increase the odds ratio for ADHD *except:*

a. Catecholamine-O-methyl transferase (COMT) gene
b. Dopamine D4 receptor, DRD4 7-repeat allele
c. Dopamine D5 receptor, a dinucleotide repeat near the transcription start site
d. Dopamine transporter, a 10-repeat sequence in the 3'untranslated region
e. Dopamine beta-hydroxylase gene (DBH)

44. Numerous neuroimaging studies have been conducted to identify differences between people with ADHD and control groups. Some structural brain abnormalities were found in ADHD. Here is the list of brain regions that showed smaller volume in ADHD compared to that of control groups with the *exception of:*

a. Prefrontal cortex
b. Hippocampus
c. Caudate
d. Corpus callosum
e. Cerebellum

45. Functional neuroimaging techniques such as single photon emission computed tomography (SPECT), positron emission tomography (PET), functional MRI (fMRI), and proton magnetic resonance spectroscopy (PMRS) can obtain dynamic measures of brain metabolisms at rest and during certain cognitive tasks. All of the following statements correctly describe the findings of the studies using these techniques in studying ADHD *except:*

a. SPECT studies found hypoperfusion in various cortical areas such as the prefrontal cortex, striatum, and cerebellum.
b. fMRI studies found decreased cerebral blood flow to the frontal cortex, prefrontal cortex, and basal ganglia and decreased activation of these regions during certain cognitive tasks.
c. PET studies found decreased glucose metabolism in the prefrontal/frontal and other cortical areas and reduced metabolic rates in the same areas during certain cognitive tasks.
d. Some dopamine transporter (DAT) binding studies using SPECT and PET showed positive findings.
e. PMRS studies found decreased glutamate in the right prefrontal cortex and left striatum.

46. Electroencephalogram (EEG) has been used to study ADHD for many years. All of the following related statements are correct *except:*

a. With computer aid, new analytic approaches have been used including quantitative EEG studies, waveform amplitude studies, power studies, ratio coefficients studies, and coherence studies.
b. Most studies find elevated levels of slow wave activity in children with ADHD compared to children without ADHD.
c. Elevated relative theta power and reduced amounts of relative alpha and beta waves are seen in children with ADHD.
d. Based on EEG studies three models of ADHD are proposed including the maturational lag model, the developmental deviation model, and the hypoarousal model.
e. These models successfully explain the electrophysiological endophenotypes of ADHD.

47. According to DSM-5, based on population surveys which pair of the following numbers reflects ADHD prevalence rates of children and adults respectively?

a. 2% and 1%
b. 5% and 2.5%
c. 7.5% and 5%
d. 10% and 7%
e. 12% and 8%

48. Even though not diagnostic, some soft neurological signs and minor physical anomalies may increase confidence in the ADHD diagnosis. All of the following are such signs or anomalies *except:*

a. Hypertelorism
b. Highly arched palate
c. Macrocephaly
d. Deficits in balance and motor planning
e. Deficits in sensory integration

49. Longitudinal studies on the course of ADHD show a variety of rates of ADHD continuing into adulthood from childhood. Tracking children with only ADHD (no ODD or CD) into adulthood, which of the following numbers reflects the adult ADHD rate based on patient self-report?

a. Under 5%
b. Under 10%
c. About 20%
d. About 40%
e. About 60%

50. Which of the following psychotropic medications is *least* likely to be beneficial in the treatment of ADHD (without comorbidity)?

a. Amphetamine (Adderall)
b. Atomoxetine (Strattera)
c. Clonidine (Catapres)

d. Fluoxetine (Prozac)
e. Bupropion (Wellbutrin)

51. Parent- and teacher-implemented behavior therapy is the only validated psychosocial intervention in managing ADHD. All of the followings are some of the key principles of parent/teacher behavior therapy in treating ADHD *except:*

a. Learning information about the nature of ADHD
b. Learning to attend more carefully to the child's misbehavior and to when the child complies
c. Establishing a home token economy
d. Identifying cognitive distortion
e. Using daily school report card

52. All of the following statements regarding using stimulants to treat ADHD are correct *except:*

a. Research data supports efficacy in both amphetamine agents and methylphenidate agents.
b. Long-acting agents are found to have similar efficacies and safety compared to immediate-release counterparts.
c. Preschool ADHD Treatment Study (PATS) showed preschoolers respond to amphetamine agents with lower dose than school-aged children.
d. It is preferable to start with low dose and gradually titrate it up to optimal dosage.
e. It is acceptable to initiate with a long-acting agent without establishing dose with immediate-release agents.

53. Among all of the following FDA-approved brand-name stimulant agents for ADHD which one is considered a prodrug?

a. Daytrana
b. Concerta
c. Focalin
d. Adderall
e. Vyvanse

54. Based on DSM-5 all of the following statements regarding diagnosis of specific learning disorder are correct *except:*

a. Criterion A lists a total of six symptoms describing difficulties in learning and using academic skills.
b. To diagnose specific learning disorder, at least two of the six symptoms have to be present.
c. Criterion B requests a documented history of impairing learning difficulties, which may be substituted for the standardized assessments for individuals age 17 and older.
d. DSM-5 requires specifying all academic domains and subskills that are impaired by using different coding.
e. Severity can be categorized into mild, moderate, and severe.

55. DSM-5 uses the term "dyslexia" to describe impairment in reading. Which of the following aspects should *not* be included under dyslexia?

a. Problems with accurate word recognition
b. Problems with fluent word recognition
c. Problems with poor word decoding
d. Problems with poor spelling abilities
e. Problems with reading comprehension

56. DSM-5 uses the term "dyscalculia" to describe impairment in mathematics. Which of the following aspects should *not* be included under dyscalculia?

a. Problems with processing numerical information
b. Problems with learning arithmetic facts
c. Problems with performing accurate calculations
d. Problems with performing fluent calculations
e. Problems with math reasoning

57. What is the prevalence of specific learning disorder across the academic domains in school-aged children across different languages and cultures?

a. 1–2%
b. 2–4%
c. 5–15%
d. 15–20%
e. 20–25%

58. The Individuals with Disabilities Education Act (IDEA, Public Law 105–17) was amended in 2004. It recognizes all of the following categories as having a disability *except:*

a. Autism
b. Emotional disturbance
c. Seizure disorders
d. Specific learning disability
e. Visual impairment

59. Based on the reauthorized and amended IDEA of 2004 local educational agencies can choose to use the responsiveness to intervention (RTI) model that has better evidence of support. All of the following are characteristics of the RTI model *except:*

a. Severe discrepancy between IQ and achievement scores is required.
b. Comparison of performance of the student in question with the performance of the student's peers on academic tasks is required.
c. The model is structured primarily by individualized interventions and accommodations with a goal of maximizing the effectiveness of the learning environment.
d. The model is multilayered/multitiered, with each layer/tier offering a chance for further differentiation and individualization of education for students in need.
e. Special learning disability can be established only after these multilayered attempts are failed.

60. Which of the following is *not* one of the central features of the RTI model?

a. High-quality classroom instruction

b. Research-based instruction
c. Classroom performance measures
d. Universal screening
e. Varied duration, time, and frequency of intervention

61. Based on DSM-5 which of the following terms is *not* used under the category of motor disorders?
a. Developmental coordination disorder
b. Stereotypic movement disorder
c. Tourette's disorder
d. Persistent (chronic) motor or vocal tic disorder
e. Transient tic disorder

62. Developmental coordination disorder is *not* commonly diagnosed before which of the following ages?
a. Age 1
b. Age 3
c. Age 5
d. Age 7
e. Age 9

63. All of the following statements regarding diagnosing stereotypic movement disorder based on DSM-5 are correct *except:*
a. Repetitive, seemingly driven, and apparently purposeless motor behavior is present.
b. The behavior interferes with social, academic, or other activities.
c. The behavior is not attributable to the physiological effects of a substance or neurological condition.
d. The behavior persists for four weeks or longer.
e. When the stereotypic movement disorder co-occurs with another medical condition both conditions should be coded.

64. Which of the following is the accurate cut-off duration to distinguish persistent (chronic) motor or vocal tic disorder from provisional tic disorder?
a. Three months
b. Six months
c. One year
d. Eighteen months
e. Two years

65. All of the following statements regarding tics are correct *except:*
a. Tics are involuntary yet can be suppressed with voluntary efforts at certain times.
b. Tics can have a waxing and waning pattern with variable frequency and intensity throughout the day, across months, and even across years.
c. Unlike other movement disorders, tics do not occur during sleep.
d. Premonitory urges can precede tics.
e. Persons with Tourette's disorder may have obsessions that are aggressive, sexual, and religious in nature.

66. During which of the following age groups do symptoms of Tourette's disorder peak?
a. Ages of 2–3
b. Ages of 3–5
c. Ages of 5–8
d. Ages of 8–12
e. Ages of 12–14

67. All of the following statements regarding comorbid conditions with Tourette's disorder are correct *except:*
a. Children with Tourette's disorder have a higher rate of comorbid obsessive-compulsive and related disorders and ADHD.
b. Tics occur about two years prior to the onset of ADHD symptoms.
c. Obsessive and compulsive symptoms commonly occur after the onset of tics around the ages of 12–13.
d. Children with comorbid Tourette's disorder and obsessive-compulsive and related disorders have a higher rate of developing anxiety/mood disorders, oppositional defiant disorder, and conduct disorder.
e. Compared to children with obsessive-compulsive and related disorders children with Tourette's disorder usually have earlier onset of obsessive and compulsive symptoms.

68. All of the following statements regarding genetic etiological factors of Tourette's disorder and other tic disorders are correct *except:*
a. Twin studies suggested a strong genetic component.
b. The possibility of a single gene inherited with an autosomal dominant pattern has not been ruled out.
c. Sib-pair studies do not support association between some candidate genes such as DRD2 and DRD4 on chromosomal regions of 11q22 and 11p15, respectively.
d. Incidence of male offspring of a parent with Tourette's disorder developing tic disorders is higher than female offspring.
e. Frame-shift mutation of the SLITRK1 gene and a microRNA binding site variant were identified in certain people with Tourette's disorder.

69. All of the following statements regarding perinatal etiological factors for Tourette's disorder and other tic disorders are correct *except:*
a. A study found children with tics were at 1.5 times higher risk to have mothers who experienced a complication during pregnancy.
b. In monozygotic twin studies of Tourette's disorder, index twins had lower birth weights than unaffected twins.
c. Potential risk factors may include maternal life stress during pregnancy and severe nausea/vomiting during the first trimester.
d. Premature birth and low birth weight are risk factors.
e. Few prenatal visits are associated with a higher risk.

70. All of the following statements regarding neuroanatomical etiological factors for Tourette's disorder and other tic disorders are correct *except:*

a. Tics are associated with abnormal functioning in basal ganglia and cortico-striatal thalamo-cortical (CSTC) loop circuits.
b. The basal ganglia can be viewed as a way station between intent and action in CSTC loops.
c. Lower total neuron number was found in the globus pallidus pars interna (GPi) whereas a higher neuron number and density was found in the globus pallidus pars externa (GPe) and in the caudate nucleus.
d. Effectiveness of dopamine-depleting agents (tetrabenazine and alpha-methyl-paratyrosine) and dopaminergic receptor antagonists (pimozide, haloperidol) in the reduction of tics provides support for the involvement of CSTC and basal ganglia.
e. MRI studies show smaller caudate volumes in people with Tourette's disorder.

71. All of the following conditions share common anatomic targets (the basal ganglia and related cortical and thalamic sites) *except:*

a. Sydenham's chorea (SC)
b. Tourette's disorder (TS)
c. Obsessive-compulsive and related disorders (OCD)
d. ADHD
e. Major depressive disorder (MDD)

72. There are some common differences between stereotypic movements/behaviors and complex motor tics. Which of the following is *not* characteristic of stereotypic movements/behaviors?

a. An earlier age of onset (2 to 3 versus 6 years)
b. Unilateral in nature
c. More stable presentation over time
d. Less waxing and waning course
e. None of the above

73. According to DSM-5 which of the following diagnoses is *most* appropriately considered for a 20-year-old male who recently started experiencing symptoms characteristic of a tic disorder but the symptoms do not meet the full criteria for a tic disorder?

a. Provisional tic disorder
b. Other specified tic disorder
c. Unspecified tic disorder
d. Other specified neurodevelopmental disorder
e. Unspecified neurodevelopmental disorder

74. All of the following statements regarding non-pharmacological interventions for tic disorders are correct *except:*

a. Education is very important not only for family members, but also for teachers and peers.
b. Advocacy organizations such as the TS Association, the Obsessive Compulsive Foundation, and the Children and Adults with Attention Deficit Disorder can be good resources for the families.
c. Habit reversal training (HRT) is the first behavioral intervention with promising effectiveness.
d. Relaxation training shows significantly better efficacy compared to controls.
e. Strong relationships between therapists and patients predict better outcome when using behavioral interventions.

75. Habit reversal training (HRT) has two main focuses: awareness training and competing response practice. All of the following are components of awareness training *except:*

a. Response description
b. Response detection
c. Early warning procedure
d. Situational awareness training
e. Production of an incompatible physical response

76. Which of the following pharmacologic agents has the *least* evidence for benefit in the treatment of Tourette's disorder?

a. Guanfacine
b. Clozapine
c. Risperidone
d. Ziprasidone
e. Olanzapine

77. M. S. Durkin et al. (2008) studied the relationship between advanced parental age and the risk of autism spectrum disorders in older parents' offspring. They found firstborn offspring of two older parents are more likely to develop autism. Which of the following numbers is the *closest* odds ratio indicated in the study?

a. 1
b. 3
c. 6
d. 9
e. 12

78. Z. Kabir et al. (2011) examined the association between secondhand smoke exposure (SHS) and parent-reported neurobehavioral disorders (ADHD, learning disabilities, conduct disorder, and oppositional defiant disorder) in youth. What is the percentage of increased odds for children exposed to SHS having two or more childhood neurobehavioral disorders compared to those who were not exposed to SHS?

a. 20%
b. 30%
c. 40%
d. 50%
e. 60%

Matching

79–82. For each of the syndromes usually associated with intellectual disability listed below, select one description that fits it *best:*

a. Diet prevents intellectual disability
b. Obesity
c. Microcephaly and medal epicanthal folds
d. Long face and predominant chin

79. Prader-Willi syndrome
80. Down syndrome
81. Phenylketonuria
82. Fragile X syndrome

83–87. A number of neuropsychological tests can be used to measure different aspects of executive functioning. Please match the following specific functioning measured to the listed tests:

a. Continuous Performance Test
b. Wisconsin Card Sorting Test
c. Tower of Hanoi/London
d. Digits Backward Test
e. Self-Ordered Pointing Test

83. Spatial working memory
84. Working verbal memory
85. Planning ability
86. Set shifting
87. Response inhibition

88–90. Levy and Hyman (2008) reviewed existing literature and proposed a grade system to indicate the strength of evidence that supports or refutes particular complementary and alternative medicine treatments for children with autism spectrum disorders as grade A (randomized controlled trials, reviews, and/or meta-analysis), grade B (other evidence such as isolated well-designed controlled and uncontrolled studies), or grade C (case reports or theories). Please match the following specific therapies to the listed grades:

a. Grade A
b. Grade B
c. Grade C

88. Vitamin B6, magnesium, Vitamin C, melatonin, carnosine, dimethylglycine, fatty acids, gluten-free/casein-free diet, auditory integration, and music therapy
89. Yoga, amino acids, folate, oxidative stress, gastrointestinal medications, hyperbaric oxygen therapy, chelation, antibiotics, immune therapies, antifungal agents, chiropractic, craniosacral massage, and massage/therapeutic touch therapies
90. Secretin

ANSWERS AND EXPLANATIONS

1. **(e)** ODD and CD were included in a group of conditions under disruptive, impulse-control, and conduct disorders in DSM-5. In contrast, ADHD was under neurodevelopmental disorders, among others, such as intellectual disabilities, communication disorders, autism spectrum disorder, specific learning disorder, and motor disorders. DSM-5 removed the axis system with the addition of separate notions for important psychosocial and contextual factors and combined Axes I, II, and III, which is more consistent with the ICD coding system. Developmental and lifespan organizational structure in DSM-5 facilitates the comprehensive use of lifespan information to assist in diagnostic decision making. Clinicians' option in using "other specified disorder" or "unspecified disorder" provides clinicians with great flexibility in diagnosis decision-making processes. *(Ref. 4, pp. 11–17, 31–86)*
2. **(c)** Asperger's disorder was not singled out and was subsumed under autism spectrum disorder. The term itself was eliminated. Those individuals who were previously diagnosed with Asperger's disorder under DSM-IV should be diagnosed with autism spectrum disorder under DSM-5. Additional specifiers such as "without accompanying intellectual impairment" and "without accompanying language impairment" can be helpful in identifying the lack of deficits in such areas. Under DSM-5 both autism spectrum disorder and ADHD can be given to the same individual. *(Ref. 4, pp. 50–55)*
3. **(a)** The United States Public Law 111–256 (Rosa's Law) replaced the term "mental retardation" with "intellectual disability," and "intellectual disability" used in DSM-5 replaced the "mental retardation" used in DSM-IV. Thus, mental retardation will not be interchangeable with intellectual disability. However, intellectual disability is equivalent to the term of "intellectual developmental disorders" used in the ICD-10-CM coding system. *(Ref. 4, pp. 33–38)*
4. **(c)** "Flynn effect" may artificially increase test scores because of out-of-date test norms and practice effects. Population mean IQ is 100, and 15 points is one standard deviation. Thus, two standard deviations lower than population mean is 70. Considering a margin of measurement error of five points, individuals with lower than 65–75 (70+/-5) will meet Criterion A of intellectual disability. Because of a variety of factors that can influence test scores, clinical judgment is needed in interpreting the results of IQ tests. *(Ref. 4, p. 37)*
5. **(d)** Impairments in at least one of the three domains are needed to qualify for Criterion B, and they must be directly related to the intellectual deficits in Criterion A. Many factors (such as sensory and physical impairments, severe behavioral problems, locomotor disability, and co-occurring mental disorder, etc.) may make it difficult or impossible to administer standardized measures. In such cases, individuals can be diagnosed with unspecified intellectual disability. Clinicians should always use clinical judgment to interpret scores from standardized measures and interview sources. *(Ref. 4, pp. 37–38)*
6. **(d)** While overall general population prevalence of intellectual disability is approximately 1%, the approximate prevalence of severe intellectual disability is 6 per 1000 (about 0.6%). Individuals with severe intellectual disability have limited attainment of conceptual skills, have limited spoken language in terms of vocabulary and grammar, and require support for all activities of daily living. *(Ref. 4, pp. 36, 38)*
7. **(c)** Intellectual disability is generally nonprogressive although the course may be influenced negatively by many factors such as underlying medical or genetic conditions and other co-occurring conditions. San Phillippo syndrome follows a progressive worsening course of intellectual disability whereas Rett syndrome may have periods of worsening followed by stabilization. On the other hand, early and ongoing interventions may improve adaptive functioning throughout the life span, which may also lead to improvement of intellectual functioning. If the improved adaptive skills result from a stable, generalized skill acquisition the diagnosis may no longer be appropriate, whereas the diagnosis is still appropriate if the improvement is contingent on the presence of supports and ongoing interventions. *(Ref. 4, pp. 38–39)*
8. **(e)** In general, males are more likely to be diagnosed with intellectual disability due to possible sex-linked genetic factors and male vulnerability to brain insult. The average male:female ratio is 1.6:1 for mild forms of intellectual disability and 1.2:1 for severe forms. Risk factors for intellectual disability include prenatal factors (genetic syndromes, inborn errors of metabolism, brain malformations, maternal diseases, and exposure to alcohol, drugs, or toxins), perinatal factors (various labor/delivery-related events, e.g. neonatal encephalopathy), and postnatal factors (hypoxic ischemic injury, traumatic brain injury, infections, seizures, and intoxications—lead, mercury). *(Ref. 4, p. 39)*
9. **(a)** A diagnosis of intellectual disability *cannot* be assumed because of the existence of a medical or genetic condition that commonly causes intellectual disability. Intellectual disability diagnosis should be made if Criteria A, B, and C are met, and the genetic or medical condition linked to intellectual disability should be noted as a concurrent diagnosis. Intellectual disability is distinct from neurocognitive disorders, for instance, children with Down syndrome who are diagnosed with intellectual disability may also develop dementia (Alzheimer's disease) later on, in which case, both diagnoses of intellectual disability and neurocognitive disorder may be given. *(Ref. 4, pp. 39–40)*
10. **(b)** Anorexia nervosa is the least likely comorbidity compared to many other conditions such as ADHD, depressive and bipolar disorders, anxiety disorders, autism spectrum disorder, stereotypic movement disorder, impulse control disorders, and major neurocognitive disorder. As a vulnerable population, people with intellectual disability may have limited awareness of risks, which may result in exploitation by others,

victimization, fraud, unintentional criminal involvement, and false confessions. They are at risk for suicide and may also exhibit aggression and disruptive behaviors. *(Ref. 4, pp. 38–40)*

11. **(c)** Unspecified intellectual disability is used for children over the age of 5 years when assessment of the degree of the intellectual disability is difficult or impossible because of the existence of sensory or physical impairments, locomotor disability, severe behavioral problems, or severe co-occurring mental disorder. Prior to age 5, if the clinical severity of intellectual functioning cannot be reliably assessed (e.g., too young to participate in standardized testing), the global developmental delay diagnosis can be given to individuals who fail to meet expected developmental milestones in several areas of intellectual functioning. *(Ref. 4, p. 41)*

12. **(b)** In contrast to DSM-IV, in DSM-5 phonological disorder was eliminated and replaced by speech sound disorder, and expressive language disorder and mixed receptive-expressive language were replaced by language disorder. Stuttering was changed to childhood-onset fluency disorder (stuttering). In addition, social (pragmatic) communication disorder was added. *(Ref. 4, p. 41)*

13. **(e)** As a part of the criteria for diagnosing language disorder, impairment of discourse refers to the inability to put words and sentences together in a narrative way to explain/describe a topic or event(s) or to carry a conversation. Reduced vocabulary (word knowledge) and limited sentence structure (mostly refer to grammar and morphology difficulties) are other important deficits of language disorder. Children with language disorder may have discrepant expressive ability and receptive ability, referring to the production of vocal, gestural, or verbal signs, and ability in receiving and comprehending language signals, respectively. Both aspects should be assessed during the evaluation of children with a possible language disorder. *(Ref. 4, p. 42)*

14. **(b)** Onset of symptoms of language disorder must be in the early developmental period (a criterion based on DSM-5). Even though there are tremendous individual variations in early vocabulary acquisition and word combination, by age 4 such differences become stable. Diagnosis of language disorder obtained at age 4 is likely to be stable over time and to be persistent into adulthood. *(Ref. 4, p. 43)*

15. **(a)** Children with Williams syndrome may have various degrees of intellectual disability, more in the area of visual-spatial deficits, but usually have strength in language and speech such as vocabulary, auditory memory, and social use of language. Children with Landau-Kleffner syndrome may lose their ability for speech and language and become aphasic. All other syndromes/conditions such as autism spectrum disorder, Fragile X syndrome, and Down syndrome can be associated with difficulties in speech and language to various extents. *(Ref. 3, p. 207; Ref. 4, pp. 43–45)*

16. **(c)** Monosyllabic whole-word repetition (e.g., "I-I-I-I saw you") is a feature of childhood-onset fluency disorder (stuttering) among other features such as sound and syllable repetitions, sound prolongations of consonants and vowels, broken words, audible or silent blocking, circumlocutions, and words produced with excess physical tension. All other descriptions are deficits seen in children with social communication disorder, which reflect the pragmatic aspect of communicational difficulties (deficits in understanding and following social rules of verbal and nonverbal communications in real-world situations, changing language based on the needs of the listener and situation, and following rules for conversations and storytelling). *(Ref. 4, pp. 45–48)*

17. **(a)** Many studies showed strong evidence of the importance of neurobiological factors in the pathogenesis of autism spectrum disorder, but no specific bio markers or precise pathogenic mechanisms are identified. Statistically speaking, individuals with autism spectrum disorder showed increased peripheral serotonin level, persistent primitive reflexes, increased head size, changes in brain morphology/cytoarchitecture, more failure to activate the fusiform face region, and high rates of EEG abnormality/seizure disorder. *(Ref. 3, pp. 386–388)*

18. **(e)** Many studies show that people with autism spectrum disorder have reduced levels of responsivity to the human face and performance deficits in face and facial expression recognition, which was evidenced by difficulties in processing certain facial features/information and tendency of focusing on the mouth rather than the eyes when observing social interactions and facial emotional expressions. Typically developing individuals tend to focus on eyes in this situation. *(Ref. 3, pp. 387–388)*

19. **(d)** There are two predictive factors that are more consistently associated with the outcome of autism, including: (1) intellectual functioning and (2) communicative competence. Individuals with low IQ/low intellectual functioning have overall poorer outcomes. *(Ref. 1, p. 392)*

20. **(a)** Autism is found less frequently associated with Down syndrome than in the general population. It is observed more commonly in all of the other syndromes listed. However, these associations are by no means invariable. *(Ref. 3, p. 390)*

21. **(a)** Recent studies showed that 80% of patients with typical Rett syndrome carry one of six known mutations in the encoding region of the X-linked MECP2 gene, which has been considered as the genetic etiology of Rett syndrome. Mutation of the FMR1 gene, deletion of an elastin gene, deletion of chromosome 15p11q13, and Trisomy 21 are possible genetic etiologies of Fragile X syndrome, Williams syndrome, Angelman syndrome, and Down syndrome, respectively. *(Ref. 3, pp. 205–210)*

22. **(a)** Alternative treatments are often used by parents of children with autism spectrum disorder. Even with a lot of anecdotal successful case reports or stories, most such treatments were not rigorously studied or evaluated. However, a series of well-controlled trials of the gut hormone secretin were conducted. But unfortunately, they failed to show significant improvement compared to placebo groups. Evidence shows that appropriate educational interventions are critical; behavioral modification approaches are often helpful; and collaboration among providers is important. Psychotherapy is not usually indicated, but it may be considered in higher-functioning children, e.g. in those without accompanying intellectual or language impairment. At this time, there is no known pharmacological

agent used in the treatment of autism spectrum disorder that is curative. However, some antipsychotics such as risperidone and aripiprazole are clinically effective in reducing irritability and aggression. *(Ref. 3, pp. 392–393)*

23. **(b)** In DSM-IV, Criterions A, B, and C cover the areas of (1) qualitative impairment in social interaction; (2) qualitative impairment in communication; (3) restricted repetitive and stereotyped patterns of behavior, interests, and activities, respectively. But in DSM-5 Criterions A and B are collapsed into current Criterion A, which contains three criteria that must be met for diagnosing autism spectrum disorder. In addition, there are four items in Criterion B describing restricted, repetitive patterns of behavior, interests, or activities (corresponding to Criterion C in DSM-IV) in DSM-5, at least two of which have to be met for the ASD diagnosis. *(Ref. 4, pp. 50–55)*

24. **(d)** The population prevalence of autism spectrum disorder across the United States and non-U.S. countries has approached 1% based on reports in recent years. Although the reasons for the increased prevalence rate are still not fully understood, speculations include the expansion of the diagnostic criteria of DSM-IV, increased awareness, study methodology differences, or a true increase in frequency of autism spectrum disorder. *(Ref. 4, p. 55)*

25. **(b)** Regression and deterioration of autism spectrum disorder usually occur between 12 and 24 months of age compared to that found in Rett syndrome, which occurs usually after the second birthday. During the regressive phase of Rett syndrome, a lot of young girls' presentations are consistent with autism spectrum disorder, but many of them may eventually improve their social communication skills to the point they may no longer meet criteria for autism spectrum disorder. The other condition, childhood disintegrative disorder (previously described in DSM-IV), also has regression that occurs after age two. If there is evidence of poor social and communication skills in childhood, and the criteria are met based on current clinical observations, autism spectrum disorder diagnosis can be given to affected adults. *(Ref. 4, pp. 55–56)*

26. **(d)** A comorbid diagnosis of stereotypic movement disorder should *not* be given when stereotypic movements exist in children who are diagnosed with autism spectrum disorder routinely unless stereotypic movements or repetitive behaviors cause self-injury and become a focus of treatment. *(Ref. 4, pp. 57–59)*

27. **(a)** Kaufman Assessment Battery for Children is a standardized test of intelligence. It is not a test that specifically measures adaptive functioning. Adaptive functioning assessment is an important aspect of evaluating and diagnosing intellectual disability. In addition to all other tests listed in the question, Adaptive Behavior Assessment System, 2nd Edition (ABAS-II) is also a measure of adaptive functioning. The Vineland Adaptive Behavior Scales come with both a "teacher form" and "survey, caregiver, and expanded forms," which provide information from different settings. *(Ref. 1, pp. 155–156)*

28. **(e)** As standardized tests of intelligence both the Leiter International Performance Scale-Revised and the Universal Nonverbal Intelligence Test (UNIT) measure only nonverbal problem-solving and reasoning abilities. That is why they are especially useful for children who are nonverbal or have significant language delays. None of the other tests listed in the question, or the Wechsler Intelligence Scale for Children, 4th Edition (WISC-IV) can be used for children who are nonverbal. *(Ref. 1, pp. 153–155)*

29. **(c)** Frequent laughter and happy demeanor are common in the presentation of Angelman syndrome among other features such as severe developmental delays with severe speech impairment, ataxia and/or tremulous movements in limbs, excitable personality, hand flapping, and short attention span. Other less consistent signs and symptoms may include delayed head growth (microcephaly) by age 2, seizures, abnormal electroencephalography (EEG), feeding problems, drooling, sleep disturbance, hypopigmented skin, strabismus, and prognathia. *(Ref. 1, p. 157)*

30. **(e)** Maternal chromosome 15 uniparental disomy causes almost 30% of Prader-Willi syndrome, and the rest is mostly caused by paternal deletion on chromosome 15q11-q13, the same region implicated in Angelman syndrome. All other listed answers are the known genetic mechanisms that cause Angelman syndrome. In contrast to Angelman syndrome Prader-Willi syndrome presents with unique clinical features such as hypotonia, early obesity, hypogonadism, sleep apnea, and compulsive food-seeking/ hoarding behaviors. *(Ref. 1, pp. 157–159)*

31. **(d)** Significant impairments in language and strengths in visual processing and social skills relative to communication and other adaptive behavior skill domains are observed in individuals with Down syndrome. "Gene-dosage effect" was proposed by Holland et al. in 1998 to explain the phenotype of Down syndrome (genes from chromosome 21 are overexpressed in individuals with segmental trisomies, which contributes to abnormal phenotypic expression: cognitive impairments, muscle hypotonia, short stature, congenital heart disease, and facial dysmorphisms). *(Ref. 1, pp. 157–158)*

32. **(d)** Males with the FMR1 gene are more likely to have intellectual disability than their female counterparts. Cognitive impairments are more in the areas of short-term memory, sequential information processing, and sustaining attention, whereas long-term memory, processing simultaneous information, and theory of mind abilities are relative strengths. Behavioral characteristics can include hyperarousal, hyperactivity, social anxiety, shyness, and gaze aversion. There are also increased risks for schizotypal disorder and ADHD. *(Ref. 1, p. 158)*

33. **(b)** X-linked gene MECP2 mutations are responsible for more than 80% of the Rett syndrome cases. However, discovery was made of mutations in two other genes, CDKL5 and NTNG1. Mutations of MECP2 are suspected of interfering with the transcription and expression of the gene, which is believed to result in the gradual production of toxic products during the developmental period, which also helps to explain the regressive pattern of the condition after initial unremarkable development. With the vast majority of cases occurring in females, it does rarely affect males. Individuals with Rett syndrome have increased risk of developing QTC prolongation, so caution

should be made in prescribing certain medications that may exacerbate such a problem. In the middle 20s they may develop scoliosis, which can limit mobility. *(Ref. 1, pp. 158–159; Ref. 3, pp. 208–210)*

34. **(e)** The National Alliance for the Mentally Ill (NAMI) is a foundation that offers an array of free education and support programs for individuals, family members, providers, and the general public, and helps build better lives for the millions of Americans with mental illness (but not specifically for people with intellectual disabilities). In addition to all other organizations or agencies listed in the question, the National Dissemination Center for Children with Disabilities (NICHCY) is a useful resource for individuals with intellectual disabilities and their families. Other support services may include respite care, in-home behavioral interventions, and crisis interventions. *(Ref. 1, pp. 165–166)*

35. **(c)** Midface hypoplasia (underdevelopment) can be a common characteristic of fetal alcohol syndrome. Individuals with fetal alcohol syndrome can also have growth retardation of weight and height, microcephaly, and may suffer from hyperactivity, attention deficits, learning disabilities, intellectual deficits, and seizures. *(Ref. 6, p. 20)*

36. **(c)** Receptive language skills are usually less delayed than expressive language skills, although overall speech difficulty, defects in phonation, language acquisition, comprehension, and social communication are all significant concerns for children with the syndrome. *(Ref. 1, p. 159)*

37. **(d)** Frontal cortices and the limbic system are relatively more preserved compared to the posterior structures such as parietal and occipital cortices that are known to be involved in visual processing. Elastin is involved in development of skin, blood vessels, and lung tissues, and deletion of such a gene may explain the vascular abnormalities and special facial features of the syndrome. Studies also show the deletion of another gene named LIM kinase in this region may cause abnormalities in synaptic morphology and deficits in learning. *(Ref. 1, p. 159; Ref. 3, pp. 207–208)*

38. **(c)** While whether an approach of "do not fix something that isn't broken" should be adopted is still debatable, a study showed some of the patients who received long-term treatment of antipsychotics could still do well after tapering or discontinuation of the antipsychotics that were not used for psychotic symptomologies, and showed people who did not do well on lower dosages did not require the higher dosages that they used to take. *(Ref. 1, pp. 163–164)*

39. **(e)** Wilson disease is an autosomal recessive disorder, and is caused by point mutations and deletions (copper-transporting ATPase) at 13q14.21. In addition to the rest of the disorders listed in the question, Duchenne dystrophy, Becker dystrophy, and Rett syndrome are all X-linked recessive disorders. *(Ref. 3, p. 201)*

40. **(c)** The cortical surface is smoother with an abnormal pattern of gyri and sulci and decreased number of layers from six to four in affected individuals of lissencephaly. *(Ref. 3, pp. 210–211)*

41. **(d)** In contrast to DSM-IV, which used age 7 as cut-off age for which some of the ADHD symptoms have to be present, DSM-5 requires several symptoms be present prior to age 12. In DSM-5 ADHD is still separated into three types, but called "presentations" (combined presentation, predominantly inattentive presentation, and predominantly hyperactive/impulsive presentation). There are still a total of nine criteria in each category, and six of nine are required for children and young adolescents, but only five of nine are needed for older individuals (age of >17). Different specifiers are designed for different purposes. Again, autism spectrum disorder is no longer a mutually exclusive condition. *(Ref. 4, pp. 59–61)*

42. **(c)** African Americans and Latino Americans are *less* likely to be identified with ADHD than Caucasian populations in the United States. This might be related to cultural variations in attitudes toward or interpretations of children's behaviors. Because of highly variable normative behaviors of toddlers before age 4 ADHD symptoms are less stable. In preschool, hyperactivity and impulsivity are more dominant, and inattention becomes more prominent during elementary school. In adolescence, whereas hyperactivity and impulsivity subside, inattention can be more persistent. *(Ref. 4, pp. 61–63)*

43. **(a)** Pooled data showed no association between catecholamine-O-methyl transferase (COMT) gene and ADHD. However, in addition to the other genes listed in the question, synaptosomal-associated protein (SNAP-25 gene), SLC6A4 serotonin transporter gene, and serotonin 1 B receptor (HTR1B) gene are associated with increased risk for ADHD. *(Ref. 1, p. 209; Ref. 3, pp. 433–435)*

44. **(b)** Instead of associations with the decreased volumes of many different brains regions, the hippocampus showed increased volume bilaterally in a large sample of children with ADHD compared to the control group. *(Ref. 1, p. 210; Ref. 3, pp. 433–435)*

45. **(e)** PMRS studies found elevated glutamate in the right prefrontal cortex and left striatum. A few SPECT studies showed elevated DAT binding in ADHD subjects compared to controls, and a PET study also showed elevated DAT binding in the striatum in ADHD subjects compared to controls, which provides additional evidence supporting the role of dopamine in the etiology and treatment response of ADHD. Most studies consistently show hypoperfusion of frontal/prefrontal and striatal areas and reduced cerebral activation during certain cognitive tasks in children with ADHD. *(Ref. 3, pp. 436–437)*

46. **(e)** In an attempt to separate ADHD into different subtypes based on EEG studies, none of the models can account for the complex clinical presentation of ADHD. Attempts have been made to combine EEG and event-related potentials (ERPs) techniques to identify the electrophysiological endophenotypes of ADHD, but more studies are needed. *(Ref. 3, p. 436)*

47. **(b)** Across different cultures, prevalence of ADHD is 5% and 2.5% in children and adults respectively. *(Ref. 4, p. 61)*

48. **(c)** Macrocephaly is not a physical anomaly commonly seen in children with ADHD. Children with autism spectrum disorder may have macrocephaly at times. Children with ADHD do commonly show difficulty in balance and motor control and deficits in sensory integration. Data suggest significant correlation between the soft neurological signs and decreased cerebral

blood flow in frontal lobes in children with ADHD. Medical history and a physical exam may help to elicit such signs and anomalies. *(Ref. 3, p. 439; Ref. 4, p. 62)*

49. (b) Tracking children with ADHD without comorbidity or using self-report showed fewer than 10% of adults still have ADHD. However, other studies that included children with comorbidity and used parent reports showed rates of 49–67% of ADHD persistence into adulthood. Studies also showed higher risk of developing other psychopathologies in adults such as antisocial behavior, injuries, accidents, unemployment, marital conflicts, health problems, teen pregnancies, and substance-related and addictive disorders. *(Ref. 1, p. 211)*

50. (d) First-line treatments of ADHD are still stimulants or atomoxetine. Other alternatives may include Intuniv, Kapvay, clonidine, guanfacine (Tenex), bupropion (Wellbutrin), etc. However, SSRIs have not been found effective in treating core symptoms of ADHD although they can be considered in the treatment of comorbid conditions such as depression and anxiety. *(Ref. 1, pp. 214–217; Ref. 3, pp. 443–445)*

51. (d) Identifying cognitive distortion is a technique used in cognitive behavioral therapy (CBT). However, CBT has not been shown effective in treating children with ADHD. Behavior therapy is a mainstream validated treatment approach in which a number of key principles are applied: learning information about the nature of ADHD, learning to attend more carefully to the child's misbehavior and to when the child complies, establishing a home token economy, using timeout effectively, managing noncompliant behaviors in public settings, using a daily school report card, and anticipating future misconduct. *(Ref. 1, p. 216)*

52. (c) The Preschool ADHD Treatment Study (PATS) funded by NIMH showed preschoolers responded to methylphenidate agents with lower dose (0.7mg/kg/day) than school-aged children (in MTA study). *(Ref. 1, pp. 214–216; Ref. 3, pp. 443–445)*

53. (e) Vyvanse (lisdexamfetamine dimesylate) is a d-amphetamine that is bound to the amino acid l-lysine. This is a nonactive compound until it is converted to d-amphetamine in the body after d-amphetamine broken apart from l-lysine results from enzymatic hydrolysis following oral administration. Speed of conversion of Vyvanse, the prodrug, to the active compound: d-amphetamine is dependent on the rate-limited production of the appropriate enzyme (lysinase) that is responsible for the hydrolysis, which creates the long-acting fashion of this drug. *(Ref. 1, p. 688)*

54. (b) To diagnose specific learning disorder, at least one of the six symptoms listed in Criterion A has to be present. Each two of six symptoms are used to describe difficulties in reading, written expression, and mathematics, respectively. Even when the onset of learning difficulties starts during the early school years, they may not become apparent or fully manifested until the academic demands exceed the individual's capacities to cope. DSM-5 also requires that the learning difficulties cannot be better explained by intellectual disabilities, uncorrected visual/auditory impairments, other mental or neurological conditions, psychosocial adversity, lack of proficiency in the language of academic instruction, or inadequate educational instruction. *(Ref. 4, pp. 66–67, 70–71)*

55. (e) Difficulty with reading comprehension is not included in dyslexia. Dyslexia refers to a pattern of learning difficulties and problems with accurate or fluent word recognition, poor decoding, and poor spelling abilities. Reading comprehension should be specified as additional difficulty if applicable if *dyslexia* is chosen to describe reading impairment. *(Ref. 4, P. 67)*

56. (e) Difficulty with math reasoning is not included in dyscalculia. Dyscalculia refers to a pattern of learning difficulties and problems with processing numerical information, learning arithmetic facts, and performing accurate or fluent calculations. Math reasoning should be specified as an additional difficulty if applicable if *dyscalculia* is chosen to describe mathematics impairment. *(Ref. 4, p. 67)*

57. (c) About 5–15% of school-aged children across different languages and cultures suffer from a specific learning disorder across the academic domains of reading, writing, and mathematics. In the adult population the prevalence is unknown with an estimation of 4%. *(Ref. 4, p. 70)*

58. (c) The Individuals with Disabilities Education Act (IDEA, Public Law 105–17) was amended in 2004, and it recognizes 13 categories under which a child can be identified as having disability including: "autism; deaf-blindness; deafness; emotional disturbance; hearing impairment; mental retardation; multiple disabilities; orthopedic impairment; other health impairment; traumatic brain injury; and visual impairment." Seizure disorders are not considered as one of the categories. *(Ref. 3, p. 411)*

59. (a) The most widely used model to identify special learning disabilities prior to the 2004 reauthorization of IDEA was the aptitude-achievement discrepancy model that required severe discrepancy between IQ and achievement scores (e.g., two standard deviations, two years of age equivalence). Since 2004, local educational agencies can choose to use different diagnostic models. RTI is considered an evidence-supported model that has a number of characteristics illustrated in answers (b) through (e). Answer (a) describes the characteristic of the discrepancy model. With the amendment of IDEA, local educational agencies find it really challenging to fully implement the RTI model. *(Ref. 3, pp. 412–415)*

60. (e) Varied duration, time, and frequency of intervention is one of the common attributes of different RTI models, which are concepts of: (1) multiple tiers, (2) transition from instruction for all to increasingly intense interventions, (3) implementation of differentiated curricula, (4) instruction delivered by staff other than the classroom teacher, (5) varied duration, time, and frequency of intervention, and (6) categorical or noncategorical placement decisions. Eight central features of the RTI were identified including: (1) high-quality classroom instruction, (2) research-based instruction, (3) classroom performance monitoring, (4) universal screening, (5) continuous progress monitoring, (6) research-based intervention, (7) progress monitoring during intervention, and (8) fidelity measures. *(Ref. 3, p. 416)*

61. (e) In DSM-IV there was only one disorder: developmental coordination disorder listed under "motor skills disorder" and tic disorders were categorized separately, including Tourette's disorder, chronic motor or vocal tic disorder, and transient tic

disorder. This latter category is largely preserved in DSM-5 under "motor disorders" with slightly modification; that is, chronic motor or vocal tic disorder was changed to "persistent (chronic) motor or vocal tic disorder" with added specifiers to identify "with motor tics only" or "with vocal tics only." Further, transient tic disorder is no longer used in DSM-5, but is now referred to as "provisional tic disorder." In DSM-5 motor disorders include: developmental coordination disorder, stereotypic movement disorder, and tic disorders. *(Ref. 4, pp. 74–85)*

62. (c) According to the diagnostic criteria of DSM-5 the onset of symptoms of developmental coordination disorder should occur in the early developmental period. However, there is significant variation in the time frame when children acquire their different motor skills and there is a lack of stability of measurement in early childhood. Thus, it is uncommon that a developmental coordination disorder diagnosis is given to children under the age of 5 years. *(Ref. 4, pp. 74–75)*

63. (d) The criteria "the behavior persists for 4 weeks or longer" existed in DSM-IV and was eliminated in DSM-5. In DSM-5 stereotypic movement disorder is allowed to co-occur with other medical or neurogenetic disorders, such as Lesch-Nyhan syndrome, Rett syndrome, Fragile X syndrome, Cornelia de Lange syndrome, and Smith-Magenis syndrome, and both conditions are required to be coded. *(Ref. 4, pp. 77–80)*

64. (c) Both Tourette's disorder and persistent (chronic) motor or vocal tic disorder require at least one year duration of tics that can wax and wane in frequency, which is less than one year in the case of provisional tic disorder. DSM-5 eliminated other time duration requirements mentioned in DSM-IV, that is, not tic-free for more than three months in Tourette's disorder or chronic tic motor or vocal tic disorder, and at least for four weeks in transient tic disorder. Still, all the tic disorders require an age of onset before 18. *(Ref. 4, p. 81)*

65. (c) Unlike other movement disorders, tics *may* occur during sleep. About 75–80% of persons with persistent tic disorder or Tourette's disorder experience premonitory urges such as localized tingling, itch-like sensations, tensions in muscles, or ideation of making sounds, movements, or gestures preceding the tic events. Obsessions can be another type of mental event associated with tics. Compared to people with obsessive-compulsive and related disorders people with persistent motor or vocal tics disorder and Tourette's disorder are more likely to have aggressive, sexual, and religious obsessions and less likely to have obsessions about contaminations, neatness, and cleanliness. Tics can be triggered by emotionally stimulating events, such as exciting, pleasuring, stressful, or distressing situations. *(Ref. 1, pp. 417–418)*

66. (d) The severity of tics of Tourette's disorder tends to wax and wane throughout the course of the disorder, with high variability. Tics can also come in bouts or clusters. However, tic severity starts to dissipate with the onset of puberty and generally peaks at the ages of 8–12 even though a minority of cases can persist into adulthood. *(Ref. 3, p. 571)*

67. (b) When Tourette's disorder and ADHD are comorbid, the ADHD symptoms precede the onset of tics by about two years. Obsessive and compulsive symptoms tend to occur after the peak of tics around the ages of 12–13. However, children with obsessive-compulsive and related disorders without Tourette's disorder comorbidity tend to experience obsession and compulsion during late adolescence. *(Ref. 3, pp. 572–573)*

68. (b) Family and twin studies provide evidence that Tourette's disorder and other tic disorders are fundamentally genetic disorders with much higher concordance rates in monozygotic twins compared to those of dizygotic twins, and high recurrence rates among family members. Although a number of segregation analyses of large multigenerational families implicated the possibility of a single gene(s) inherited with an autosomal dominant pattern in Tourette's disorder, genetic screening of the entire genome through genetic linkage studies has eliminated the possibility of a single gene model of etiology for Tourette's disorder. *(Ref. 3, p. 573)*

69. (e) A case study showed low Apgar score at five minutes and *more* prenatal visits were associated with a higher risk of Tourette's disorder. Limited evidence is available to show smoking and alcohol use or forceps delivery can predispose Tourette's disorder. *(Ref. 3, pp. 573–574)*

70. (c) Higher total neuron number was found in the globus pallidus pars interna (GPi) whereas a lower neuron number and density was found in the globus pallidus pars externa (GPe) and in the caudate nucleus. At the cellular level in the striatum, medium-sized spiney neurons receive afferents using glutamate (excitatory), gamma-aminobutyric acid (GABA, inhibitory), dopamine (D_1 excitatory, D_2 inhibitory), and send inhibitory GABA efferent to the GPi. Dysfunction of spiney neurons caused by the impairment of these neurotransmitter systems causes tic movements. *(Ref. 1, p. 422; Ref. 3, pp. 574–575)*

71. (e) SC, TS, OCD, and ADHD but not MDD share common anatomic targets. Post-rheumatic fever (caused by group A beta hemolytic streptococci [GABHS]), results from central nervous system inflammatory lesions; people with SC often present with motor and vocal tics and obsessive-compulsive and ADHD symptoms, which indicates that these disorders may share a common etiology. *(Ref. 3, p. 575)*

72. (b) It is often difficult to distinguish complex motor tics from other complex repetitive behaviors such as stereotypic movements and behaviors. However, compared to complex motor tics, stereotypic movements and behaviors tend to have earlier onset, occur bilaterally, stay more consistent over time, and usually do not have a waxing and waning course. *(Ref. 3, p. 576)*

73. (b) Other specified tic disorder is used when symptoms characteristic of a tic disorder cause clinically significant distress or impairment in social, occupational, or other important areas but do not meet full criteria for a tic disorder or any of the disorders in the neurodevelopmental disorders diagnostic class, and the clinician chooses to communicate the specific reasons for not meeting the full criteria. In this case, it should be coded as "other specified tic disorder" followed by the specific reason "with onset after age 18 years." If there was no age description in this case the clinician may choose not to specify the reason

that the criteria are not met, then the diagnosis of "unspecified tic disorder" should be given. *(Ref. 4, pp. 81–85)*

74. (d) Relaxation training did not show any significant differences in the terms of efficacy compared to controls. *(Ref. 1, pp. 423–424; Ref. 3, pp. 578–579)*

75. (e) Production of an incompatible physical response is used in "competing response practice" (one of the two focuses of HRT), which makes it impossible to produce the tic (e.g., isometric contraction of tic-opposing muscles). "Awareness training" has four components that were listed as answers (a) through (d). Tics with premonitory urges are good candidates for such intervention. *(Ref. 1, p. 424; Ref. 3, p. 579)*

76. (b) Patients with Tourette's disorder in general respond to haloperidol, fluphenazine, and/or pemozide. α-adrenergic agonists, such as clonidine and guanfacine are especially helpful in mild cases. Some atypical neuroleptics (such as ziprasidone, olanzapine, and risperidone, but not clozapine) are shown to be efficacious in some studies. *(Ref. 1, pp. 424–427; Ref. 3, p. 579)*

77. (b) M. S. Durkin et al. (2008) examined the age effects and birth order on the risk of autism spectrum disorders in 10 U.S. study sites. They found that the firstborn offspring of two older parents (mother aged ≥35 and father aged ≥40) were 3 times (odds ratio: 3.1) more likely to develop autism than third or later-born offspring of younger parents. *(M. S. Durkin et al.: Advanced Parental Age and the Risk of Autism Spectrum Disorder.* Am J Epidemiol*, 168: 1268–1276, 2008)*

78. (d) Z. Kabir et al. (2011) examined an association between secondhand smoke exposure (SHS) and parent-reported neurobehavioral disorders (ADHD, learning disabilities, conduct disorder, and oppositional defiant disorder) in youth. They found that children exposed to SHS at home had 50% increased odds of having two or more childhood neurobehavioral disorders compared to those who were not exposed to SHS. *(Z. Kabir et al.: Secondhand Smoke Exposure and Neurobehavioral Disorders among Children in the United States.* Pediatrics, *128: 263–270, 2011)*

Matching

79. (b) Prader-Willi syndrome, which is associated with the deletion of q11-q13 on chromosome 15 in 70% of cases, is characterized by hypotonia, obesity, small hands and feet, hyperphagia, narrow forehead, downward-slanted palpebral fissures, an IQ between 20 and 80, and frequent behavioral problems. *(Questions 79–82: Ref. 5, pp. 581–585)*

80. (c) Down syndrome, or Trisomy 21, is characterized by microcephaly, hypotonia, medial epicanthic folds, small ears, an IQ range of 25–50, and manifest early symptomatology of Alzheimer's disease.

81. (a) Phenylketonuria is a disorder of amino-acid metabolism in which the infant is normal at birth, but progresses to vomiting and irritability, and then to developmental delay, seizures, microcephaly, and spasticity. A phenylalanine-restricted diet prevents intellectual disability, and prenatal diagnosis is possible.

82. (d) Fragile X syndrome is the most common known inherited cause of intellectual disability. The responsible gene, FMR1, locates on the X chromosome containing CGG trinucleotide repeat (6 to 60 in unaffected individuals). Infants with Fragile X syndrome present with relative microcrania and facial edema while older children and adults present with a long face and a prominent chin.

83. (e); 84. (d); 85. (c); 86. (b); 87. (a) Individuals with ADHD have been identified as having deficits in the executive functions, which refers to higher neurocognitive processes including response inhibition/execution, verbal and spatial working memory, set shifting/task switching, planning/organization, vigilance, and interference control. The Continuous Performance Test assesses response inhibition and vigilance. The Wisconsin Card Sorting Test and Trailmaking Test part B assess set shifting. The Tower of Hanoi/London Porteus Mazes assess planning ability. The Rey-Osterreith complex figure test assesses planning/organization. The Working Memory Sentence Span test and Digits Backward test assess working verbal memory. The Self-Ordered Pointing Test and CANTAB Spatial Working Memory Test assess spatial working memory. *(Ref. 3, pp. 439–441)*

88. (b); 89 (c); 90. (a) Levy and Hyman (2008) reviewed existing literature and proposed a grading system to indicate the strength of evidence that supports or refutes particular complementary and alternative medicine treatments for children with autism spectrum disorders as grade A (randomized controlled trials, reviews, and/or meta-analysis), grade B (other evidence such as isolated well-designed controlled and uncontrolled studies), or grade C (case reports or theories). As a gastrointestinal hormone, secretin is the one that has been most extensively studied for autism. Thus, it was listed under grade A. However, it was concluded that there is no evidence that single- or multiple-dose intravenous secretin is effective for the treatment of autism spectrum disorders, which rejected its use. According to Levy and Hyman, the therapies under grade B are: Vitamin B6, magnesium, Vitamin C, melatonin, carnosine, dimethylglycine, fatty acids, gluten-free/casein-free diet, auditory integration, and music therapy. Yoga, amino acids, folate, oxidative stress, gastrointestinal medications, hyperbaric oxygen therapy, chelation, antibiotics, immune therapies, antifungal agents, chiropractic, craniosacral massage, and massage/therapeutic touch therapies are under the category of grade C. *(S. E. Levy and S. L. Hyman: Complementary and Alternative Medicine Treatments for Children with Autism Spectrum Disorders.* Child Adolesc Psychiatric Clin N Am, *17: 803–820, 2008)*

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3

SCHIZOPHRENIA SPECTRUM DISORDERS AND OTHER PSYCHOTIC DISORDERS

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QUESTIONS

Directions: Select the best response for each of the questions 1–20.

1. Based on DSM-5 which of the following disorders should *not* be considered under the category of schizophrenia spectrum and other psychotic disorders?

a. Schizotypal (personality) disorder
b. Delusional disorder
c. Brief psychotic disorder
d. Schizoaffective disorder
e. None of the above

2. Which of the following terms describes a patient with schizophrenia experiencing decreased motivation of self-initiated purposeful activities?

a. Diminished emotional expression
b. Avolition
c. Alogia
d. Asociality
e. Anhedonia

3. Which of the statements regarding the DSM-5 diagnostic criteria for delusional disorder is *incorrect?*

a. Presence of one or more delusions for at least one month.
b. Never met Criterion A of schizophrenia.
c. Associated behavior can be odd or bizarre.
d. Specifier can be used to identify bizarre content.
e. Assessment measures can be used to specify current severity.

4. Delusional disorder can be categorized into different subtypes such as erotomanic type, grandiose type, jealous type, persecutory type, somatic type, mixed type, and unspecified type. Which of the following subtypes is *most* frequent?

a. Erotomanic type
b. Grandiose type
c. Jealous type
d. Persecutory type
e. Somatic type

5. The DSM-5 criteria for the diagnosis of schizophrenia in children and adolescents are the same as in adults *except for:*

a. Presence of hallucinations
b. Duration of at least six months
c. Level of functioning below the level previously achieved
d. Presence of delusions
e. Presence of negative symptoms

6. Development and course of psychosis can be variable, and onset can be abrupt or insidious, with the majority of cases having a slow and gradual development. Which of the following age groups represents the *peak age* at onset of the first psychotic episode?

a. Early teens
b. Late teens
c. Early to mid-20s for males and late 20s for females
d. Late 20s for males and early 30s for females
e. Early 30s for both males and females

7. Which of the following features is *more* common in children with schizophrenia compared to their adult counterparts?

a. Erotomanic delusion
b. Persecutory delusion
c. Auditory hallucination
d. Visual hallucination
e. Thought insertion

8. Which of the following genetic syndromes/conditions is *most* likely to develop schizophrenia-like psychotic disorder?

a. DiGeorge syndrome
b. Williams syndrome
c. Fragile X syndrome
d. Down's syndrome
e. Angelman syndrome

9. There are some similarities and differences in terms of phenomenology and neurobiology of childhood onset schizophrenia (COS) compared to adult onset schizophrenia (AOS). All of the following related statements are correct *except:*

a. COS has a higher rate of early language, social, and motor developmental abnormalities and premorbid impairments.
b. There is an association of COS with advanced paternal age.
c. Studies show more striking abnormalities in smooth pursuit eye movement (SPEM) in COS than in AOS.
d. Higher rates of familial schizophrenia spectrum disorders were found for COS than for AOS.
e. Abnormalities found in neuropsychological testing for COS are not significantly higher than those found for AOS.

10. Based on recent studies comparing individuals with COS comorbid with autism spectrum disorders (ASDs) to those without ASDs, which of the following is *different?*

a. Age of onset
b. IQ
c. Response to medications
d. Rate of familial schizotypy
e. Rate of gray matter loss

11. Based on studies by Asarnow and colleagues which aspect of the following neurocognitive functioning in COS probands is *not* significantly impaired?

a. Rote language skills
b. Fine motor coordination
c. Attention
d. Short-term memory
e. Learning and abstraction

12. Comorbid psychiatric conditions are common in children with COS. Which of the following conditions is the *most* common one?

a. Depression
b. Obsessive-compulsive disorder
c. Generalized anxiety disorder
d. Attention-deficit/hyperactive disorder
e. Eating disorder

13. Based on recent imaging studies, all of the following statements regarding brain morphology and functioning in youths with schizophrenia are correct *except:*

a. They show increasing ventricular volume.
b. They show decreasing total cortical, frontal, medial, temporal, and parietal gray matter.
c. They show lower ratio of N-acetylaspartate (NAA) to creatine in the frontal lobes.
d. They show higher NAA signals in hippocampal and dorsolateral prefrontal cortical regions.
e. They show mild hypofrontality and abnormal neural circuitry in cerebellum.

14. Based on recent genetic studies, all of the following candidate genes were found to be associated with early onset of schizophrenia (EOS) *except:*

a. Dysbindin gene
b. Neuregulin gene
c. DISC 1 gene
d. DAOA/G30 gene
e. MECP2 gene

15. All of the following statements regarding clinical presentation of schizophrenia in youth are correct *except:*

a. Hallucinations, disorganized thought, and affective flattening are common in EOS.
b. Complex delusions and catatonia occur more frequently in EOS.
c. Loose associations and illogical thinking are commonly seen in EOS.
d. COS tends to have chronic onset with signs in early childhood.
e. Compared to adult onset schizophrenia, EOS commonly presents four phases: prodromal, acute, recovery, and residual. The majority of youth with EOS present with ongoing chronic impairment to a certain degree during the residual phase.

16. Acute hallucinations in young children can be the result of all of the following *except:*

a. Delirium
b. Seizure disorders
c. Attention deficits and hyperactivity
d. AIDS
e. Meningitis

17. All of the following statements regarding relationships of psychosocial factors and schizophrenia are correct *except:*

a. By themselves psychosocial factors do not cause schizophrenia, but may interact with biological factors to mediate the onset, course, and severity of the disorder.
b. Family interactions influence the course and morbidity of illness.
c. Criticism and high expressed emotion in families can be associated with worse outcomes.
d. Positive remarks from caregivers are associated with decreased positive symptoms in adolescents and young adult patients.
e. Greater deficits in peer relations and social relatedness predict a poorer outcome.

18. All of the following represent higher risk factors for the development of schizophrenia *except:*

a. Pregnancy and birth complications
b. Female gender
c. Winter/early spring birth in some locations
d. Maternal stress and malnutrition
e. Maternal infections and diabetes

19. All of the following statements regarding treatment of EOS are correct *except:*

a. A comprehensive, integrated approach combining medication therapies with psychosocial interventions is required for the treatment of EOS.
b. Recent studies show the newer atypical antipsychotic agents are superior to the traditional ones in regard to long-term response and side effect profiles.
c. Short-term controlled trials support the efficacy of some traditional and second-generation antipsychotic agents.
d. Clozapine has been shown superior to treat treatment-resistant schizophrenia, but its side effect profile limits its use.
e. Family psycho-educational therapy is associated with lower relapse rates and improved global functioning.

20. All of the following antipsychotic agents are FDA approved for the treatment of adolescents with schizophrenia *except:*

a. Aripiprazole (Abilify)
b. Olanzapine (Zyprexa)
c. Quetiapine (Seroquel)
d. Risperidone (Risperdal)
e. Ziprasidone (Geodon)

ANSWERS AND EXPLANATIONS

1. **(e)** According to the DSM-5 schizotypal (personality) disorder is under "schizophrenia spectrum and other psychotic disorders" and its full description is under the chapter "personality disorders." In the DSM-IV all the personality disorders were under Axis II. Because DSM-5 has eliminated the axis system, none of the disorders listed in the question should be excluded. Here are all the disorders under this category: schizotypal (personality) disorder, delusional disorder, brief psychotic disorder, schizophreniform disorder, schizophrenia, schizoaffective disorder, substance/medication-induced psychotic disorder, psychotic disorder due to another medical condition, catatonia, other-specified schizophrenia spectrum and other psychotic disorder, and unspecified schizophrenia spectrum and other psychotic disorder. *(Ref. 4, pp. 87–122)*
2. **(b)** Negative symptoms can be a part of schizophrenia and interfere with overall functioning and cause impairments. All of the listed terms are negative symptoms seen in people with schizophrenia. Diminished emotional expression is presented as decreased facial expression, eye contact, prosody of speech, and facial/body gestures that normally give emotional emphasis of speech. *Avolition* refers to reduction of self-motivated or initiated purposeful activities, e.g. lack of motivation to get up, to go to work, or to participate in social activities. *Alogia* refers to diminished speech output. *Anhedonia* refers to the inability or decreased ability to experience pleasure or difficulty in recalling pleasure experienced in the past. This is also seen in people with depressive disorders. *Asociality* refers to the lack of interest in engaging in social activities or the lack of opportunities of social interactions. *(Ref. 4, p. 88)*
3. **(c)** Delusion-associated behavior should not be obviously bizarre and overall functioning is not markedly impaired except for the impact of the delusion(s) or its ramifications, otherwise Criterion A of schizophrenia might be met. However the content of delusion can be bizarre in nature, which can be specified as "with bizarre content." Delusional disorder does not have other characteristic symptoms of the active phase of schizophrenia. Clinicians can use clinician-rated dimensions of psychosis symptom severity from the chapter "assessment measures" in DSM-5 to specify current severity of delusional disorder. *(Ref. 4, pp. 90–91)*
4. **(d)** Among all the subtypes of delusional disorder the most frequent one is persecutory type. Jealous type is more prevalent in males than in females. The lifetime prevalence of delusional disorder is around 0.2%. *(Ref. 4, p. 92)*
5. **(c)** According to the DSM-5, there are hallucinations, delusions, and thought disturbances, and negative symptoms during the active phase. Continuation signs of illness must be at least six months, which may include prodromal or residual symptoms. However, while functioning below the highest level previously achieved is a criterion for adults, in children or adolescents, "failure to achieve the expected level of interpersonal, academic, or occupational functioning" is the diagnostic criterion. *(Ref. 4, p. 99)*
6. **(c)** Early onset of schizophrenia is rare, and the psychotic features of schizophrenia usually emerge between the late teens and mid-30s. The peak age at onset for the first psychotic episode is in the early to mid-20s for men and in the late 20s for women. Positive psychotic symptoms are more likely to diminish over the life course whereas negative symptoms are more persistent and more reliable poor prognostic predictors. Cognitive deficits associated with schizophrenia are hard to improve. *(Ref. 4, p. 102)*
7. **(d)** It is difficult to diagnose schizophrenia in children and childhood onset schizophrenia is very rare. With essentially the same features of schizophrenia, positive symptoms of schizophrenia seen in children are less elaborate than those seen in adults and *visual hallucinations* are more common. Childhood onset cases commonly have poorer outcome with gradual onset and prominent negative symptoms. *(Ref. 4, pp. 102–103)*
8. **(a)** Individuals with DiGeorge syndrome (also called velocardiofacial or 22q11.2 deletion syndrome) tend to develop comorbid mental illness, and 10–30% of them develop schizophrenia-like psychotic disorders. *(Ref. 1, p. 368)*
9. **(b)** Contrary to findings in adult onset schizophrenia no correlation was found between COS and maternal or paternal age. All other statements in the question are correct. *(Ref. 3, p. 495)*
10. **(e)** An MRI brain imagining study showed the rate of gray matter loss is more significant in the COS-ASDs group than in the COS without ASDs group. Premorbid social impairment was more common in the COS-ASDs group as well. However, the two groups did not show differences in age of onset, IQ, response to medications, or rate of familial schizotypy. *(Ref. 3, pp. 495–496)*
11. **(a)** Neuropsychological functioning in COS has been studied in the outpatient setting by Asarnow and colleagues (1994–1995). Rote language skills and simple perceptual processing are found not impaired. But fine motor coordination, learning and abstraction, attention, and short-term memory are impaired. *(Ref. 3, p. 496)*
12. **(a)** Based on some NIMH studies, the most frequent comorbid condition was depression (54%), followed by OCD (21%), GAD (15%), and ADHD (15%). Forty-two percent of COS subjects had one of the following: GAD, OCD, separation anxiety, PTSD, and panic disorder. The studies also showed the comorbid anxiety disorders lasted longer and were more resistant to treatment than depression, suggesting the possible close association between anxiety and core pathology of schizophrenia. *(Ref. 3, pp. 496–497)*
13. **(d)** Brain structural and functional abnormalities are found in adults with schizophrenia. Researchers have made efforts to examine the brain morphology and functioning in children with schizophrenia. Even though replication studies are needed, preliminary results indicate several significant differences between children with schizophrenia and control subjects. All of the listed structural and functional differences are

found in recent studies except for the answer (d). As a matter of fact, lower NAA signals were seen in hippocampal and dorsolateral prefrontal cortical regions. *(Ref. 3, pp. 497–499)*

14. **(e)** Mutations of the X-linked MECP2 gene is found to be involved in the etiology of Rett syndrome (not schizophrenia). Whereas causal relationships between candidate genes and early onset schizophrenia are difficult to establish, recent genetic studies show a positive association between EOS and candidate genes such as dysbindin gene, neuregulin gene, DAOA/G30, GAD1, Prodh2/DGCR6, DISC1, and 22q11.2 deletion. *(Ref. 1, p. 368)*

15. **(b)** Complex delusions and catatonia occur less frequently in EOS. All other statements in the question are correct. In addition, many children with COS have a history of premorbid issues, such as cognitive delays, learning difficulties, social withdrawal, and odd behaviors. Some of them (about 10–20%) have borderline IQ or intellectual disabilities whereas many have other comorbid psychiatric conditions, such as ADHD, disruptive disorders, and anxiety/mood disorders. *(Ref. 1, pp. 369–371)*

16. **(c)** ADHD symptoms of inattention and hyperactive symptoms or even the diagnosis can precede the appearance of psychotic symptoms. However, acute hallucinations are not usually the results of attention deficits and hyperactivity. Other conditions/disorders should be considered in the differential diagnoses, such as mood disorders, schizoaffective disorder, posttraumatic stress disorder, obsessive-compulsive disorder, autism spectrum disorders, some psychosocial stress situations, underlying medical conditions, such as seizure disorders, central nervous system lesions, delirium, metabolic and endocrine disorders, neurodegenerative disorders, toxic encephalopathies, infectious diseases, autoimmune disorders, etc. *(Ref, 1. pp. 371–374)*

17. **(d)** Positive remarks from caregivers are associated with decreased *negative* symptoms in adolescents and young adult patients. Different studies show conflicting findings regarding whether high expressed emotion is a predictor of worse outcomes and future relapse of the illness, which indicates a cultural context influences how patients perceive and react to their families' behaviors and interactions with other family members. *(Ref. 1, pp. 373–374)*

18. **(b)** Either an equal or a predominant male gender ratio is found in clinical studies of schizophrenia in child and adolescent populations. Perinatal stress and obstetrical complications are more common in the histories of patients with schizophrenia than in those of controls. In addition to pubertal development, infectious disease and immunological factors, other medical conditions, and genetic factors all can be potential risk factors of developing schizophrenia. *(Ref. 1, pp. 368–369; Ref. 3, pp. 495–496; Ref. 4, p. 103)*

19. **(b)** Recent studies did not show the newer atypical antipsychotic agents are superior to the traditional ones in regards to long-term response or side effect profiles. There are short-term controlled trials that support the efficacy of some traditional agents (e.g., haloperidol, loxapine, thioridazine, and thiothixene) and a number of second-generation agents (e.g., risperidone, aripiprazole, quetiapine, and olanzapine, etc.). Clozapine is not FDA approved for the treatment of adolescents with schizophrenia, but it was found superior to both haloperidol and olanzapine in youth who have treatment-resistant schizophrenia. Unfortunately, its side effect profile limits its use. *(Ref. 1, pp. 374–375)*

20. **(e)** All the listed antipsychotic agents are FDA approved for the treatment of adolescents (age 13–17) with schizophrenia except for ziprasidone. In addition, paliperidone (Invega) was FDA approved for the treatment of adolescents (age 12–17) with schizophrenia. Haloperidol is FDA approved for the treatment of children older than three with "psychosis," "Tourette syndrome," and "severe behavioral disorders." *(Ref. 1, pp. 374–375; please visit The U.S. Food and Drug Administration [FDA] Web site at www.fda.gov for updated drug labeling information of each medication)*

4

BIPOLAR AND RELATED DISORDERS AND DEPRESSIVE DISORDERS

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QUESTIONS

Directions: Select the best response for each of the questions 1–30.

1. According to DSM-5 all of the following statements regarding disruptive mood dysregulation disorder are correct *except:*

a. This disorder was categorized under bipolar and related disorders.

b. Children with this disorder present with severe recurrent temper outbursts that are inconsistent with developmental level.

c. The temper outbursts are frequent and the mood between temper outbursts is persistently irritable or angry in nature.

d. The mood symptoms and temper outbursts present at least two settings, and are present for more than 12 months.

e. Onset of these symptoms has to be before the age of 10 years.

2. According to DSM-5 the diagnosis of disruptive mood dysregulation disorder cannot be made prior to which of the following ages:

a. 3-year-old

b. 4-year-old

c. 6-year-old

d. 8-year-old

e. 10-year-old

3. Prevalence of major depressive disorder in children is lower (about 2%) than in adolescents (about 4–8%). What is the male to female ratio during childhood?

a. 1:1

b. 1:2

c. 1:3

d. 1:4

e. 1:5

4. Which of the following conditions is the *most* frequent comorbid diagnosis with major depressive disorder in youth?

a. ADHD

b. Anxiety disorders

c. Substance-related and additive disorders

d. Persistent depressive disorder (dysthymia)

e. Psychotic disorders

5. Based on DSM-5 all of the following statements regarding diagnosing major depressive disorder in youth are correct *except:*

a. Almost identical DSM-5 criteria are used in diagnosing major depressive disorder in both youth and adults.

b. In children and adolescents depressed mood can be replaced by anhedonia.

c. In children failure to make expected weight gain can be considered significant weight loss.

d. Adolescents with initial onset of major depressive disorder may later present a bipolar disorder.

e. For those with adolescent onset, psychotic features, a family history of bipolar illness, and presence of a "with mixed features" specifier have an increased risk for bipolar diagnosis.

6. DSM-5 gave a new name for dysthymia, persistent depressive disorder, and made some modifications from DSM-IV-TR. All of the following statements regarding diagnosing persistent depressive disorder (dysthymia) are correct *except:*

a. Duration of symptoms can be longer in children for dysthymic disorder.

b. Depressed mood can be irritable mood.

c. Early onset is before age 21 and later onset is at age 21 or older.

d. Four specifiers were added to describe absence or presence of coexisting major depressive episodes.

e. Specifiers include "with mood-congruent psychotic features" and "with mood-incongruent psychotic features."

7. Based on DSM-5, which of the following is the key diagnostic difference for cyclothymic disorder in children/adolescents compared to adults?

a. Onset of symptoms

b. Duration of the symptoms required

c. Severity of the symptoms required

d. Number of the symptoms required

e. Specifier used

8. Based on DSM-5 children and adolescents who experience multiple episodes of hypomanic symptoms that do not meet criteria for a hypomanic episode and multiple episodes of depressive symptoms that do not meet criteria for a major depressive episode that persist less than 12 months, but have no symptom-free periods longer than two months, should be diagnosed with which of the following diagnoses?

a. Cyclothymic disorder

b. Disruptive mood dysregulation disorder

c. Other specified bipolar and related disorder

d. Unspecified bipolar and related disorder

e. Mood disorder, not otherwise specified

9. In a large randomized controlled trial (RCT), Treatment of Adolescents with Depression Study (TADS) 2004, which of

the following type of psychotherapies showed no difference compared to placebo in treating adolescents with MDD?

a. Interpersonal psychotherapy (IPT)
b. Cognitive behavioral therapy (CBT)
c. Family therapy
d. Group therapy
e. Supportive therapy

10. Based on a meta-analysis of all published and unpublished pharmacological RCTs for MDD in youth (Bridge et al. 2007), which pair of the following numbers *most* closely reflects the average response rates of SSRI antidepressants compared to placebo?

a. 80% vs. 30%
b. 70% vs. 40%
c. 65% vs. 45%
d. 60% vs. 50%
e. 55% vs. 45%

11. Based on a meta-analysis of all published and unpublished pharmacological RCTs for MDD in youth (Bridge et al. 2007), which pair of the following numbers *most* closely reflects the "number needed to treat" compared to the "number needed to harm"?

a. 2 vs. 70
b. 4 vs. 80
c. 6 vs. 90
d. 8 vs. 100
e. 10 vs. 110

12. Supported by retrospective case reports and clinical experience (without prospective randomized controlled trials), electroconvulsive therapy (ECT) can be indicated and considered in treating adolescents with severe mood symptoms—depressive or manic in the context of MDD, psychotic depression, schizoaffective disorder, schizophrenia, bipolar disorder, and catatonia, especially when the conditions are refractory or resistant to conventional therapies. All of the following are likely neurobiological effects of ECT *except:*

a. Increased noradrenergic function
b. Increased serotonergic responses mediated by the 5-HT_2 receptor
c. Increased dopamine D_1 receptor density and second messenger potentiation
d. Increased muscarinic acetylcholine receptor density in cortex and hippocampus
e. Increased gamma aminobutyric acid neurotransmission

13. Based on data from up-to-date clinical trials, which of the following antidepressants showed the *largest* response rate in treating MDD in children and adolescents?

a. Citalopram (Celexa)
b. Escitalopram (Lexapro)
c. Fluoxetine (Prozac)
d. Paroxetine (Paxil)
e. Sertraline (Zoloft)

14. Which of the following medical conditions should be the *least* considered in the differential diagnosis of major depressive disorder?

a. Hyperthyroidism
b. Mononucleosis
c. Brain tumor
d. Premenstrual dysphoric disorder
e. Chronic fatigue syndrome

15. Which of the following rating scales is the *least* useful as a screening instrument when evaluating youth with possible bipolar disorder?

a. Child Behavior Checklist (CBCL)
b. Child Symptom Inventory (CSI-4)
c. Parent-completed versions of the General Behavioral Inventory (P-GBI)
d. Vanderbilt Rating Scale
e. Youth Mania Rating Scale (YMRS)

16. Which of the following antipsychotics does *not* have an FDA-approved indication for treating youth with bipolar I disorder?

a. Aripiprazole (Abilify)
b. Olanzapine (Zyprexa)
c. Quetiapine (Seroquel)
d. Risperidone (Risperdal)
e. Ziprasidone (Geodon)

17. Based on new research findings, regarding treatment of ADHD in children with possible or definite mania, which of the following statements is *more* accurate?

a. Typical ADHD medications always should be avoided before stabilizing mood symptoms.
b. Treating ADHD symptoms is always considered a higher priority than treating mood symptoms.
c. Outcomes of treatment are the same for youth with bipolar disorders alone compared to youth with bipolar disorder comorbid with ADHD.
d. Treating ADHD symptoms can start prior to treating mood symptoms.
e. Apparent return of worse ADHD symptoms at the end of day has diagnostic implications.

18. Which of the following agents has an FDA-approved indication for treating bipolar I disorder acute depression in children?

a. Lithium
b. Lamotrigine (Lamictal)
c. Olanzapine/fluoxetine (Symbyax)

d. Quetiapine (Seroquel)
e. Risperidone (Risperdal)

19. Studies showed rates of selective serotonin reuptake inhibitors (SSRIs) induced "switching" are higher in children than in adolescents and adults. What is the average rate of such risk?
a. 5%
b. 10%
c. 15%
d. 20%
e. 30%

20. All of the following statements about the epidemiology of depressive disorders in children and adolescents are accurate *except:*
a. Point prevalence of depressive disorder is lower in pre-pubertal children than in adolescents.
b. In adolescents the rate of depressive disorders in females is three times more than in males.
c. Pre-pubertal depressive disorder shares similar risk factors and course with conduct disorder.
d. Pre-pubertal onset depressive disorder is more likely to lead to recurrent episodes in adulthood.
e. Early onset of puberty is a risk factor for girls to develop depression.

21. Based on meta-analysis of pediatric bipolar disorder, which of the following symptoms is the *least* frequent?
a. Increased energy
b. Distractibility
c. Euphoria/elation
d. Flight of ideas
e. Hypersexuality

22. Based on comparative studies on the phenomenology of bipolar disorder and ADHD in youth, which of the following symptoms was found significantly *more* frequently in bipolar disorder?
a. Irritability
b. Accelerated speech
c. Distractibility
d. Unusual energy
e. None of the above

23. In the study "Pediatric bipolar spectrum disorder and ADHD: comparison and comorbidity in the LAMS clinical sample" (L.E. Arnold et al. 2011) the authors proposed four hypotheses, two of which were supported, one partially supported, and one rejected. All of the following statements are consistent with their results *except:*
a. Children with comorbid bipolar spectrum disorder (BPSD) + ADHD showed younger age of onset of BPSD symptoms than those with BPSD alone.
b. Parent ratings of ADHD symptoms were higher for comorbid ADHD+BPSD than for ADHD or BPSD alone.
c. Teacher ratings of both ADHD and BPSD symptoms were more severe for comorbid ADHD+BPSD than BPSD alone, but not than ADHD alone.
d. Children with comorbid BPSD+ADHD have more impaired global functioning than those with either diagnosis alone.
e. Rates of other comorbid diagnoses were greater in the children with comorbid ADHD+BPSD.

24. According to the "Four-Year Longitudinal Course of Children and Adolescents with Bipolar Spectrum Disorders: The Course and Outcome of Bipolar Youth (COBY) Study" (B. Birmaher et al. 2009), during syndromal periods, compared to those with bipolar I disorder or bipolar disorder not otherwise specified (bipolar NOS), youth with bipolar II disorder spent *more* time experiencing which of the following symptoms?
a. Aggression/agitation
b. Hypomania
c. Major depression
d. Mania
e. Psychosis

25. According to the "Four-Year Longitudinal Course of Children and Adolescents with Bipolar Spectrum Disorders: The Course and Outcome of Bipolar Youth (COBY) Study" (B. Birmaher et al. 2009), which of the following pairs of numbers reflects conversion rates of bipolar II to bipolar I and bipolar NOS to either bipolar I or bipolar II respectively?
a. 20% and 48%
b. 25% and 38%
c. 30% and 32%
d. 32% and 28%
e. 38% and 20%

26. According to "Switching to Another SSRI or to Venlafaxine With or Without Cognitive Behavioral Therapy for Adolescents With SSRI-Resistant Depression: The TORDIA Randomized Controlled Trial" (D. Brent et al. 2008), all of the following statements reflect the findings *except:*
a. Cognitive behavioral therapy plus a switch to venlafaxine showed a higher response rate than a medication switch alone.
b. Cognitive behavioral therapy plus a switch to another SSRI showed a higher response rate than a medication switch alone.
c. The response rate of venlafaxine is statistically significantly lower than that of a second SSRI.
d. No differential treatment effects on change in the CDRS-R, self-rated depressive symptoms, suicidal ideation, or the rate of harm-related or any other adverse events were found.
e. A greater increase in diastolic blood pressure and pulse was found more frequently during venlafaxine treatment than during SSRI treatment.

27. According to "Treatment of Resistant Depression in Adolescents (TORDIA): Week 24 Outcomes" (G. Emslie et al. 2010), out of 334 adolescents enrolled in the study, approximately which percent of youth achieved remission by 24 weeks?

a. 24%
b. 29%
c. 32%
d. 39%
e. 45%

28. According to "Long-Term Outcome of Adolescent Depression Initially Resistant to SSRI Treatment" (B. Vitiello et al. 2011), the depressive symptom trajectory of the remitters diverged from that of non-remitters by the end of which of the following weeks of treatment?

a. Six weeks
b. Eight weeks
c. Ten weeks
d. Twelve weeks
e. Twenty weeks

29. According to "Treatment of Selective Serotonin Reuptake Inhibitor–Resistant Depression in Adolescents: Predictors and Moderators of Treatment Response" (J.R. Asarnow et al. 2009), all of the following are predictors of poorer treatment response *except:*

a. Higher baseline depression severity
b. Greater impairment
c. Higher baseline levels of suicidal ideation and hopelessness
d. More severe family conflict
e. More months of preenrollment SSRI medication treatment

30. A. B. Klomek et al. (2007) studied the relationships of "Bullying, Depression, and Suicidality in Adolescents." They found approximately 9% of the sample (2,342 9th through 12th grade students) reported being victimized frequently and 13% reported bullying others frequently. All of the following statements reflect their findings *except:*

a. Bullying was more prevalent in the school setting than away from school settings.
b. Compared to boys who were never victimized, frequently victimized boys were more likely to be depressed, to have serious suicidal ideation (SSI), and to attempt suicide.
c. Compared to boys who never bullied others, boys who frequently bullied others were more likely to commit suicide.
d. Compared to girls who were never victimized, victimized (either frequently or infrequently) girls were more likely to be depressed, to have SSI, and to attempt suicide.
e. Compared to girls who never bullied others, girls who bullied (either frequently or infrequently) others were more likely to be depressed, to have SSI, and to attempt suicide.

Matching

31–35. Match each definition of treatment outcome of depression to the following descriptions:

a. Emergence of symptoms of depression during the period of recovery (a new episode)
b. A DSM episode of depression during the period of remission
c. Absence of significant symptoms of depression (e.g., no more than one to two)
d. A period of at least two weeks and less than two months with no or very few depressive symptoms
e. No symptoms or a significant reduction in depressive symptoms for at least two weeks

31. Response
32. Remission
33. Recovery
34. Relapse
35. Recurrence

ANSWERS AND EXPLANATIONS

1. **(a)** Disruptive mood dysregulation disorder is a brand new diagnosis in DSM-5 under the category of depressive disorders. The intention of adding this diagnosis was to address the concerns about the potential for overdiagnosing of and overtreating for bipolar disorder in children. The disorder refers to a pattern of mood dysregulation, chronic and persistent irritability, and frequent extreme behavioral dyscontrol in children who do not present with typical, classic, distinct episodes of mania or hypomania. In DSM-5 the term "bipolar disorder" is explicitly reserved for the episodic nature of bipolar manifestations. Studies show that children with chronic irritability are at risk to develop unipolar depression and/or anxiety disorders in adulthood with low rate of conversation to bipolar disorders. *(Ref. 4, pp. 156–157)*

2. **(c)** Based on DSM-5 the diagnosis of disruptive mood dysregulation disorder should not be made for the first time before age 6 years or after age 18 years. However, by history or observation, the onset of symptoms of temper outbursts and chronic irritable/angry mood has to be before age 10 years. *(Ref. 4, p. 156)*

3. **(a)** Prevalence of major depressive disorder in children is lower (approximately 2%) than in adolescents (approximately 4–8%). The male to female ratio during childhood is 1:1, but 1:2 during adolescence, with increased prevalence by twofold to fourfold after puberty, especially in females. *(Ref. 1, p. 261)*

4. **(b)** About 40–90% of youth with depressive disorders have other psychiatric disorders, anxiety disorders being the most frequent comorbid diagnoses, followed by disruptive disorders, ADHD, and, in adolescence, substance-related and addictive disorders. Major depressive disorder and persistent depressive disorder (dysthymia) can co-occur, which is called "double depression." *(Ref. 1, p. 262)*

5. **(b)** In DSM-5 there is only one set of criteria for major depressive disorder, with only two *notes* to specify the different manifestations between children/adolescents and adults: (1) in children and adolescents, depressed mood can be irritable mood; (2) in children, consider failure to make expected weight gain: referring to significant weight loss when not dieting. Any existing manic or hypomanic episodes will exclude major depressive disorder diagnosis. A substantial portion of people with bipolar illnesses initially present with a major depressive episode, and those who have adolescent onset, family history of bipolar illness, or the presence of a "with mixed features" specifier have increased risk for future bipolar disorders. *(Ref. 4, pp. 160–165)*

6. **(a)** Compared to DSM-IV-TR, a few new specifiers were added in DSM-5 for dysthymic disorder that also got a brand new name: persistent depressive disorder. In children and adolescents, duration can be *shorter* (must be at least one year) and mood can be irritable. Sharing with major depressive disorder it can be specified by the specifiers: with anxious distress, with mixed features, with melancholic features, with atypical features, with mood-congruent psychotic features, with mood-incongruent psychotic features, with peripartum onset, mild, moderate, severe, in partial remission, and in full remission. In contrast to DSM-IV-TR only major depressive disorder or bipolar I/II disorders severe type can be attached to the specifier of "with psychotic features"; in DSM-5, "with psychotic features" specifiers (either mood congruent or mood incongruent) can be used for dysthymia. In DSM-5, with psychotic features specifiers can be used irrespective of episode severity. Four new specifiers were also added to describe whether there is ever a major depressive episode coexisting within two years preceding the persistent depressive disorder, and how these major depressive episodes (if there is one) are related to the dysthymic syndrome. *(Ref. 4, pp. 127, 162, 168–169)*

7. **(b)** Similar to persistent depressive disorder (dysthymia), duration of the symptoms required for children and adolescents is *shorter* (one year) compared to for adults (two years) in making a diagnosis of cyclothymic disorder in DSM-5. *(Ref. 4, p. 139)*

8. **(c)** DSM-5 recognizes that many people, especially children and adolescents, experience bipolar-like phenomena that do not meet the criteria for bipolar I, II, or cyclothymic disorder. Other specified bipolar and related disorder was designed for clinicians to communicate the specific reason that the presentation does not meet the criteria for any specific bipolar and related disorder. In this question a case of a "short-duration cyclothymia" (less than 24 months for adults/less than 12 months for children or adolescents) was described. "Mood disorder, NOS" was eliminated from DSM-5. *(Ref. 4, pp. 123, 148)*

9. **(b)** In TADS, combination of CBT and fluoxetine showed the best outcome with a rapid decline in depressive symptoms. However, it did not show a significant difference compared to fluoxetine alone at endpoint. These two treatment groups were better compared to either CBT alone or placebo during acute treatment. CBT did not show statistically significant differences compared to the placebo group. CBT is the most widely studied psychotherapy for the treatment of youth with MDD. Even with some conflicting data, CBT appears to be more efficacious in treating depression with comorbidity, suicidal ideation, and hopelessness. But it appears less efficacious when there is a history of sexual abuse or when one of the parents is depressed. IPT is another psychotherapy that has evidence of efficacy based on RCTs, especially for older adolescents with moderate or severe depression. Data supports that IPT is at least as efficacious as CBT. *(Ref. 1, pp. 268–269)*

10. **(d)** Based on a meta-analysis of all published and unpublished pharmacological RCTs for MDD in youth (Bridge et al. 2007), the average response rates from SSRI antidepressants compared to placebo was 61% to 50%, which showed relatively high placebo rates, especially in children compared to adolescents. *(Ref. 1, p. 270)*

11. **(e)** Based on a meta-analysis of all published and unpublished pharmacological RCTs for MDD in youth (Bridge et al. 2007),

the "number needed to treat" was 10 and the "number needed to harm" was 112. *(Ref. 1, pp. 270–271)*

12. (d) Muscarinic acetylcholine receptor density in cortex and hippocampus is decreased, which may be relevant for the cognitive side effects of ECT. Increased gamma aminobutyric acid neurotransmission may be relevant for raising the seizure threshold after serial ECT. *(Ref. 1, pp. 796–798)*

13. (c) Based on data from up-to-date clinical trials, fluoxetine (Prozac) showed the largest response rate in treating MDD in children and adolescents compared to other antidepressants. It was speculated that this may be due to the actual differences in the effect of the medication or because the clinical trials that studied fluoxetine included more severely depressed patients and were better designed and conducted. *(Ref. 1, p. 270)*

14. (a) Hypothyroidism (*not* hyperthyroidism) is more likely to manifest with symptoms similar to those of major depressive disorders. Thus, it should be considered as one of potential medical differentials along with certain cancers, autoimmune diseases, anemia, multiple sclerosis, stroke, and others listed in the question when evaluating major depressive disorder. Hyperthyroidism, on the other hand, should be considered as one of medical conditions that may manifest with symptoms similar to those of anxiety disorders. *(Ref. 1, pp. 266, 311; Ref. 4, p. 167)*

15. (d) Vanderbilt Rating Scales are more useful in screening youth with possible ADHD, oppositional defiant disorder (ODD), and conduct disorder (CD). Similar to the Conners' scales, Vanderbilt Rating Scales come with both parent-report and teacher-report versions. The scales are free online (www.nichq.org), and the items cover symptoms of ADHD, ODD, and CD, as well as some symptoms of anxiety and depression. In addition, they have subscales to assess school behavioral and academic performance. All other listed instruments are more useful in screening mood symptoms, especially manic and hypomanic symptoms. *(Ref. 1, pp. 97, 287)*

16. (e) Ziprasidone (Geodon) does not have any FDA-approved indications for children or adolescents at this time. The remainder of the listed antipsychotics all have FDA-approved indications for treating bipolar I disorder in youth. Quetiapine (Seroquel) has an indication for bipolar I disorder, acute mania. Aripiprazole (Abilify), risperidone (Risperdal), and olanzapine (Zyprexa) all have an indication for bipolar I disorder, acute manic and mixed episodes for youth as young as 10 years old. Olanzapine (Zyprexa) approved age range is from 13 to 17 for acute manic and mixed episodes. The earliest second-generation antipsychotic, clozapine (Clozaril), does not have any indications for children or adolescents either. *(Ref. 1, p. 289; please visit The U.S. Food and Drug Administration [FDA] Web site at www.fda.gov for updated drug labeling information of each medication)*

17. (d) Consensus documents recommended stabilizing mood symptoms first, then treating the comorbid disorder. However, some new data suggested treating ADHD symptoms either with or without first stabilizing mood can be considered for children with ADHD along with possible or definite mania. If children become more irritable or aggressive with ADHD treatment, usage of an antipsychotic or a mood stabilizer should be definitely considered. Youth with bipolar disorder alone have better treatment responses than those with comorbid ADHD. Apparent return of worse ADHD symptoms at the end of day, also known as "rebound," has no diagnostic implications. *(Ref. 1, p. 290)*

18. (c) Olanzapine/fluoxetine (Symbyax) is the only medication that so far has an FDA-approved indication for treating acute depression in children with bipolar disorder (age 10 to 17). In adults, quetiapine (Seroquel) and Olanzapine/fluoxetine (Symbyax) both have FDA indications for bipolar I disorder, acute depression. Lithium and lamotrigine (Lamictal) have an FDA indication for bipolar disorder, maintenance treatment in adults, but not for youth. Lithium also has an FDA-approved indication for bipolar disorder in adolescents. *(Please visit The U.S. Food and Drug Administration [FDA] Web site at www.fda.gov for updated drug labeling information of each medication.)*

19. (b) The average rate of switching by SSRIs is 10%. Because it is not uncommon that the first mood episode of children/adolescents with bipolar disorder is a depressive episode, it is important to inquire for a family history of bipolar disorder and for any history indicative of bipolarity. Treatment choices, risks, and benefits should be carefully considered. *(Ref. 1, p. 293)*

20. (d) Adolescent-onset depression is more likely to lead to recurrent episodes in adulthood. The point prevalence of depressive disorder is lower in children (1–2%) than in adolescents (3–8%). Female predominance in depression emerges after onset of puberty, possibly due to hormonal changes, higher comorbid anxiety, and increased interpersonal conflicts in females. Pre-pubertal depression seems to follow a course of conduct disorder, along with other behavioral problems, but does not typically predict depression in adulthood. Early onset of puberty in girls is a risk factor of developing depression. *(Ref. 3, pp. 503–504)*

21. (e) Based on a meta-analysis of studies of pediatric bipolar disorder, the frequency of the symptoms follows the following order (from the most frequent to the least frequent): increased energy, distractibility, pressured speech, irritability, grandiosity, racing thoughts, decreased need for sleep, euphoria/elation, poor judgment, flight of ideas, and hypersexuality. *(Ref. 3, pp. 514–515)*

22. (e) With significant overlap of symptoms shared between bipolar disorder and other common psychiatric conditions, especially ADHD, none of the symptoms listed in the question is specific to mania. The lack of specificity of symptomology of bipolar disorder makes it challenging and problematic to diagnose bipolar disorder simply based on the particular symptoms being present or not. Some researchers advocate that two of the symptoms are more specific to mania including elated/elevated mood and grandiosity, and consider them as "cardinal" or "hallmark" symptoms. *(Ref. 3, p. 515)*

23. (a) The authors of the study proposed four hypotheses; two of which were supported, one partially supported, and one rejected. The first hypothesis, "children with BPSD+ADHD

show younger age of onset of BPSD symptoms than those with BPSD alone," was not supported by their findings. The authors found that children with BPSD+ADHD had onset of mood symptoms at 6.7 years and those with BPSD alone had onset at 6.9 years ($p = 0.8$). However, they found the age of their first visit to the LAMS-site clinic was statistically significantly younger (9.6 vs. 10.5 years, $p < 0.01$). Their second hypothesis, "children with BPSD+ADHD have more severe ADHD symptoms than those with ADHD alone and more severe bipolar symptoms than those with BPSD alone," was partially supported—see the answers (b) and (c). The answers (d) and (e) reflect hypotheses 3 and 4, which were supported by their findings. *(L. E. Arnold et al.: Pediatric Bipolar Spectrum Disorder and ADHD: Comparison and Comorbidity in the LAMS Clinical Sample.* Bipolar Disorders, *13: 509–521, 2011)*

24. (c) According to the study, during syndromal periods, youth with bipolar II disorder manifest with less frequent manic symptoms. Instead, they are more likely to present with major depression. *(B. Birmaher et al.: Four-Year Longitudinal Course of Children and Adolescents with Bipolar Spectrum Disorders: The Course and Outcome of Bipolar Youth [COBY] Study.* Am J Psychiatry, *166: 795–804, 2009)*

25. (b) According to the study, 25% of youth with bipolar II converted to bipolar I, whereas 38% of those with bipolar disorder, NOS, converted to either bipolar I or II. *(B. Birmaher et al.: Four-Year Longitudinal Course of Children and Adolescents with Bipolar Spectrum Disorders: The Course and Outcome of Bipolar Youth [COBY] Study.* Am J Psychiatry, *166: 795–804, 2009)*

26. (c) According to the study, CBT plus a switch to a medication regimen (either venlafaxine or another SSRI) showed a higher response rate than a medication switch alone. However, no statistically significant difference in response rate between venlafaxine and a second SSRI (48.2%; 95% CI, 41%–56% vs. 47.0%; 95% CI, 40%–55%; $P = 0.83$) was found. *(D. Brent et al.: Switching to Another SSRI or to Venlafaxine With or Without Cognitive Behavioral Therapy for Adolescents With SSRI-Resistant Depression: The TORDIA Randomized Controlled Trial.* JAMA, *299: 901–913, 2008)*

27. (d) According to the study, out of 334 adolescents enrolled in the study, 38.9% achieved remission by 24 weeks. Initial treatment assignment did not affect treatment remission rates. The study also found that, at week 12, the positive predictors of higher remission included lower depression, hopelessness, anxiety, suicidal ideation, family conflict, and absence of comorbid dysthymia, anxiety, and drug/alcohol use and impairment. *(G. Emslie et a.l: Treatment of Resistant Depression in Adolescents [TORDIA]: Week 24 Outcomes.* Am J Psychiatry, *167: 782–791; 2010)*

28. (a) According to the study, the depressive symptom trajectory of remitters diverged from that of non-remitters by the first six weeks of treatment. They also found that by 72 weeks, approximately 60% of the randomized youth had reached remission, but one-fourth of remitted youth experienced a relapse. The youth who were assigned to SSRIs had a faster decline in self-reported depressive symptoms and suicidal ideation than those assigned to venlafaxine ($p < 0.05$). *(B. Vitiello et al.: Long-Term Outcome of Adolescent Depression Initially Resistant to SSRI Treatment.* J Clin Psychiatry, *72: 388–396, 2011)*

29. (e) According to the study, "fewer months" of preenrollment SSRI medication treatment is one of the poor response predictors among the others listed in the answers. The authors also found that by using logistic regression, adjusting for site, age, sex, and race, the decreased scores on baseline Beck Depression Inventory (BDI), Suicidal Ideation Questionnaire-JR (SIQ), Beck Hopelessness Scale (BHS), or Conflict Behavior Questionnaire-Adolescent Report (CBQ-A) and Children's Global Adjustment Scale (CGAS) impairment levels significantly increased the likelihood of response. The authors found the statistically significant positive response *moderators* to combination treatment (CBT+ medication) compared to medication alone were the absence of abuse histories and the presence of more comorbid disorders, with a marginally significant effect for comorbid ADHD. *(J. R. Asarnow et al.: Treatment of Selective Serotonin Reuptake Inhibitor–Resistant Depression in Adolescents: Predictors and Moderators of Treatment Response.* JAACAP, *48: 330–339, 2009)*

30. (c) Compared to boys who never bullied others, boys who frequently bullied others were not more likely to commit suicide, but were more likely to be depressed and to have SSI. Bullying was more prevalent in the school setting than away from school settings. However, regardless of settings, students who were involved in bullying behaviors (either as victims or bullies) were at overall higher risk for depression, SSI, and suicide attempts compared with students who were not involved in such behaviors. There were some gender-specific differences (see the answers in the question). *(A. B. Klomek et al.: Bullying, Depression, and Suicidality in Adolescents.* JAACAP, *46: 40–49, 2007)*

Matching

31. (e); 32. (d); 33. (c); 34. (b); 35. (a) In general three phases are involved in the treatment of depression: acute, continuation, and maintenance, with a primary goal of achieving response and ultimately full remission during the acute phase. The goal of the continuation phase is to solidify the response to treatment and avoid relapses, whereas the goal of the maintenance phase is to prevent recurrence or new episodes. *(Ref. 1, pp. 267–268)*

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5

DISRUPTIVE, IMPULSE-CONTROL, AND CONDUCT DISORDERS

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QUESTIONS

Directions: Select the best response for each of the questions 1–20.

1. Based on DSM-5, which of the following conditions is *not* considered under the category of disruptive, impulse-control, and conduct disorders (CD)?

a. Oppositional defiant disorder (ODD)
b. Intermittent explosive disorder (IED)
c. Conduct disorder
d. Pyromania
e. Pathological gambling

2. All of the following statements regarding disruptive, impulse-control, and conduct disorders are accurate *except:*

a. Most of them tend to be male predominant.
b. They tend to have childhood or adolescence onset.
c. Most youth with CD met criteria for ODD previously.
d. Most youth with ODD develop CD eventually.
e. Youth with ODD have high risk for eventually developing anxiety and depressive disorders.

3. In the DSM-5 diagnostic criteria for ODD a "Note" was added indicating different frequencies of defiant behaviors required for children younger versus older than 5 years. How frequently do children younger than 5 years need to show the behaviors to meet the criteria for ODD (unless otherwise noted in Criterion A8)?

a. Once per week for at least twelve months
b. Once per week for at least six months
c. Twice per week for at least six months
d. Four times per week for twelve months
e. Most days for at least six months

4. A minimal age requirement was added to the DSM-5 diagnostic criteria for intermittent explosive disorder (IED). What is the *minimal* chronological age required to diagnose youth with IED?

a. 3 years
b. 6 years
c. 9 years
d. 12 years
e. 15 years

5. In DSM-5 diagnostic criteria for conduct disorder (CD), a specifier "with limited prosocial emotions" was added. All of the following characteristics reflect the aspects of this specifier *except:*

a. Heightened irritability
b. Lack of remorse or guilt
c. Callous—lack of empathy
d. Unconcerned about performance
e. Shallow or deficient affect

6. Conduct disorder is influenced by genetic, physiological, and environmental factors. All of the following statements correctly reflect such risk factors *except:*

a. The risk increases in youth with either a biological or an adoptive parent with CD.
b. The risk increases in youth with biological parents who have severe alcohol use disorder, depressive and bipolar disorders, schizophrenia, or a history of ADHD/conduct disorder.
c. The risk increases in youth with faster resting heart rates.
d. The risk increases in youth with reduced autonomic fear conditioning.
e. The risk increases in youth who experience parental rejection, neglect, inconsistent child-rearing practices, harsh discipline, and abuse.

7. Which of the following is the correct female to male prevalence ratio for kleptomania?

a. 3:1
b. 6:1
c. 1:1
d. 1:2
e. 1:3

8. Based on teachers' reports of the most common oppositional symptoms, such as arguing, screaming, disobedience, and defiance, the peak presentation is at which of the following age groups?

a. Between 3 and 5 years
b. Between 4 and 7 years
c. Between 5 and 9 years
d. Between 8 and 11 years
e. Between 10 and 13 years

9. Which of the following is a correct estimated heritability of antisocial behavior?

a. 30%
b. 40%
c. 50%
d. 60%
e. 70%

10. Interactions between genetic and environmental risk factors for conduct disorder are very complicated. All of the following statements are accurate *except:*

a. Accumulation of risk may act not only additively but also multiplicatively.

b. Genetic influence is important, but it can also be modified by environmental variables.
c. Genetic influences are the same in children from poor families compared to those from rich ones.
d. Genes may influence individuals' choices and shape their environment.
e. The same risk factor may lead to different outcomes depending on other circumstances.

11. Studies show that it is not uncommon that youth with ODD or CD present with out of control behaviors and aggression and need crisis interventions in the emergency department (ED). All of the following statements are general management principles to follow in this kind of situation *except:*

a. Crisis intervention strategies should be implemented before using psychotropic medications to control behavior.
b. Physical restraint and seclusion should be considered as first-line options.
c. Usage of emergency medications should correspond to the risk for potential injury.
d. Staff members in the ED should be knowledgeable of the risks and side effects of acute sedation and follow the appropriate protocols.
e. Physicians may consider a standing psychotropic medication order in case p.r.n. medication is needed multiple times a day.

12. Which of the following psychosocial treatment modalities was recommended by The National Institute for Health and Clinical Excellence in the United Kingdom as the first-line treatment for conduct problems in youth?

a. Parent management training (PMT)
b. Multisystemic therapy (MST)
c. Therapeutic foster care
d. Families and schools together (FAST Track)
e. Wildness programs and boot camps

13. There are a few principles and recommendations clinicians may want to follow when using psychotropic drugs for youth with aggression in nonemergency situations. Which of the following statements is *incorrect?*

a. Start with a low dose, titrate up slowly, and taper off slowly.
b. Cautiously prescribe stimulants to adolescents with CD because of the high comorbidity with substance abuse.
c. Routinely and systematically monitor adherence, side effects, and drug interactions.
d. An adequate trial combined with psychosocial interventions is completed prior to consideration of switching, augmenting, combining, or discontinuation.
e. Polypharmacy is encouraged because of overall better efficacy.

14. Which of the assessment tools for use in evaluation of juvenile fire-setting is a structured interview for parents (*not* for the child) assessing several domains related to fire involvement?

a. The Firesetting Incident Analysis (FIA)
b. The Firesetting Risk Interview (FRI)
c. Children's Firesetting Inventory (CFI)
d. Child Behavior Checklist (CBCL)
e. Children's Hostility Inventory (CHI)

15. Among all of the following treatment modalities for youth with fire-setting behavior, which of them showed an accumulating evidence of efficacy?

a. Fire safety skills training (FSST)
b. Self-monitoring
c. Parent-child communication
d. Parental psychoeducation
e. Restitution for damages

16. Based on human studies in which of the following ways is the serotonin system *most* likely affected in individuals with aggressive behaviors?

a. Increased sensitivity of the serotonin 1A receptor (5-HT_{1A})
b. Decreased sensitivity of the serotonin 1A receptor (5-HT_{1A})
c. Increased sensitivity of the serotonin 2 C receptor (5-HT_{2C})
d. Decreased sensitivity of the serotonin 2 C receptor (5-HT_{2C})
e. Decreased sensitivity of the serotonin 2A receptor (5-HT_{2A})

17. Investigations of developmental psychopathology find that adult antisocial behaviors may have important roots in childhood. A subgroup of youth is identified to possess psychopathic callous unemotional personality characteristics. Which of the following is *least* likely to be one such characteristic?

a. Shallow emotions and low anxiety
b. Inability to feel guilt or remorse
c. Superficial charm
d. Deficits in information processing
e. Increased sensation seeking

18. Risk and prognostic factors that are associated with a poorer outcome from conduct disorder include all of the following *except:*

a. Lower than average intelligence (especially low verbal IQ)
b. Large family size
c. Adolescence onset of conduct-disordered behavior
d. Peer rejection and association with a delinquent peer group
e. Comorbid with ADHD

19. Based on the study of "Differentiating Early-Onset Persistent Versus Childhood-Limited Conduct Problem Youth" by E. Barker and B. Maughan (2009), the predictors that increase risk of persistent conduct problem trajectory for both girls and boys include all of the following *except:*

a. Practical support for the mother
b. Temperamental activity levels
c. Anxiety during pregnancy
d. Harsh parenting
e. Partner cruelty toward the mother

20. Based on the study "Agitation Treatment for Pediatric Emergency Patients" by R.J. Hilt and T.A. Woodward (2008), all of the following are recommended non-pharmacological and calming interventions for clinicians' use *except:*

a. Use simplified language and soft voice
b. Reduce environmental simulation
c. Remove distracting toys
d. Remove breakable objects/equipment
e. Allow space for pacing

ANSWERS AND EXPLANATIONS

1. **(e)** Pathological gambling (previously under "impulse-control disorders not elsewhere classified" in DSM-IV-TR) was renamed "gambling disorder" and is currently under the category of "substance-related and addictive disorder" in DSM-5. Trichotillomania (new name: hair-pulling disorder) was recategorized under "obsessive-compulsive and related disorders" in DSM-5. ADHD was recategorized under neurodevelopmental disorders; on the other hand, ODD and CD appear under "disruptive, impulse-control, and conduct disorders" along with IED, pyromania, kleptomania, antisocial personality disorder (which can be also found under "personality disorders" in DSM-5), other specified disruptive, impulse-control, and conduct disorder, and unspecified disruptive, impulse-control, and conduct disorder. *(Ref. 4, pp. 461–489)*

2. **(d)** Even though most youth with CD met criteria for ODD previously, youth with ODD do not always develop CD. Although most of the disorders under this category have a male predominance, the relative degree of such predominance varies both across disorders and within a disorder at different ages. *(Ref. 4, pp. 461–464)*

3. **(e)** In DSM-5 diagnostic criteria for ODD a "Note" was added indicating different frequencies of defiant behaviors required for children younger versus older than 5 years. For children younger than 5 years the behaviors need to occur *most days* for at least six months to meet criteria for ODD, unless otherwise noted (Criterion A8: "has been spiteful or vindictive at least twice within the past 6 months"). For children older than 5 years, the behaviors have to occur at least *once a week* for at least six months, unless otherwise noted (Criterion A8). *(Ref. 4, p. 462)*

4. **(b)** Onset of IED-associated behaviors is commonly in later childhood or early adolescence, and the behaviors rarely start for the first time after age 40 years. DSM-5 requires the minimal chronological age of six years or equivalent developmental level to diagnose youth with IED. *(Ref. 4, pp. 466–467)*

5. **(a)** In DSM-5 diagnostic criteria for conduct disorder (CD) a specifier "with limited prosocial emotions" was added, but heightened irritability was not one of the characteristics that reflect the core pattern of such a specifier. To qualify for this specifier, at least two of the characteristics (answers b. through e.) have to present persistently over > 12 months in multiple relationships and settings. *(Ref. 4, pp. 469–471)*

6. **(c)** Even though nondiagnostic, *slower* resting heart rates and reduced autonomic fear conditioning are unique psychophysiological markers found in individuals with CD. *(Ref. 3, pp. 459–460; Ref. 4, pp. 473–474)*

7. **(a)** With variable onset, kleptomania often starts in adolescence, and may also begin in childhood and adulthood. In the general population, it has a very low prevalence rate: approximately 0.3% to 0.6%. It is a female predominant disorder at a ratio of 3:1. *(Ref. 4, p. 478)*

8. **(d)** Based on teachers' reports, the frequency of oppositional behaviors peaks between 8 and 11 years, and then declines over time. However, available data show that symptoms of conduct disorder are more persistent with a higher resistance to change compared to oppositional behaviors. *(Ref. 3, p. 457)*

9. **(c)** Even though it is not diagnosis specific, the estimated heritability of antisocial behavior is 50%. It applies to the population at large, not to a particular individual. *(Ref. 3, p. 458)*

10. **(c)** It has shown that genetic influences are stronger in children from more disadvantaged families than those from affluent ones. *(Ref. 3, pp. 458–459)*

11. **(b)** Acute situations can happen both at the ED and the inpatient setting. Physical restraint and seclusion should be considered as last resorts after all other approaches have failed. *(Ref. 3, p. 462)*

12. **(a)** The National Institute for Health and Clinical Excellence in the United Kingdom recommends PMT as the first-line treatment for conduct problems in youth. Based on social learning theory, PMT is the most extensively studied in this field. It encourages parents to use positive reinforcement, to adopt more effective discipline strategies, and to learn how to negotiate with their children, and it also shows indirect effectiveness in improving sibling behavior, maternal psychopathology, marital satisfaction, and family cohesion. MST has variable, moderate effectiveness in reducing offending depending on the skills of the treatment team, whereas therapeutic foster care demonstrates evidence of reducing youths' criminal activities. With less rigorous data to support it, FAST Track demonstrates some improvements in social coping skills, more positive peer relations, improved academic performance, and social competency. Research shows conflicting results for the effectiveness of wildness programs, boot camps, and other residential treatments due to the poor quality of the studies. *(Ref. 3, pp. 462–463)*

13. **(e)** Polypharmacy should be avoided as much as possible especially with concerns of potential drug-drug interactions, a higher risk of adverse reactions, side effects, and long-term negative consequences. *(Ref. 3, p. 463)*

14. **(b)** The Firesetting Risk Interview (FRI) is a structured interview (Parent Report) that is used to assess several domains related to fire involvement. FIA comes with both parent and child versions, and is also a structured interview obtaining information regarding specific fire incidents. Similar to FRI, CFI is a structured interview assessing several domains related to fire involvement, but it is administered to children (Child Report). CBCL is a rating scale (either parent or teacher report) that is used to assess several dimensions of children's emotional and behavioral functioning. CHI is a questionnaire used to assess aggression and hostility among children (from both parent and child report). *(Ref. 3, p. 489)*

15. **(a)** Fire safety skills training (FFST) as well as CBT showed an accumulating evidence of efficacy in treating fire-setting behavior in youth, and fire safety education remains a core component. *(Ref. 3, pp. 489–490)*

16. **(b)** Decreased sensitivity of the serotonin 1A receptor (5-HT_{1A}) is found to be associated with increased aggression in human

and animal studies. As serotonergic agents, the atypical anxiolytic agent buspirone acts as an agonist at the 5-HT_{1A} receptor. Decreased antagonistic effect of 5-HT_{1B} and abnormalities in the dopaminergic/noradrenergic neural system are found to be linked to impulsive aggression. When exposed to frustration or provoking events, children with disruptive behavior disorders have lower cortisol levels than the control group. The 5-HT_{2A} receptor plays an important role in perception (evidenced by the agonist effect of lysergic acid diethylamide—LSD). Some neuroleptics (such as risperidone, ziprasidone, and olanzapine) have antagonistic effects on 5-HT receptors, and their antipsychotic effects are at least partially mediated at cortical 5-HT_{2A} receptors. The 5-HT_{2C} receptor may be associated with the increased appetite and weight gain side effects of certain neuroleptics. *(Ref. 3, pp. 238–239; Ref. 5, p. 3589)*

17. (d) Deficits in information processing (such as low verbal intelligence) is not found in youth with this subtype conduct disorder (with psychopathic traits). They are more self-centered, less attached to others, and experience less anxiety. *(Ref. 5, p. 3590)*

18. (c) Childhood onset CD is one of poor prognostic factors among others listed. *(Ref. 4, pp. 473–474; Ref. 5, p. 3594)*

19. (a) Multivariate predictions analysis indicated low practical support for the mother was a risk factor for girls only (not for boys). All other listed factors increase risks for both boys and girls to follow a persistent conduct problem trajectory relative to the childhood limited conduct problem trajectory. *(E. Barker and B. Maughan: Differentiating Early-Onset Persistent Versus Childhood-Limited Conduct Problem Youth.* Am. J. Psychiatry, *166: 900–908, 2009)*

20. (c) Offering distracting toys or other sensory modalities is recommended. In addition, other interventions are suggested: clear self-introduction, slow movements, explanation of what will happen in the ED, offering food or drink at the child's choice, honoring the child's reasonable requests, clarification of the child's goal, remaining engaged with the child, and not taking the child's anger personally, etc. *(R. J. Hilt and T. A. Woodward: Agitation Treatment for Pediatric Emergency Patients.* JAACAP, *47: 132–138, 2008)*

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6

ANXIETY DISORDERS, OBSESSIVE-COMPULSIVE AND RELATED DISORDERS, TRAUMA- AND STRESSOR-RELATED DISORDERS, AND DISSOCIATIVE DISORDERS

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QUESTIONS

Directions: Select the best response for each of the questions 1–40.

1. Which of the following best describes the DSM-5 characterization of separation anxiety disorder (SAD)?

a. Excessive anxiety and apprehensive expectations, which are difficult for the child to control.
b. Consistent pattern of inhibited, emotionally withdrawn behavior toward caregivers.
c. Excessive anxiety about being apart from the individuals to whom the individual is most attached.
d. A maladaptive response to an identifiable stressor.
e. Significant anxiety provoked by social or performance situations.

2. In contrast to the DSM-IV-TR, the DSM-5 has no age of onset specific limitation to make a diagnosis of SAD. Manifestations of SAD vary with age, and adults with SAD may not recall a childhood onset, although they may recall symptoms. What is the *minimal* required length of symptoms presented in youth versus in adults respectively?

a. Two weeks vs. three months
b. Four weeks vs. six months
c. Six weeks vs. nine months
d. Two months vs. ten months
e. Four months vs. twelve months

3. All of the following statements regarding school refusal (school phobia) are correct *except:*

a. School refusal is classified under anxiety disorders in DSM-5.
b. There are three subtypes of school refusal in a community sample: anxious school refusers, truants, and mixed school refusers.
c. There are significant gender differences in prevalence.
d. Comorbid conditions include separation anxiety disorder, social anxiety disorder, specific phobia, panic disorder, and depression.
e. Multimodal treatment approach is recommended.

4. Which of the following conditions is the *most* common comorbid condition associated with selective mutism (SM)?

a. Communication disorders
b. Depression
c. ODD
d. Separation anxiety disorder
e. Social anxiety disorder (social phobia)

5. According to the study "Behavioral and Emotional Adjustment, Family Functioning, Academic Performance, and Social Relationships in Children with Selective Mutism," authors (C. E. Cunningham et al., 2004) reached all of the following conclusions *except:*

a. Selective mutism is associated with more anxious behaviors than oppositional behavior based on both parents' and teachers' reports.
b. Teachers rate more ODD (and ADHD) symptoms in the selective mutism group at school.
c. No differences are found in the marital status, economic resources, or support networks of families regardless of whether children have or have no selective mutism.
d. Academic performance on math and reading of children with selective mutism do not differ from the control group.
e. Overall children with selective mutism are not victimized more than the control group.

6. There has been a concern about overdiagnosing selective mutism in bilingual minority children who are recent immigrants. Which of the following criteria are necessary for a diagnosis of selective mutism in such populations?

a. The duration of disturbance is longer than one month.
b. The child is between the ages of 3 and 8 years.
c. The child is younger than age 3 years.
d. The child cannot speak his or her first language at home or in familiar settings.
e. Comprehension of the new language is adequate but the child persistently refuses to speak in unfamiliar settings.

7. Based on DSM-5, children with specific phobia are *more* likely to manifest their fear or anxiety as any of the following *except:*

a. Crying
b. Clinging
c. Freezing
d. Rapid speech
e. Tantrums

8. Up to what percentage of individuals with specific phobia are *more* likely to make suicide attempts than those without the diagnosis?

a. 20%
b. 30%
c. 40%
d. 50%
e. 60%

9. To meet the DSM-5 criteria for a social anxiety disorder (social phobia) children *must* invariably demonstrate anxiety in which of the following situations?

a. Interactions with parents
b. Interactions with other relatives
c. Giving testimony in a church setting
d. In peer settings, such as school
e. Eating in front of people

10. What is the overall prevalence rate of panic disorder in children under the age of 14 years?

a. < 0.1%
b. < 0.4%
c. About 1%
d. Between 2–4%
e. > 4%

11. Based on DSM-5 all of the following statements regarding agoraphobia are correct *except:*

a. Agoraphobia is not a codable diagnosis.
b. Agoraphobia's core symptom is marked fear or anxiety about certain situations (e.g., using public transportation, being in open or enclosed spaces, standing in line or being in a crowd, and being outside of the home alone).
c. At least two of the above five fear- or anxiety-provoking situations need to be present to be considered agoraphobia.
d. The situations almost always provoke fear or anxiety and lead to avoidance behaviors.
e. Agoraphobia is diagnosed irrespective of the presence of panic disorder.

12. The core manifestation of generalized anxiety disorder (GAD) is frequent excessive anxiety and worry that are difficult for the patient to control, which is associated with a list of symptoms including restlessness, fatigue, poor concentration, irritability, muscle tension, and sleep disturbance. For children, what is the *minimal* number of the previously listed symptoms that have to be present for more days than not for the past six months to meet the criteria for GAD?

a. One
b. Two
c. Three
d. Four
e. Five

13. Compared to adults, youth with GAD may be more likely to worry about all of the following or show all of the following characteristics *except:*

a. Worry about performance or competence
b. Worry about catastrophic events
c. Worry about the whereabouts of things
d. Being overly conforming and perfectionist
e. Being overzealous in seeking reassurance

14. All of the following statements correctly describe some of the unique characteristics of children and adolescents with obsessive-compulsive disorder (OCD) *except:*

a. Young children may not be able to articulate the aims of their compulsive behaviors or mental acts.
b. Females are affected at a higher rate than males in the child population.
c. Mean age at onset of OCD is 19.5 years, but one-fourth of cases begin by age 14 years.
d. 40% of youth with childhood or adolescent onset of OCD may experience remission by early adulthood, but many of them can have a lifetime illness.
e. Pattern of OCD symptoms is more variable in children and there are higher rates of harm obsessions in youth than in adults.

15. All of the following statements correctly describe risk and prognostic factors of OCD *except:*

a. Behavioral disinhibition in childhood is a possible temperamental risk factor.
b. Physical and sexual abuse during childhood increases risk for developing OCD.
c. Some environmental factors (such as certain infectious agents and a post-infectious autoimmune syndrome) may trigger sudden onset of OCD symptoms.
d. The rate of OCD among first-degree relatives of individuals with childhood or adolescence onset OCD is 10 times more than that among first-degree relatives of those without the disorder.
e. Concordance rate for monozygotic twins is 0.57 vs. 0.22 for dizygotic twins.

16. Individuals with OCD commonly have comorbid conditions. Which of the following is a more common *triad* seen in children?

a. OCD, ODD, and ADHD
b. OCD, tic disorder, and MDD
c. OCD, tic disorder, and ADHD
d. OCD, ADHD, and GAD
e. OCD, ODD, and GAD

17. What is the *most* common age at onset of body dysmorphic disorder?

a. 12–13 years
b. 14–15 years
c. 16–17 years
d. 18–19 years
e. 20–21 years

18. Which of the following body areas/regions is the *most* commonly affected by trichotillomania (hair-pulling disorder)?

a. Axillary
b. Eyelids

c. Facial
d. Pubic
e. Peri-rectal

19. Which of the following estimated ratios *more* accurately reflects the gender difference (girls vs. boys) in the prevalence of trichotillomania (hair-pulling disorder) among children?
a. 10:1
b. 5:1
c. 1:1
d. 1:5
e. 1:10

20. Which of the following is the *least* common functional consequence of excoriation (skin-picking) disorder?
a. Missing school
b. Difficulties managing responsibilities at school
c. Difficulties studying due to skin picking
d. Tissue damage, scarring, and infection
e. Synovitis of the wrists

21. Which of the following statements does *not* reflect the current understanding, diagnosis, and categorization of reactive attachment disorder (RAD) under DSM-5?
a. RAD represents a pattern of significant inhibited, emotionally withdrawn behavior toward adult caregivers.
b. RAD represents a pattern of significant reduced or absent reticence in approaching and interacting with unfamiliar adults.
c. There must be a history of experiencing a pattern of extremely insufficient care.
d. The disturbance has to be evident prior to the age of 5 years.
e. The developmental age has to be at least 9 months.

22. DSM-5 made major modifications in the diagnostic criteria for posttraumatic stress disorder (PTSD). Two separate sets of criteria are used for either individuals who are adults, adolescents, and old children, or younger children. Which of the following is the *correct* age cut-off for these two sets of diagnostic criteria?
a. Age of 3 years
b. Age of 6 years
c. Age of 8 years
d. Age of 10 years
e. Age of 12 years

23. Based on DSM-5, all of the following statements regarding diagnosing PTSD in children 6 years and younger are correct *except:*
a. Learning traumatic events that occurred to a parent or caregiving figure can be qualified as one of the symptoms listed in Criterion A (exposure).
b. Witnessing events in electronic media, television, movies, or pictures can be qualified as one of the symptoms listed in Criterion A (exposure).
c. Intrusive memories may not seem distressing, but may be expressed as play reenactment.
d. Dissociative reactions such as flashbacks may occur as reenactment in play.
e. Irritability and angry outbursts may present as extreme temper tantrums.

24. All of the following are unique characteristics of PTSD presentation in younger children *except:*
a. Occurrence of developmental regression, such as loss of previously acquired language
b. Experience of hearing one's thoughts spoken in one or more voices and paranoid ideation
c. Presence of frightening dreams without specific content to the traumatic events
d. Presence of frequent fearful reactions at the time of the exposure or during the re-experiencing
e. Avoidance as restricted play or exploratory behaviors

25. All of the following statements regarding dissociative identity disorder (DID) are accurate *except:*
a. Individuals with DID may experience altered perceptions, such as hearing a child's voice.
b. Individuals with DID may report their bodies feel different, such as feeling like a small child.
c. In children, symptoms cannot be better explained by imaginary friends or other fantasy play.
d. Full-blown DID may first present at almost any age, from early childhood to late adulthood.
e. Females with DID predominate in both adults and children in clinical settings.

26. What is the mean age at onset of depersonalization/derealization disorder?
a. 6 years
b. 12 years
c. 16 years
d. 20 years
e. 24 years

27. All of the following statements regarding the differential diagnoses and specific features of separation anxiety disorder and social anxiety disorder (social phobia) are correct *except:*
a. Increased sensitivity to carbon dioxide (CO_2) exposure is found in children with separation anxiety disorder but not in children with social anxiety disorder (social phobia).
b. School refusal in children with social anxiety disorder is due to the fear of being negatively judged by others, not due to worries about being separated from attachment figures.
c. Children with separation anxiety disorder are generally comfortable in social settings as long as they are accompanied by the attachment figures.
d. Children with separation anxiety disorder may show temperamental characteristics of behavioral inhibition to the unfamiliar as young as 21 months.

e. Children with social anxiety disorder (not with separation anxiety disorder) exhibit increased fear response when challenged in the laboratory with social stressors.

28. In youth with any anxiety disorder, among all of the following listed conditions, which is the *most* common comorbid condition?

a. Another anxiety disorder
b. Depression
c. ADHD
d. ODD
e. CD

29. Which of the following neurotransmitter systems has recent research shown to be an important potential genetic contributor for generalized anxiety disorder (GAD)?

a. Serotonin transporter genes
b. Serotonin receptor genes
c. Dopamine transporter genes
d. Noradrenergic receptor genes
e. Nicotinic receptor genes

30. Which of the following brain structures/regions are *most* likely implicated in children with anxiety disorders?

a. Caudate of basal ganglia
b. Putamen of basal ganglia
c. Dorsal prefrontal cortex
d. Inferior occipital cortex
e. Amygdala

31. All of the following are correct descriptions of unique characteristics of information-processing functions in children with anxiety disorders *except:*

a. Attention bias for stimuli associated with danger can be measured using dot probe and Stroop paradigms.
b. Studies using dot probe tasks show a bias toward threatening stimuli in children with anxiety disorder.
c. The above orienting to threaten stimuli is more likely to occur with brief (less than 500 ms) stimuli presentation.
d. Studies using Stroop tasks show shortened latency for naming color of potentially threatening words in children with anxiety disorders.
e. Children with anxiety disorders are more likely to interpret ambiguous stimuli as threatening.

32. Which of the following categories of psychopharmacological therapies should be considered as the first-line choice for treating children with social anxiety disorder, separation anxiety disorder, and OCD?

a. Benzodiazepines
b. Beta-blockers
c. Buspirone
d. Selective serotonin reuptake inhibitors (SSRIs)
e. Tricyclic antidepressants

33. The deficit of which of the following brain functions is *most* robustly associated with pediatric OCD?

a. Set motor inhibition
b. Nonverbal memory
c. Verbal memory
d. Visual motor integration
e. Visual-spatial memory

34. Which of the following neuroimaging findings is associated with all of the conditions including pediatric autoimmune neuropsychiatric disorder associated with streptococcal infections (PANDAS), OCD, tic disorders, and Sydenham's chorea?

a. Decreased ventricular volumes
b. Increased total white matter
c. Increased basal ganglia volumes
d. Decreased volumes of anterior cingulate
e. Increased volumes of posterior cingulate

35. Based on reliable clinical trials data using single-drug (serotonin reuptake inhibitors) treatment, which of the following numbers reflect the accurate amount of drug-naïve patients with OCD that experience reduction of 25% to 40% severity in symptoms?

a. 20–30%
b. 30–40%
c. 40–50%
d. 50–60%
e. 60–70%

36. Based on the pediatric OCD treatment study (POTS) randomized controlled trial (2004), the authors reached the following conclusion regarding the first line of intervention:

a. Start CBT alone with addition of medication if CBT is unsuccessful.
b. Start medication alone with addition of CBT if medication is unsuccessful.
c. Use medication alone and avoid CBT regardless of response.
d. Use CBT alone and avoid medication regardless of response.
e. Start both CBT and medication together regardless of severity of the symptoms.

37. All of the following statements regarding the study "Altering the Trajectory of Anxiety in At-Risk Young Children" by R. M. Rapee et al. (2010) are correct *except:*

a. Authors evaluated the three-year effects of parent-focused intervention for anxiety in inhibited children aged 36 and 59 months (mean age of 46.5 months).
b. Outcome measures included diagnostic interview of children and parents, objective measures of anxiety symptoms, and children's/parents' reported temperament assessment battery.
c. The parent intervention program was compared to control group: monitoring-only condition.

d. The intervention program is relatively expensive, being delivered in various community settings, such as preschools, parent-child centers, and health clinics.
e. The intervention showed the potential of altering the trajectory of anxiety and related disorders in young inhibited children.

38. According to AACAP "Practice Parameter for the Assessment and Treatment of Children and Adolescents With Posttraumatic Stress Disorder" (2010), all of the following recommendations are considered as Minimal Standard (MS) *except:*

a. At the screening process, the psychiatric assessment of youth should routinely include questioning traumatic experiences and PTSD symptoms.
b. At evaluation, if screening is positive for significant PTSD symptoms, a formal evaluation to determine the presence and severity of the symptoms and the extent of functional impairment should be conducted.
c. Differential diagnoses from other psychiatric disorders and from physical conditions that may mimic PTSD should be assessed.
d. In youth with PTSD, the first-line treatment is trauma-focused psychotherapies.
e. SSRIs should be considered for treating youth with PTSD.

39. Which of the following physical conditions is *least* likely to mimic PTSD-like symptoms?

a. Asthma
b. Caffeinism
c. Hypothyroidism
d. Migraine
e. Seizure disorder

40. All of the following statements regarding trauma-focused psychotherapies are correct *except:*

a. Trauma-focused psychotherapies should be the first-line treatment for youth with PTSD.
b. Parents' participation in treatment improves resolution of children's trauma-related symptoms.
c. Lower level of parental distress and stronger parental support is associated with better treatment response of PTSD symptoms in children receiving trauma-focused CBT.
d. Empirical evidence supports that addressing the child's traumatic experiences using trauma-focused therapies is superior to nonspecific or nondirective therapies.
e. Clinical worsening during the trauma-focused therapies warrants stopping the treatment and considering other options.

ANSWERS AND EXPLANATIONS

1. **(c)** Answer (a) characterizes generalized anxiety disorder; answer (b) characterizes reactive attachment disorder or autism spectrum disorders; answer (d) characterizes adjustment disorder; and answer (e) characterizes social anxiety disorder. *(Ref. 4, pp. 190–191, 202, 222, 265, 286)*

2. **(b)** DSM-5 stopped categorizing SAD as a childhood onset disorder, and specifically noted that the fear, anxiety, or avoidance has to persist for more than four weeks in youth, and six months or longer in adults (age > 18 years). *(Ref. 4, pp. 191–193)*

3. **(a)** Defined as difficulty attending school associated with emotional distress (anxiety and depression) school refusal (school phobia) is *not* a DSM-5 diagnosis. It occurs in approximately 1% of all youth and 5% of all clinical-referred youth, with two peaks of onset: 5–6 years and 10–11 years of age (coinciding with starting kindergarten and the transition into middle school). An individualized multimodal approach is most beneficial for school refusal, and CBT and pharmacological therapy can both play effective roles. *(Ref. 3, pp. 331–334)*

4. **(e)** Among anxiety disorders that are common comorbid conditions with selective mutism, social anxiety disorder is the most common. A study shows nearly all children with selective mutism also meet criteria for social anxiety disorder. *(Ref. 1, p. 306; Ref. 4, p. 197)*

5. **(b)** In contrast to parents' report at home, at school, teachers report fewer ODD or ADHD symptoms in children with selective mutism group than controls. *(C. E. Cummingham et al.: Behavioral and Emotional adjustment, Family Functioning, Academic Performance, and Social Relationships in Children with Selective Mutism.* Journal of Child Psychology and Psychiatry, *45: 1363–1372, 2004)*

6. **(e)** While acquiring a second language immigrant children may normally undergo a "silent period" or nonverbal period. Such periods are typically shorter than six months with variations, are more common in 3- to 8- year-olds, and are usually longer in younger children. Selective mutism should not be diagnosed during the period while they are acquiring the new language. Children's learning a second language easily, quickly, and automatically is a common myth. Based on DSM-5 "if comprehension of the new language is adequate but refusal to speak persistent, a diagnosis of selective mutism may be warranted." If children cannot speak in their first language in familiar settings, they may have speech delays or language disorders. *(Ref. 4, pp. 195–197; C. O. Topperlberg et al.: Differential Diagnosis of Selective Mutism in Bilingual Children.* JAACAP, *44: 592–595, 2005)*

7. **(d)** Core symptoms of specific phobia are marked fear or anxiety about a specific object or situation, such as heights, animals, flying, exposure to needles or blood, enclosed places, loud sounds, etc. In children, the anxiety or fear is often manifested as crying, tantrums, freezing, and clinging. *(Ref. 4, p. 197)*

8. **(e)** There is up to 60% more likelihood for individuals with specific phobia to make suicide attempts than for those who are not diagnosed with the disorder, which could be due to its high comorbidity with personality disorders and other anxiety disorders. *(Ref. 4, p. 201)*

9. **(d)** Social anxiety disorder (social phobia) is involved with significant fear or anxiety about one or more social situations where patients worry about being exposed to possible scrutiny by others. Anxiety can be triggered by many different situations in different settings. However, in children, the anxiety must also occur in peer settings, not just during interactions with adults. Again, similar to specific phobia, children may also present their anxiety by crying, tantrums, freezing, clinging, shrinking, or failing to speak. *(Ref. 4, pp. 202–204)*

10. **(b)** Panic disorder (attacks) can occur in children, but rarely. The estimated overall prevalence rate of panic disorder is lower than 0.4% for children younger than 14 years old. The prevalence rates increase over time, especially during adolescence, with more female than male cases, and the rate increases seem to follow the onset of puberty, peak during adulthood (with a median age at onset of 20–24 years), and then decline after age 64. Overall, the female to male ratio is 2:1, and the prevalence rate for adults and adolescents is about 2 to 3%. *(Ref. 4, p. 210)*

11. **(a)** In contrast to DSM-IV-TR, in DSM-5 agoraphobia is a codable disorder, and can be diagnosed irrespective of the presence of panic disorder. In other words, if panic disorder and agoraphobia coexist, both diagnoses should be given with different codes. However, if the avoidance behaviors associated with the panic attacks do not extend to avoidance of two or more agoraphobic situations, only the diagnosis of panic disorder is assigned. In DSM-IV-TR, agoraphobia is usually attached to panic disorder either as "with agoraphobia" or "without agoraphobia," unless "agoraphobia without history of panic disorder" is used, which was coded as 300.22 (the same code for "agoraphobia" in DSM-5). *(Ref. 4, pp. 217–221)*

12. **(a)** Only one of the listed symptoms is required in children to meet criteria for GAD in contrast to three or more that are required for adults. *(Ref. 4, p. 222)*

13. **(c)** Elderly people with cognitive impairment may present their anxiety as worrying about the whereabouts of things, which should be regarded as more realistic given the cognitive impairment. The frail elderly person's worry about safety and falls may limit their daily activities. In children and adolescents with GAD, the anxiety and worries tend to be related to their performance or competence at school/in sports, and related to punctuality and catastrophic events. They tend to doubt themselves and need more reassurance and approval. *(Ref. 4, pp. 223–224)*

14. **(b)** Males are affected at a higher rate than females in the child population. Boys also have an earlier age of onset than girls, with almost 25% of boys having an onset prior to age 10 years. In general, the onset of symptoms is gradual. There are higher

rates of sexual and religious obsessions in adolescents than in children whereas there are higher rates of harm obsessions (such as fears of catastrophic events) in both children and adolescents than in adults. *(Ref. 4, pp. 237–239)*

15. **(a)** Temperamental factors such as greater internalizing symptoms, higher negative emotionality, and behavioral inhibition in childhood are possible risk factors for developing OCD. *(Ref. 4, pp. 239–240)*

16. **(c)** Up to 30% of people with OCD may also suffer from a lifetime tic disorder, which seems to be more common in males with a childhood onset OCD. They seem to represent a separate population in terms of their manifestation of OCD symptoms, comorbidity, course, and pattern of familial transmission. A triad of OCD, tic disorder, and ADHD can be seen in children. *(Ref. 4, p. 242)*

17. **(a)** The most common age at onset of body dysmorphic disorder is 12–13 years, whereas the mean age at onset is 16–17, and the median age at onset is 15 years. Two-thirds of patients have onset prior to the age of 18 years. In DSM-5, body dysmorphic disorder is under the category of obsessive-compulsive and related disorders, along with hoarding disorder, trichotillomania (hair-pulling disorder), and excoriation (skin-picking) disorder, etc. The clinical features of body dysmorphic disorder are largely similar in youth and in adults. Early onset (prior to the age of 18 years) is associated with higher risk of suicide, more comorbidity, and gradual progression. *(Ref. 4, p. 244)*

18. **(b)** Hair pulling can occur anywhere hair grows. However, the *most* common sites are the eyebrows, eyelids, and scalp, followed by less common sites, such as axillary, facial, peri-rectal, and pubic regions. *(Ref. 4, p. 251)*

19. **(c)** Girls and boys with trichotillomania are more equally represented compared to adults where many more females are affected than males at a ratio of approximately 10:1. Onset of puberty often coincides with the onset of hair pulling in trichotillomania. Trichotillomania follows a usual chronic course with some waxing and waning if the disorder is untreated. To differentiate it from other causes of alopecia, skin biopsy and dermoscopy (or trichoscopy) can be used. Most common comorbid conditions with trichotillomania are major depressive disorder and excoriation (skin-picking disorder). *(Ref. 4, pp. 252–254)*

20. **(e)** Synovitis of the wrists due to chronic picking can occur, but rarely. Because of tissue damage, scarring, and infections, requirements for antibiotics to treat infections can frequently occur, along with occasional need for surgery. *(Ref. 4, p. 256)*

21. **(b)** A pattern of behavior that involved culturally inappropriate, overly familiar behaviors with relative strangers is the core feature of disinhibited social engagement disorder (DSED). This is a new diagnosis listed in DSM-5. In DSM-IV-TR, there were two subtypes of RAD: inhibited type and disinhibited type. DSED in DSM-5 is similar to RAD, disinhibited type in DSM-IV-TR. Interestingly, in DSM-5, both RAD and DSED still use the same code: 313.89, but correspond to different ICD codes: F94.1 for RAD and F94.2 for DSED. *(Ref. 4, pp. 265–270)*

22. **(b)** Two separate sets of criteria are used for either individuals who are adults, adolescents, and children older than the age of 6 years, or children who are younger than the age of 6 years. *(Ref. 4, pp. 271–274)*

23. **(b)** Witnessing events only in electronic media, television, movies, or pictures cannot be qualified as one of the symptoms listed in Criterion A (exposure). In adults, the exposure through electronic media, television, movies, or pictures can be counted as such traumatic events only if the exposure is work related (such as first responders collecting human remains or police officers/CPS social workers repeatedly exposed to details of child abuse). *(Ref. 4, pp. 271–274)*

24. **(d)** Referencing directly or symbolically to the traumatic events younger children tend to express their re-experiencing symptoms through play, and may not necessarily manifest fearful reactions at the time of the exposure or during re-experiencing. Developmental regression, such as loss of previously acquired language, may occur. Some pseudo-hallucination or pseudo-psychosis may be present. Reckless and high-risk, thrill-seeking behaviors may lead to accidental injuries to self or others. Children may try to avoid the reminders of the trauma; however, they may be also preoccupied with reminders (e.g., a young child previously bitten by a dog may repetitively talk about dogs, but still avoids any contact with a dog). Childhood abuse also increases risk of suicide. *(Ref. 4, pp. 275–278, 284)*

25. **(e)** Females with DID predominate in adult but not children clinical settings. With DID, males may deny their trauma histories and associated symptoms whereas females are more likely to present with acute dissociative states. In contrast, males with DID are more likely to exhibit criminal or violent behavior with common triggers such as combat, prison conditions, and assaults. *(Ref. 4, pp. 292–295)*

26. **(c)** With a mean age at onset of 16 years, depersonalization/derealization disorder can start in early or middle childhood, with less than 20% of individuals having onset after age 20 years and only 5% after age 25 years. It is highly unusual to have the onset later than the fourth decade of life. The lifetime prevalence ranges from 0.8% to 2.8% with a gender ratio of 1:1. The onset can be either sudden or gradual, with variable length of episodes (from brief to prolonged). The disorder is often persistent, one-third of cases have distinct episodes, and the intensity of symptoms may wax and wane. *(Ref. 4, pp. 302–304)*

27. **(d)** Children with social anxiety disorder (*not* separation anxiety disorder) may show temperamental characteristics of behavioral inhibition to the unfamiliar as young as 21 months. Social skill impairments can be found both in children with social anxiety disorder and in children with autism spectrum disorders. The former usually results from delayed learning and refinement of social skills due to anxiety, whereas the latter more likely results from neuropsychiatric impairments. *(Ref. 3, pp. 539–540; Ref. 4, pp. 194, 206)*

28. **(a)** Next to being comorbid with another anxiety disorder, depression is the most commonly reported comorbid condition among youth who suffer from anxiety disorders. ADHD is also one of the common comorbid conditions, and children with ADHD may also have a high comorbidity with anxiety disorder. *(Ref. 3, pp. 541–542)*

29. **(a)** Recent research showed that a polymorphism in the promoter region of the serotonin transporter gene (5HTT) may have genetic implications for GAD, with a shorter form of such variant (*ss* or *sl*) showing higher neuroticism, harm avoidance, and anxiety than those with the long variant (*ll*). *(Ref. 3, p. 543)*

30. **(e)** Studies in both animal subjects and humans show significant evidence of the important role that the amygdala plays in fear conditioning and is considered as a critical element of the neural circuitry underlying anxiety disorders. The orbitofrontal cortex (OFC) and anterior cingulate cortex (ACC) are also implicated in emotion processing and regulation, thus, likely to be involved in the neuronal circuitry of anxiety. *(Ref. 3, p. 543)*

31. **(d)** Studies using Stroop tasks show prolonged latency for naming the color of potentially threatening words in children with anxiety disorders, which indicate that the child's ability for naming colors is interfered with by the reactions to the threatening words. *(Ref. 3, pp. 543–544)*

32. **(d)** Considering overall efficacy and safety, clinicians should use SSRIs as the first-line pharmacological therapies to treat social anxiety disorder, separation anxiety disorder, and GAD. Benzodiazepines have shown mixed results, and buspirone and beta-blockers have shown little or no evidence of efficacy. The only tricyclic antidepressant that has shown convincing evidence of efficacy is clomipramine for pediatric OCD. Placebo-controlled trials show efficacy of both fluvoxamine and fluoxetine in treating pediatric separation anxiety disorder, social phobia, and GAD. Other placebo-controlled trials also show efficacy of sertraline in treating pediatric GAD, as well as paroxetine in treating pediatric social anxiety disorder. *(Ref. 3, p. 545)*

33. **(a)** Neuropsychological research points to an association between OCD and impairments in the executive functions of set shifting and motor inhibition, then nonverbal memory, visual motor integration, and visual-spatial memory. However, the most robust association is between pediatric OCD and deficits in set motor inhibition and response suppression. The brain areas involved are: dorsolateral prefrontal cortex, orbitofrontal cortex, cingulate, and parietal lobes. *(Ref. 3, p. 552)*

34. **(c)** Neuroimaging studies show the increased basal ganglia volumes are associated with PANDAS, tic disorders, OCD, and Sydenham's chorea. MRI morphometric studies also show that increased anterior cingulate volume might be an early marker for OCD. Decreased caudate nucleus volumes after SSRI treatment are associated with clinical improvements. *(Ref. 3, pp. 552–555)*

35. **(c)** Only about 40–50% of drug-naïve patients with OCD experience 25–40% reduction of severity in symptoms responding to a single serotonin reuptake inhibitor. Thus, the choice of agents should take into account not only OCD itself, but also other possible comorbid conditions, such as panic disorder, depression, tic disorders, and psychotic disorders, etc. For the non-responders to SSRIs, augmentation strategies may be needed. *(Ref. 3, pp. 558–559)*

36. **(b)** Investigators of POTS conclude that the first-line treatment for OCD is to start medication alone with addition of CBT if medication is unsuccessful. *(Ref. 3, pp. 559–560)*

37. **(d)** The intervention program is brief and relatively low cost and delivered in various community settings, such as preschools, parent-child centers, and health clinics. The study showed lower frequency and severity of anxiety disorders and lower levels of anxiety symptoms in children whose parents received the intervention. Level of reduction of inhibition was noticed in both groups but no significant between group difference was observed. *(R. M. Rapee et al.: Altering the Trajectory of Anxiety in At-Risk Young Children.* Am J Psychiatry, *167: 1518–1525, 2010)*

38. **(e)** Using SSRIs for the treatment of youth with PTSD is considered an *Option (OP)* in this practice parameter. Option is applied to the acceptable recommendations based on emerging empirical evidence or clinical opinions, but lacking strong empirical support and/or clear clinical consensus. *(Practice Parameter for the Assessment and Treatment of Children and Adolescents With Posttraumatic Stress Disorder.* JAACAP, *49: 414–430, 2010)*

39. **(c)** Many physical conditions can mimic PTSD-like symptoms, such as hyperthyroidism, caffeinism, migraine, asthma, seizure disorder, and catecholamine- or serotonin-secreting tumors. Some prescription medications and even some OTC medications may have similar effects, such as antiasthmatics, sympathomimetics, steroids, SSRIs, and antipsychotics, diet pills, antihistamines, and cold medicines. *(Practice Parameter for the Assessment and Treatment of Children and Adolescents With Posttraumatic Stress Disorder.* JAACAP, *49: 414–430, 2010)*

40. **(e)** Using more directive approach to address the child's traumatic experience is superior in reducing or resolving PTSD symptoms than nondirective or nonspecific approaches. Timing and pace depends on children's responses, and clinical worsening may indicate the need to strengthen mastery of previously learned interventions to enhance functioning and resiliency, rather than abandoning such an approach. *(Practice Parameter for the Assessment and Treatment of Children and Adolescents With Posttraumatic Stress Disorder.* JAACAP*, 49: 414–430, 2010)*

7

FEEDING AND EATING DISORDERS, ELIMINATION DISORDERS, AND OBESITY

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QUESTIONS

Directions: Select the best response for each of the questions 1–50.

1. Based on DSM-5, which of the following conditions is *not* under the category of feeding and eating disorders?

a. Pica
b. Obesity
c. Rumination disorder
d. Avoidant/restrictive food intake disorder
e. Binge-eating disorder

2. All of the following statements regarding pica are correct *except:*

a. The onset of the disorder has to be before the age of 18 years.
b. The symptoms have to persist longer than one month.
c. The prevalence of pica is unclear and it is highly comorbid with autism spectrum disorders and intellectual disability.
d. The "nonfood" does not include diet products that have minimal nutritional content.
e. Medical complications can result from pica, and pica can be potentially fatal.

3. All of the following statements correctly describe rumination disorder *except:*

a. With unclear prevalence its onset can be at any age although in infants it usually starts between the ages of 3 and 12 months.
b. Repeat regurgitation can be attributable to associated medical conditions, such as gastro-esophageal reflux and pyloric stenosis.
c. Medical evaluation and laboratory tests can be warranted, such as esophageal pH monitoring, scintigraphic gastro-esophageal reflux scan, endoscopy, and gastric emptying studies.
d. It should be differentiated from anorexia nervosa and bulimia nervosa.
e. Position of straining and arching back and making movements with the tongue can be characteristics of rumination disorder in infants.

4. All of the following statements regarding avoidant/restrictive food intake disorder in DSM-5 are correct *except:*

a. It is a replacement and extension of the diagnosis of feeding disorder of infancy or early childhood in DSM-IV.
b. In children and adolescents, failure to maintain weight or height increases along with their developmental trajectory fulfills the criteria of weight loss.
c. Malnutrition can be life threatening, especially in infants.
d. Fear of gaining weight or getting fat can be a driving force behind avoidance.
e. Heightened sensory difficulty is a driving force of avoidance in some cases.

5. All of the following statements regarding diagnosing anorexia nervosa (AN) based on DSM-5 are correct *except:*

a. In children and adolescents significantly low weight refers to less than that minimally expected.
b. Amenorrhea for at least three consecutive cycles is required for post-menarcheal females.
c. Two subtypes, restricting type and binge-eating/purging type, can be distinguished using different ICD-10 codes.
d. Disturbance of self-perceived body weight and shape and failure to recognize seriousness of low body weight are required.
e. DSM-5 uses body mass index (BMI) to specify severity of the disorder.

6. Patients with anorexia nervosa (AN) exhibit a number of neuroendocrine abnormalities. All of the following hormonal abnormalities have been found in emaciated patients with anorexia nervosa *except:*

a. Increased corticotropin-releasing hormone (CTRH)
b. Increased triiodothyronine (T3)
c. Blunted diurnal cortisol levels
d. Decreased estrogens
e. Decreased luteinizing hormone-releasing hormone (LHRH)

7. The symptoms of eating disorder tend to fluctuate, and may show diagnostic crossovers between the anorexia nervosa (AN) subtypes and from AN to bulimia nervosa (BN). Which of the following is a *correct* approximate rate of such crossovers during the course of the disorder?

a. 5%
b. 10%
c. 25%
d. 50%
e. 60%

8. Which of the following conditions is *least* likely to occur in patients with bulimia nervosa (BN)?

a. Hyperkalemia
b. Hypochloremia
c. Hyponatremia
d. Metabolic alkalosis
e. Metabolic acidosis

9. Based on DSM-5, on average how many episodes of inappropriate compensatory behaviors per week have to occur that will specify the severity of BN as "severe"?

a. 1–3
b. 4–7
c. 8–13
d. 14–18
e. > 18

10. All of the following are risk factors for developing BN *except:*

a. Low self-esteem, depression, and anxiety in childhood
b. Internalization of a thin body ideal
c. Underweight childhood
d. Early pubertal maturation
e. Familial transmission

11. All of the following statements correctly describe the characteristics of binge-eating disorder *except:*

a. Excess eating occurs in a discrete period of time, with a sense of lack of control.
b. Binge-eating episodes can be associated with eating too fast, eating too much, eating alone, and feeling disgusted and guilty afterward.
c. Marked distress results from the presence of binge eating.
d. Binge eating occurs at least once a week for three months on average.
e. Binge eating may be accompanied by recurrent inappropriate compensatory behavior.

12. At which of the following *minimal* chronological ages (or equivalent developmental level) can a child be diagnosed with enuresis?

a. 2 years
b. 3 years
c. 4 years
d. 5 years
e. 6 years

13. A diagnosis of enuresis can be made in the presence of which of the following situations?

a. Neurogenic bladder
b. Polyuria secondary to diabetes mellitus
c. Polyuria secondary to diabetes insipidus
d. Acute urinary tract infection
e. Regular presence of incontinence prior to the onset of the above conditions

14. All of the following statements regarding *primary* encopresis are accurate *except:*

a. Children must be older than 4 years of age to receive the diagnosis.
b. Frequency must be more than once a month for three months.
c. Children develop this condition after a period of fecal continence.
d. Constipation and overflow incontinence are very common.
e. Constipation may be complicated by anal fissure and painful defecation.

15. The *peak* time for the onset of bulimia nervosa (BN) is:

a. Preadolescence
b. Early adolescence
c. Middle adolescence
d. Late adolescence
e. Middle adulthood

16. All of the following statements regarding comorbidity of AN and BN are accurate *except:*

a. Both AN and BN have a high comorbidity with mood disorders.
b. Comorbid anxiety disorders are commonly seen both in patients with AN and those with BN.
c. Patients with AN are more commonly involved with alcohol and drug abuse than those with BN.
d. Some researchers described three personality subtypes in patients with eating disorders: high-functioning and perfectionistic type, more constricted and over-controlled type, and more emotionally dysregulated and undercontrolled type.
e. Adolescents with AN tend to show a more avoidant, inhibited, and constricted personality compared to those with BN, who tend to show more affective lability and an undercontrolled personality.

17. All of the following instruments are helpful in screening and assessing individuals with possible eating disorders *except:*

a. Eating Disorder Examination (EDE)
b. Eating Disorder Inventory (EDI)
c. Eating Attitudes Test (EAT)
d. Kids Eating Disorder Survey (KEDS)
e. None of the above

18. The UK National Institute for Health and Clinical Excellence (NICE) 2004 guideline for the treatment of eating disorders recommended modalities graded as A, B, and C based on available supporting evidence. Which of the following therapeutic modalities was rated as B in treating adolescents with AN?

a. Individual CBT
b. Family intervention
c. Group therapy
d. Individual interpersonal therapy
e. Individual psychodynamic psychotherapy

19. Which of the following associated conditions in adolescents with AN warrants pediatric inpatient care?

a. Weight <75% of ideal body weight
b. Unresponsive to outpatient treatments

c. Amenorrhea
d. Presence of comorbid psychiatric disorders
e. Hypercholesterolemia

20. There is limited data to support a role of psychopharmacological interventions for AN. Which of the following agents have shown benefits in decreasing anxiety around eating, improving sleep, and decreasing rumination about food and body concerns based on recent studies?

a. Lithium
b. Haloperidol
c. Olanzapine
d. Risperidone
e. Ziprasidone

21. Which of the following medications has shown *strong* evidence of efficacy in treating youth with BN?

a. Fluoxetine
b. Citalopram
c. Escitalopram
d. Sertraline
e. None

22. Which of the following is the *least* likely characteristic of psychosocial dwarfism (PSD)?

a. Hypophagia
b. Declination of linear growth
c. Vomiting
d. Stealing and hoarding food
e. Polydipsia

23. Ipecac abuse in youth with eating disorders is *more* associated with which of the following conditions?

a. Periodontitis
b. Esophageal or gastric rupture
c. Renal failure
d. Cardiomyopathy
e. Seizure

24. Some chronic medical illnesses may cause weight loss. Thus, such illnesses should be considered in the differential diagnoses of AN. Which of the following is *least* likely to cause weight loss?

a. Crohn's disease
b. Diabetes mellitus
c. Addison's disease
d. Hyperthyroidism
e. Kleine-Levin syndrome

25. All of the following statements accurately describe the developmental course and outcome of anorexia nervosa (AN) based on up-to-date research data *except:*

a. Long-term studies show less than 50% of patients with AN achieve full recovery, but one-third of those recovered will relapse.
b. One-third of the patients partially remit, and one-fifth of the patients remain chronically ill.
c. Adolescents seem to have more favorable outcomes.
d. In youth with AN, restricting type tends to do better than those with purging type.
e. Youth participating in family-based intervention for AN achieve substantial improvement and recovery.

26. Which of the following is *least* likely to be a personality characteristic of patients with anorexia nervosa?

a. Perfectionism
b. Competitiveness
c. Avoidant traits
d. Obsessional traits
e. Interpersonal security

27. All of the following neuroendocrine changes can be found in patients with AN *except:*

a. Decreased corticotrophin-releasing hormone (CRH)
b. Hyposecretion of GnRH
c. Reduced serotonin functioning
d. Low level of leptin
e. Increased adiponectin

28. All of the following statements regarding the epidemiology of anorexia nervosa and bulimia nervosa accurately reflect current knowledge *except:*

a. 90–95% of patients with AN are female.
b. Anorexia nervosa is less common than bulimia nervosa.
c. Anorexia nervosa is prevalent across different ethnic and socioeconomic groups.
d. AN is less prevalent in Asian American women.
e. BN is less common in African American women.

29. Individuals with BN are *least* likely to rate their families' dynamics as which of the following?

a. Disengaged
b. More controlling
c. Conflictive
d. Disorganized
e. Non-cohesive

30. All of the following are common laboratory findings with binging and purging behavior *except:*

a. Hypokalemia
b. Hypochloremic alkalosis
c. Decreased serum amylase
d. EKG—QT and T wave changes
e. Reduced bone density

31. Which of the following numbers correctly reflects the prevalence of overweight or obesity in children and adolescents based on the *most* recent U.S. epidemiologic data?

a. 17%
b. 23%
c. 32%
d. 39%
e. 46%

32. Which of the following is the *least* likely comorbid medical condition of obesity?

a. Metabolic syndrome
b. Hyperthyroidism
c. Constipation
d. Obstructive sleep apnea
e. Pseudotumor cerebri

33. Which of the following genetic syndromes is *least* likely to cause obesity?

a. Prader-Willi syndrome
b. Cornelia de Lange's syndrome
c. Alstrom syndrome
d. Laurence-Moon syndrome
e. Turner syndrome

34. All of the following statements regarding environmental risk factors related to childhood obesity are accurate *except:*

a. Parental restriction of feeding decreases risks of later development of the child being overweight.
b. Parents should reinforce what their kids eat rather than what they do not eat.
c. The Academy of American Pediatrics recommends no screen (television, video games, and computer exposure) time for children under age 2 years and only two hours daily for those older than 2 years.
d. Dietary practices have had significant influence on childhood obesity in the past several decades.
e. Increased time spent in sedentary activities and less time in moderate or vigorous physical activities are linked to childhood obesity.

35. Which of the following is *least* likely to influence hunger, satiety, and fat distribution?

a. Adiponectin
b. Ghrelin
c. Insulin
d. Leptin
e. Melatonin

36. Which of the following is *not* a technique used to measure and determine body composition in children for research purposes?

a. Bioelectrical resistance
b. Dual energy x-ray absorptiometry (DEXA)
c. Total body electrical conductivity
d. Total body potassium
e. Total body water

37. Which of the following defines childhood obesity?

a. BMI ≥ 25
b. BMI ≥ 30
c. BMI percentile ≥ 85th
d. BMI percentile ≥ 90th
e. BMI percentile ≥ 95th

38. According to the "Expert Committee Recommendations Regarding the Prevention, Assessment, and Treatment of Child and Adolescent Overweight and Obesity: Summary Report" (2007), all of the following statements are correct *except:*

a. The primary goal is to improve long-term physical health through a permanent healthy lifestyle.
b. Weight loss is another important goal.
c. The "Traffic Light Diet" is the most commonly used dietary intervention.
d. Physical activity interventions focus on increasing physical activity and/or reducing sedentary behaviors.
e. Parents' involvement in behavioral modification is very important.

39. Which of the following medications has been approved by the FDA as a weight loss drug for youth as young as 12 years old?

a. Amphetamine mixed salt
b. Methylphenidate agents
c. Insulin
d. Orlistat
e. Sibutramine

40. Which of the following is *most* likely to be responsible for the weight loss property of sibutramine?

a. Serotonin reuptake inhibitor
b. Dopamine reuptake inhibitor
c. Norepinephrine reuptake inhibitor
d. Dopamine blockade
e. Serotonin agonist

41. Which of the following is *not* an accurate selection criterion to consider bariatric surgery for youth with obesity?

a. Failure in weight loss after at least six months of effort in a behavior-based management program
b. BMI > 35
c. Physical maturity > 13 years for girls and > 15 years for boys
d. Avoidance of pregnancy for at least one year after the procedure
e. Capability and willingness to follow the nutritional guidelines

42. Based on epidemiological studies of enuresis, which of the following pairs of numbers reflects the rates of male:female 14-year-old adolescents respectively who are still wetting at least once a week?

a. 6.2% vs. 3%
b. 3% vs. 1.5%
c. 1.1% vs. 0.5%
d. 0.8% vs. 0.4%
e. 0.5% vs. 0.1%

43. All of the following statements regarding the etiology, mechanism, and risk factors for enuresis are correct *except:*

a. Sleep studies show correlation between enuretic events and amount of time spent in that phase of sleep cycle.
b. Efficacy of imipramine in treating bed wetting is related to its peripheral anticholinergic effects.
c. Studies show no difference of plasma atrial natriuretic peptide (ANP) in children with nocturnal enuresis versus without.
d. Secreted in pulsatile manner, low nocturnal arginine vasopressin (AVP) may represent a subgroup of enuresis.
e. Functional bladder capacity and thickness of bladder wall may be related to the response to desmopressin acetate (DDAVP).

44. All of the following statements regarding using imipramine to treat enuresis in children are correct *except:*

a. Drug overdose can be potentially lethal.
b. Cardiac monitoring is not routinely required.
c. Periodic determination of a blood level is needed.
d. A 25 mg starting dose and slow titration with 25 mg increment per week to a dose range of 75–125 mg is recommended.
e. Withdrawing the medication every three months to detect possible remission is recommended.

45. Which of the following is the *least* likely side effect of the DDAVP nasal inhaler?

a. Abdominal pain
b. Epistaxis
c. Headache
d. Hypernatremia
e. Nasal stuffiness

46. Which of the following factors is associated with a better treatment response of enuresis to DDAVP?

a. Older age
b. Higher frequency of baseline enuretic events
c. Smaller bladder capacity
d. Increased urinary osmolality
e. Nocturnal polyuria

47. All of the following statements regarding using the bell and pad alarm system to treat enuresis are correct *except:*

a. The bell and pad alarm system has an initial response rate of approximately 75%.
b. The sustained remission rate of the bell and pad alarm system is about 50%.
c. There are two subgroups of children associated with remission: those who learn to wake up to urinate and those who sleep through dry.
d. Decreased vasopressin explains the mechanism of the efficacy.
e. It can be considered as a first-line choice.

48. What is the approximate prevalence rate of encopresis in children between 7 and 8 years of age?

a. 0.5%
b. 1.5%
c. 3%
d. 5%
e. 8%

49. Which of the following is *more* likely to have an elevated postprandial plasma level in children with encopresis?

a. Cholecystokinin
b. Estrogen
c. Gastrin
d. Pancreatic polypeptide
e. Motilin

50. Which of the following is *least* likely to be a medical cause of encopresis?

a. Hirschsprung's disease
b. Hemorrhoids
c. Hypocalcaemia
d. Lactase deficiency
e. Spina bifida

Matching

51–53. There are three phases of family-based treatment of AN. Match each phase listed with the following treatment that *best* describes it:

a. Discussion of adolescent development
b. Handing control over eating back to the adolescent
c. Restoring the adolescent's weight

51. Phase 1

52 Phase 2

53. Phase 3

ANSWERS AND EXPLANATIONS

1. **(b)** Even with robust association between obesity and a range of mental disorders (such as binge eating, depressive and bipolar disorders, schizophrenia, etc.), and side effects from many psychotropic medications, obesity is not included as a mental disorder in DSM-5 because it is such a diverse disorder and many etiologic factors are involved such as genetic, physiological, behavioral, and environmental factors. In addition to all the listed conditions, anorexia nervosa, bulimia nervosa, other specified feeding or eating disorder, and unspecified feeding or eating disorder are all under the category of feeding and eating disorders in DSM-5. *(Ref. 4, pp. 329–354)*

2. **(a)** With the usual onset in childhood, pica can also start in adolescence and adulthood. The core symptom of pica is a persistent pattern of eating nonnutritive, nonfood substances longer than one month, which is inappropriate to the developmental age, and is not within a culturally supported or socially normative practice. With unclear prevalence, it is highly comorbid with autism spectrum disorders and intellectual disability. The term "nonfood" does not include diet products with minimal nutritional value. Medical complications may bring attention to the disorder, including some serious ones, such as mechanical bowel problems, intestinal obstruction, and intestinal perforation, which can be potentially fatal. Pregnant women may crave nonnutritive and nonfood substances. The diagnosis of pica cannot be given unless ingestion of such substances poses potential medical risks to the pregnant woman. *(Ref. 4, pp. 329–331)*

3. **(b)** Under DSM-5 by definition the symptom of repeated regurgitation of food cannot be attributed to an associated gastrointestinal or other medical condition. Rumination disorder can lead to severe malnutrition and can be potentially fatal, especially in infants. Appropriate medical evaluation and laboratory tests may be warranted to rule out medical conditions that can mimic the symptoms. Psychologically it is believed to be associated with the inability to regulate the internal state of satisfaction, a physical propensity to regurgitate, and a learned behavior to relieve the internal state of dissatisfaction. It is suggested that the treatment should focus on the learned aspect of rumination, using aversive and non-aversive behavioral reinforcement techniques. *(Ref. 3, pp. 585–586; Ref. 4, pp. 332–333)*

4. **(d)** Avoidant/restrictive food intake disorder is included in DSM-5 as a replacement and extension of the diagnosis of feeding disorder of infancy or early childhood in DSM-IV. It should be differentiated from anorexia nervosa (AN), which is characterized by a core feature of restriction of energy intake in fear of gaining weight or getting fat. The eating disturbance in avoidant/restrictive food intake disorder does not occur exclusively during the course of AN or bulimia nervosa (BN), and is not due to the fear of gaining weight or getting fat. In some cases, sensory issues play an important role in food avoidance and restriction, especially to certain types of food. Historically, DSM-IV created the diagnosis of feeding disorder of infancy or early childhood in an attempt to capture the controversial condition named "failure to thrive" (FTT), which appeared unsuccessful. There is no mention of FTT in DSM-5. *(Ref. 3, pp. 586–589; Ref. 4, pp. 334–338)*

5. **(b)** Amenorrhea for at least three consecutive cycles was required for post-menarcheal females as one of the diagnostic criteria of AN in DSM-IV-TR. But it was eliminated from DSM-5 even though amenorrhea can be commonly present as an indicator of physiological dysfunction. The severity of the disorder was measured by using BMI in adults and BMI percentile in children and adolescents. Specifiers include mild: BMI ≥ 17; moderate: BMI between 16–16.99; severe: BMI between 15–15.99; and extreme: BMI < 15. *(Ref. 4, pp. 338–343)*

6. **(b)** Except for answer b (should be decreased T3), all of the hormonal abnormalities listed, among others such as increased fasting and impaired growth hormone secretion response, uncoupled vasopressin secretion from osmotic challenge, and decreased testosterone in males, can be found in emaciated patients with anorexia nervosa (AN). Other laboratory findings may include anemia, leukopenia with relative lymphocytosis, hypercarotenemia, hypoproteinemia, hypercholesterolemia, low basal metabolic rate, and reduced bone density. EKG may show sinus bradycardia, and occasionally QTc prolongation in certain patients. *(Ref. 3, p. 595; Ref. 4, pp. 342–343)*

7. **(d)** The symptoms of eating disorder tend to fluctuate, and may show diagnostic crossovers between the anorexia nervosa (AN) subtypes and from AN to bulimia nervosa (BN), which occur in approximately 50% of patients. Mortality of AN is estimated to be 0.56% per year, 12-fold higher than that in the general young women population. Crossover from BN to AN occurs less frequently—about 10–15%—with the majority of them crossing back to BN or experiencing multiple back-and-forth crossovers between the two disorders. *(Ref. 1, p. 404; Ref. 4, p. 347)*

8. **(a)** Hypokalemia is one of the common electrolyte abnormalities found in patients with BN as a consequence of purging. Metabolic alkalosis can occur because of loss of gastric acid through vomiting whereas metabolic acidosis can also occur because of frequent self-induced diarrhea or dehydration via abusing laxatives and diuretics. *(Ref. 4, p. 348)*

9. **(c)** Based on DSM-5 on average 8–13 episodes of inappropriate compensatory behaviors per week have to occur to specify the severity of a BN as "severe." "Mild" categorization needs on average one to three episodes per week; "moderate" needs four to seven per week; and "extreme" needs more than 14 episodes per week. *(Ref. 4, p. 345)*

10. **(c)** Childhood obesity is one of the risk factors for the development of BN. *(Ref. 4, p. 348)*

11. **(e)** Binge eating cannot be accompanied by recurrent inappropriate compensatory behavior as seen in BN, which is an

exclusion criteria to distinguish binge-eating disorder from BN. In contrast to BN, patients with binge-eating disorder do not usually use marked or sustained dietary restriction to control body shape or weight in between the episodes, but may attempt frequent dieting. The treatment response and prognosis of binge-eating disorder is better than that of BN. *(Ref. 4, pp. 350–352)*

12. (d) The minimal chronological age or equivalent developmental level to diagnose someone with enuresis is 5 years. If urinary continence has never been established it is called "primary" type; otherwise it is called "secondary" if symptoms reemerge after a period of established urinary continence. Thus, primary type only can start after age 5 years, whereas secondary type starts between ages 5 and 8 years in general. The rate of spontaneous remission is 5–10% per year after the age of 5 years. Most children with the disorder are continent by adolescence, but about 1% continue to be incontinent into adulthood. *(Ref. 4, pp. 355–357)*

13. (e) A diagnosis of enuresis *cannot* be made in the presence of neurogenic bladder, polyuria secondary to diabetes mellitus or diabetes insipidus, or acute urinary tract infection unless regular incontinence is present prior to the onset of these conditions or the symptoms persist after receiving appropriate interventions for the medical conditions. *(Ref. 4, p. 357)*

14. (c) Encopresis is the repeated passage of feces into places inappropriate for that purpose, occurring after age 4 when bowel control is expected. Children with primary encopresis have never developed fecal continence. Constipation and overflow incontinence can be associated with both primary and secondary encopresis, and may lead to anal fissure and painful defecation. *(Ref. 3, pp. 663–665; Ref. 4, pp. 357–359)*

15. (d) The peak time of onset of BN is late adolescence or early adulthood. The 12-month prevalence of BN among young females is 1–1.5%, whereas the prevalence of AN is about 0.4%, with far less prevalence for both conditions in males (with approximate female to male ratio of 10:1). *(Ref. 4, pp. 341, 347)*

16. (c) Patients with BN are more commonly involved with alcohol and drug abuse than those with AN. *(Ref. 1, pp. 401–402)*

17. (e) All the listed are valid psychometric assessment instruments that can be used to screen and assess individuals with possible eating disorders. The EDE has both an adult version and a version for children and young adolescents. The EDI is a self-report measure that can be used for individuals as young as 14 years old. The EAT has a version specific for school-aged children, while the KEDS can be applied to elementary and middle school-aged children. *(Ref. 1, p. 406)*

18. (b) In the study "National Collaborating Center for Mental Health: Eating Disorders: Core Interventions in the Treatment and Management of Anorexia Nervosa, Bulimia Nervosa and Related Eating Disorders" (2004, London), the treatment modalities are graded as A, B, and C based on available evidence for support with grade A as having strong empirical support from several well-controlled randomized trials, while grade C as having only expert consensus. Family intervention for adolescents with AN receives a B while CBT for adults with BN receives an A. The majority of recommendations received grade C, and no specific recommendations are made for adolescents with BN. *(Ref. 1, pp. 406–407)*

19. (a) Medical complications of AN can be persistent and life threatening. Admission to a pediatric medical inpatient unit is warranted with the presence of medical instability, such as lower than 75% of ideal body weight, hypoglycemic syncope, fluid and electrolyte imbalance, cardiac arrhythmia, and severe dehydration, etc. Unresponsiveness to outpatient treatment and having serious comorbid psychiatric conditions may not necessarily warrant pediatric medical inpatient care, but may warrant admission to a psychiatric facility that specializes in the treatment of eating disorders. *(Ref. 1, pp. 406–407)*

20. (c) Several recent case reports and open-label trials showed benefits from using olanzapine in the treatment of youth with AN in helping their anxiety around eating, improving sleep, and decreasing rumination about food and body concerns. *(Ref. 1, p. 409)*

21. (e) There was only one open-label trial combining fluoxetine with supportive psychotherapy in treating adolescents with BN, which showed some impressive improvements. However, a paucity of systematic data exists to show any strong support for any medications in the treatment of either AN or BN. In adults, randomized, controlled clinical trials show evidence of using antidepressants in reducing binge frequency in patients with BN. *(Ref. 1, pp. 410–411)*

22. (a) Psychosocial dwarfism (also called deprivational dwarfism or hyperphagic short stature) is characterized by deceleration of linear growth (without weight gain deceleration) combined with behavioral disturbance, such as sleep disturbance and bizarre eating habits. It is different from failure to thrive (FTT), which usually involves malnutrition. In PSD, bizarre eating behaviors may include polyphagia, hyperphagia, gorging, vomiting, stealing and hoarding food, eating from garbage pails, eating animal food, and polydipsia, etc. It more resembles the symptoms seen in children with Prader-Willi syndrome. They may also present with a variety of unusual patterns of relatedness and externalized behaviors such as aggression, impulsivity, and hyperactivity. It is believed that parental psychopathology and maltreatment of the child could be an underlying etiology. Depressed somatomedin levels have been reported as one of the neuroendocrine abnormalities, although no consistent or reliable laboratory tests exist. PSD can be reversible with a change of living situation, and at times caregivers may not be cooperative in treatment. In case of active treatment refusal that can lead to permanent damage to the child, clinicians may need to consider removing the child from the home. *(Ref. 3, pp. 589–590)*

23. (d) Ipecac abuse may cause cardiomyopathy, which can potentially lead to cardiac failure and death. Pericardial pain, dyspnea, generalized muscle weakness with hypotension, tachycardia, and electrocardiogram abnormalities could be signs of ipecac intoxication. Periodontitis, dental enamel erosion and caries, perioral dermatitis, subconjunctival hemorrhage, esophageal or gastric rupture, metabolic alkalosis with hypokalemia, cardiac arrhythmia, renal failure, and seizure can

all be potential complications of binging and purging behavior. *(Ref. 3, pp. 594–595)*

24. (e) Kleine-Levin syndrome (a rare condition) is associated with hyperphagia and periodic hypersomnia lasting for several weeks at a time. Another condition named Klüver-Bucy syndrome presents with overeating episodes along with visual agnosia, compulsive licking and biting, and hypersexuality. These two conditions do not usually cause weight loss. On the other hand, Crohn's disease, diabetes mellitus, colitis, brain tumors, hyperthyroidism, and Addison's disease can all mimic the weight loss that is seen in AN. *(Ref. 1, pp. 406–407; Ref. 3, p. 598)*

25. (d) In youth with AN, those with restricting type tend to have worse outcomes than those with purging type, which is the opposite to that reported in many studies in adults with AN. One longitudinal study of adolescents with AN receiving six-month inpatient treatment for AN showed that about 75% of patients achieved full recovery (higher than adult data). Mortality rate is, however, still very high, and suicide accounts for at least half of the deaths in those with AN. *(Ref. 1, p. 404; Ref. 3, p. 600)*

26. (e) Studies found people with AN have greater obsessive-compulsive traits and tend to show perfectionism. AN restricting type is associated with avoidant personality traits as compared to those with AN purging type, which is more associated with borderline, dramatic-erratic personality traits. *(Ref. 3, p. 598)*

27. (a) Increased corticotrophin-releasing hormone (CRH) secretion and decreased GnRH can be found in patients with AN. Functional disturbance of serotonin neurotransmission, mostly reduced serotonin function, is found in patients with AN. Cyproheptadine, a serotonin antagonist, demonstrates effects in facilitating weight gain in patients with AN. Clomipramine and fluoxetine have been useful in preventing weight relapse in patients with AN and OCD behaviors. Emaciated patients with AN have very low serum level of leptin (a product of an obesity gene). As a protein released from adipose tissue, adiponectin, with effects on enhancing insulin sensitivity, is increased in patients with AN. *(Ref. 3, p. 597)*

28. (d) Although being more prevalent in industrialized societies, AN occurs across ethnicity and socioeconomic status. However, AN tends to be less prevalent in African American women than among their white, Hispanic, and Asian American counterparts. BN is also relatively less common in African American women compared to white and Hispanic women. *(Ref. 1, p. 401)*

29. (b) Studies of family dynamics of patients with BN uncovered lack of parental affection, negative, hostile, and disengaged interactions within the families, parental impulsivity, and family alcoholism and obesity. Patients with BN tend to rate their families as conflictive, disorganized, non-cohesive, and having a lack of nurturance, which is quite different from those with AN (rating their family as more controlling, non-conflictive, cohesive with adequate nurturance). *(Ref. 1, pp. 402–403; Ref. 3, p. 598)*

30. (c) Elevated serum amylase is more common laboratory finding in patients with binging and purging behavior. *(Ref. 3, p. 595)*

31. (c) Based on a study by Ogden et al. (2008), by 2003–2006, approximately 32% of children and adolescents were either overweight or obese based on body mass index. Health cost associated with youth obesity tripled from 1979–1981 to 1997–1999. *(Ref. 1, p. 384)*

32. (b) Obesity places the individual at risk of developing a series of medical comorbidities, including metabolic syndrome, diabetes mellitus, inflammation, polycystic ovary syndrome, hypothyroidism, hypertension, lipid abnormalities, nonalcoholic fatty liver disease, gallstones, gastric reflux, constipation, obstructive sleep apnea, asthma, pseudotumor cerebri, slipped capital femoral epiphysis, and increased injury rates. Psychological comorbidities may include depression, eating disorders, diminished self-esteem, body dissatisfaction, peer victimization and stigmatization, and decreased quality of life, etc. *(Ref. 1, p. 384)*

33. (b) Instead of causing obesity, Cornelia de Lange's syndrome often causes growth retardation, mental retardation, and microcephaly. In addition to the listed syndromes (except for Cornelia de Lange's), Bardet-Biedl, Borjeson-Forssman-Lehmann, and Cohen syndromes all can cause obesity. *(Ref. 1, p. 385)*

34. (a) Parental restriction of feeding has been linked to children's overeating, which leads to higher risk of becoming overweight in their later life. However, in weight management programs decreased consumption of less healthy food options and some degree of feeding restriction are recommended. A successful behavioral strategy is that parents focus on rewarding and reinforcing what *to* eat (eating healthy food choices) rather than what *not to* eat (junk food choices). *(Ref. 1, pp. 385–386)*

35. (e) Adiponectin, ghrelin, insulin, leptin, and plasma glucose all play important roles in hunger, satiety, and fat distribution. Adiponectin, a protein released from adipose tissue, can enhance insulin sensitivity. Ghrelin, a peptide released from endocrine cells in the stomach, acts in the hypothalamus to result in increased meal size. Leptin, an obesity gene product, is found to be associated with increased BMI and the amount of adipose tissue in the patients with AN. Insulin regulates glucose metabolism. *(Ref. 1, p. 386; Ref. 3, p. 597)*

36. (a) Bioelectrical resistance and skinfold measurements are employed in clinical trials. In contrast, all other listed techniques are used to measure children's body composition for research purposes. In clinical practice, the BMI is accepted as the optimal weight-height index in youth, and it has been used as a surrogate measure of adiposity. *(Ref. 3, p. 602)*

37. (e) BMI percentile ≥ 95th is considered as obesity in children. In adults, overweight, obesity, and extreme obesity is measured by BMI ≥ 25, ≥ 30, and ≥ 40, respectively. For children and adolescents BMI between the 85th and 95th percentiles are considered as overweight, whereas at or above the 95th percentile is considered obesity. *(Ref. 1, p. 383; Ref. 4, p. 605)*

38. (b) According to S. E. Barlow "Expert Committee Recommendations Regarding the Prevention, Assessment, and Treatment of Child and Adolescent Overweight and Obesity: Summary Report" (Pediatrics, 2007), weight loss is not listed as a goal in the treatment of obesity in children because of children's ongoing growth. More realistically, weight maintenance, stable

weight with increasing height, and reduction of BMI may be a goal. Reduction of BMI may benefit physical health by improving blood pressure, cholesterol profile, and insulin sensitivity, etc. Using the "Traffic Light Diet" approach, foods are classified, based on nutritional value, into the three colors of a stoplight, green, yellow, and red, to determine which foods should be eaten in abundance, which foods should be eaten with moderation, and which foods should be limited. *(Ref. 1, pp. 392)*

39. (d) The FDA has approved two drugs as weight loss drugs in the adolescent population. Orlistat is approved for use in patients of age 12 years and older, whereas Sibutramine is approved for use in patients as young as 16 years old. *(Ref. 1, p. 392; Ref. 3, p. 611)*

40. (c) Sibutramine is a centrally active norepinephrine reuptake inhibitor. A randomized clinical trial shows an 8.5% reduction of BMI in the sibutramine group when combined with behavior therapy, versus 4% in the placebo group when combined with behavior therapy. *(Ref. 3, p. 611)*

41. (b) BMI has to be above 40 with a combined medical condition or above 50 without a combined medical condition. In addition to listed criteria, other criteria include: commitment to medical and psychological assessments before the procedure; informed consent; capacity to consent; and presence of a supportive family. *(Ref. 1, pp. 392–393)*

42. (c) Epidemiological studies of enuresis show a higher prevalence rate in males than females, and by the age of 14 years approximately 1.1% of boys versus 0.5% of girls still wet the bed at least once a week. In general, the prevalence rates are 5–10% for 5-year-olds, and 3–5% by age 10. *(Ref. 1, pp. 436–437; Ref. 3, pp. 655–656)*

43. (b) Efficacy of imipramine in treating bed wetting is more likely to be related to its central effects than periphery effects, and it has an impact on decreasing osmolar clearance and urinary output. The notion of enuresis as a willful expression of anger or resentment has been largely abandoned. Whereas old sleep studies used to focus on "deep sleep," newer studies with larger sample sizes indicate the amount of time spent in that phase of the sleep cycle correlated proportionally to the occurrence of enuretic events. Enuresis is not found to be related to the level of ANP, which would indicate a possible abnormal tubular factor. Studies on AVP have not achieved consistent results. However, a subgroup of children with enuresis with lower AVP seems to be more responsive to DDAVP. *(Ref. 1, pp. 437–438)*

44. (b) Cardiac monitoring, such as baseline EKG, is required prior to starting the treatment. Some children may decide to take a few more tablets to achieve full effects, which may result in overdose that can be potentially lethal. The starting dose of imipramine is 25 mg/night, but it is unlikely to be effective if 75–125 mg per night does not produce any positive response. With significant variation of serum levels of imipramine, a periodic blood level test is recommended to guard against toxicity. Withdrawing the medication every three months is recommended to determine whether there is a remission because spontaneous remission is not uncommon. *(Ref. 1, p. 439)*

45. (c) Hyponatremia and related seizures can be a serious potential side effect of DDAVP, especially intranasal preparation. Thus, the FDA provides a warning that the intranasal preparation of DDAVP should not be used for the treatment of primary nocturnal enuresis. In the presence of acute medical illnesses that can produce fluid or electrolyte imbalance, DDAVP should be interrupted. *(Ref. 1, pp. 439–440)*

46. (a) Older age, lower frequency of baseline enuretic events, and greater bladder capacity are associated with better response to DDAVP treatment. However, increased urinary osmolality and nocturnal polyuria are associated with poor response. *(Ref. 1, p. 440)*

47. (d) Investigation of the physiological explanation of the bell and pad alarm system shows that those who achieve remission have an increased ability to concentrate urine, which appears to be related to an increased level of vasopressin. *(Ref. 1, p. 440; Ref. 3, pp. 659–660)*

48. (b) The approximate prevalence rate of encopresis in children between 7 and 8 years of age is 1.5%. The male to female ratio is 3:1. However, a large population-based study shows fecal incontinence rates of 9.8% in first graders and 5.6% in fourth graders. Similar to enuresis, the prevalence of encopresis tends to decrease over time as the child ages. *(Ref. 1, pp. 441–442; Ref. 3, p. 663)*

49. (d) Postprandial pancreatic polypeptide level peaks earlier and remains higher in children with encopresis compared to the control group. Children with encopresis also show lower motlin response. However, the investigators could not rule out that these findings might be secondary to chronic constipation. *(Ref. 3, pp. 663–664)*

50. (c) Hypercalcaemia can be a medical cause of encopresis along with others such as constipation, medical conditions that produce diarrhea, side effects from certain medications, a painful lesion, thyroid disease, pseudo-obstruction, cerebral palsy, rectal stenosis, anal fissure, anorectal trauma, etc. Frequently associated with retentive encopresis, chronic constipation is the major factor in the evaluation of encopresis. *(Ref. 1, p. 442)*

Matching

51. (c); 52. (b); 53. (a) Manualized family-based treatment for AN (FBT-AN) was used in a controlled study by J. Lock et al. 2005. The results show significant weight gain and improvements in psychological symptoms of AN as measured by Eating Disorder Examination (EDE). The FBT-AN needs to follow clearly defined phases: phase 1, restoring the adolescent's weight; phase 2, handing control over eating back to the adolescent; and phase 3, discussion of adolescent development. Family-based treatment for adolescents with BN (FBT-BN) also includes three phases: phase 1, reestablishing healthy eating; phase 2, helping the adolescent eat independently; and phase 3, adolescent developmental issues. In using FBT-BN, the focus is not on weight restoration; instead, it should focus on the regulation of eating patterns and elimination of purging. The FBT-BN approach is more collaborative between parents and the affected youth. Youth with BN are more likely to have psychiatric comorbid conditions that need to also be addressed in the treatment. *(Ref. 1, pp. 408–411)*

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8

SOMATIC SYMPTOMS AND RELATED DISORDERS AND SLEEP-WAKE DISORDERS

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QUESTIONS

Directions: Select the best response for each of the questions 1–30.

1. In DSM-5 under the category of somatic symptoms and related disorders, which of the following terms is *not* included to describe a psychiatric condition?

a. Somatic symptom disorder
b. Hypochondriasis
c. Conversation disorder
d. Psychological factors affecting other medical conditions
e. Factitious disorder

2. Which of the following statements regarding somatic symptom disorder is *incorrect* based on DSM-5?

a. Presence of distressing somatic symptom(s) may lead to significant disruption of daily life.
b. There are excessive thoughts, feelings, or behaviors related to the somatic symptoms.
c. A particular somatic symptom may not be present continuously; the state of being symptomatic has to be persistent, typically longer than six months.
d. Upon appropriate investigation, the symptoms cannot be explained by a known general medical condition.
e. A specifier "with predominant pain" is included for individuals whose somatic symptoms predominantly involve pain (describes previous "pain disorder" in DSM-IV).

3. All of the following are unique characteristics of somatic symptom disorder manifesting in children as compared to adults *except:*

a. The most common symptoms are recurrent abdominal pain, headache, fatigue, and nausea.
b. Multiple somatic symptoms are usually present.
c. Younger children tend to experience more somatic complaints, but less concern about "illness" per se compared to adolescents.
d. The parents' response to the symptoms may have important effects on the child's level of associated distress.
e. The parents may have a strong influence on how to interpret the symptoms.

4. All of the following statements regarding conversion disorder (functional neurological symptom disorder) are correct *except:*

a. There is at least one symptom of altered voluntary or sensory function, which is not better explained by another medical or mental disorder.
b. Hoover's sign can be potentially used to demonstrate incompatibility.
c. The diagnosis of this disorder requires the judgment that the symptoms cannot be intentionally produced as seen in factitious disorder or malingering.
d. The prognosis seems to be better in younger children than in adolescents or adults.
e. History of childhood abuse and neglect can be a risk factor.

5. All of the following statements regarding factitious disorder are accurate *except:*

a. The core feature of this disorder is the falsification of physical or psychological symptoms or manifestations, or induction of injury or disease in self or others.
b. The falsification is associated with identified deception.
c. When an adult falsifies symptoms in his or her child, both the adult and the child get the diagnosis.
d. It is estimated that about 1% of individuals in hospital settings present with symptoms that are consistent with factitious disorder.
e. Some aspects of factitious disorder might represent criminal behavior, which is not mutually exclusive of mental illness.

6. Which of the following therapeutic approaches to help children with somatic symptom disorder is *not* appropriate?

a. Diminish perceived threats associated with the child's symptoms
b. Modulate affective and physiological reactions to associated environmental or physical precipitating factors
c. Encourage using accommodative coping strategies
d. Encourage avoidance and denial
e. Appropriately balance positive and negative reinforcement

7. All of the following statements regarding insomnia disorder are correct *except:*

a. The core feature of insomnia disorder is dissatisfaction with sleep quantity or quality, which causes clinically significant distress or impairment in important areas of functioning.
b. The common complaints are difficulty starting sleep, difficulty maintaining sleep, and early morning awakening with difficulty going back to sleep.
c. Children may manifest with difficulty starting sleep or maintaining sleep without caregiver intervention (such as presence of a parent and consistent sleep routines).
d. The sleep disturbance occurs at least three nights a week for at least three months.
e. The diagnosis should not be given to an individual who has a breathing-related sleep disorder.

8. Which of the following is the *most* common presentation of insomnia?

a. Sleep onset insomnia
b. Sleep maintenance insomnia
c. Late insomnia

d. Nonrestorative sleep
e. Combination of sleep maintenance and sleep initiation

9. The core feature of hypersomnolence disorder is an excessive quantity of sleep, deteriorated quality of wakefulness, and sleep inertia. What is the *minimal* required maintained length of sleep per day to qualify for the diagnostic Criterion A for the disorder?
a. 6 hours
b. 7 hours
c. 8 hours
d. 9 hours
e. 10 hours

10. All of the following statements regarding narcolepsy are correct *except:*
a. The core feature of narcolepsy is recurrent daytime excessive sleepiness that results in naps or sleep.
b. In individuals with long-standing disease, cataplexy manifests as brief episodes of sudden loss of muscle tone while maintaining consciousness.
c. In children or individuals within six months of onset, cataplexy can manifest as spontaneous grimaces or jaw-opening episodes, or low-grade continuous hypotonia.
d. Low serum hypocretin-1 level is seen in certain individuals with narcolepsy.
e. Rapid eye movement (REM) sleep latency measured by nocturnal sleep polysomnography is shortened in some individuals with narcolepsy.

11. All of the following statements regarding the development and course of narcolepsy are accurate *except:*
a. Onset of narcolepsy is usually in youth and young adults, with two peaks: at ages 15–25 and ages 30–35 years.
b. Onset can be abrupt or progressive, and severity is highest when onset is abrupt in children.
c. Abrupt onset in latency-age children is associated with low body mass index (BMI).
d. Sleep paralysis typically starts around puberty in those with latency age onset.
e. Youth with narcolepsy may develop aggression along with other behavioral problems due to their sleepiness and/or nighttime sleep disruption.

12. All of the following factors are helpful to distinguish hypersomnolence from narcolepsy *except:*
a. Age at onset
b. Duration of nocturnal sleep
c. Degree of difficulty awakening
d. REM latency
e. Absence of dreaming during daytime naps

13. Based on DSM-5 what is the *minimal* number of obstructive apneas or hypopneas per hour of sleep according to polysomnography required to meet diagnostic criteria for obstructive sleep apnea hypopnea without accompanying other sleep-related symptoms?
a. 5
b. 10
c. 15
d. 20
e. 25

14. Which of the following defines the apnea hypopnea index?
a. Number of apnea episodes
b. Number of hypopnea episodes
c. Number of apnea plus hypopnea episodes
d. Number of apnea plus hypopnea episodes that are associated with breathing disturbance
e. Number of apnea plus hypopnea episodes that are associated with oxygen desaturation

15. Among individuals with narcolepsy which of the following ethnic groups is *more* likely to manifest the disorder without cataplexy or with atypical cataplexy?
a. African Americans
b. American Indians
c. Asian Americans
d. European Americans
e. Latino Americans

16. What is the prevalence of obstructive sleep apnea hypopnea in children?
a. 0.5–1%
b. 1–2%
c. 2–5%
d. 5–15%
e. 20%

17. All of the following statements regarding the characteristics of obstructive sleep apnea hypopnea in youth are correct *except:*
a. The symptoms and signs of the disorder may be subtler in youth than in adults.
b. Parent-reported snoring episodes are less sensitive.
c. The suspicion of the disorder should be raised if enuresis recurs after a period of continence.
d. The clinical focus of younger children (< 5 years) is more often on observed nighttime symptoms such as apneas and labored breathing.
e. In younger children obesity is a more common risk factor than in older children.

18. In which of the following ethnic groups is there an increased risk for obstructive sleep apnea hypopnea due to possible craniofacial structural factors?
a. Asians
b. Africans

c. American Indians
d. Europeans
e. Latinos

19. Presence of which of the following conditions indicates the obstructive sleep apnea hypopnea is either very severe or associated with hypoventilation cardiopulmonary comorbidities?
a. Diabetes
b. Parkinson's disease
c. Stroke
d. Systemic hypertension
e. Pulmonary hypertension

20. Which of the following conditions is *not* associated with "high loop gain"?
a. Idiopathic central apnea
b. Cheyen-Stokes breathing
c. Complex sleep apnea
d. Central apnea comorbid with opioid use
e. All of the above

21. Which of the following sleep-wake disorders is *most* likely to occur during perinatal periods?
a. Idiopathic hypoventilation
b. Idiopathic central sleep apnea
c. Congenital central alveolar hypoventilation
d. Comorbid sleep-related hypoventilation
e. Obstructive sleep apnea hypopnea

22. Which of the following conditions is *least* likely seen in children with congenital central alveolar hypoventilation?
a. Disorder of autonomic nervous system
b. Box-shaped face
c. Elongated face
d. Hirschsprung's disease
e. Neural crest tumors

23. Based on DSM-5 which of the following is *not* a subtype of circadian rhythm sleep-wake disorders?
a. Delayed sleep phase type
b. Advanced sleep phase type
c. Irregular sleep-wake type
d. Non-24-hour sleep-wake type
e. Dyssomnia type

24. What is the prevalence of circadian rhythm sleep-wake disorder, delayed sleep phase type in adolescents?
a. 1%
b. 2%
c. 4%
d. 6%
e. >7%

25. Which of the following subtypes of circadian rhythm sleep-wake disorders is *more* prevalent in blind people?
a. Delayed sleep phase type
b. Advanced sleep phase type
c. Irregular sleep-wake type
d. Non-24-hour sleep-wake type
e. Shift work type

26. Based on DSM-5, all of the following disorders are under the category of parasomnias *except:*
a. Non-rapid eye movement sleep arousal disorder
b. Sleep terror disorder
c. Nightmare disorder
d. Rapid eye movement sleep behavior disorder
e. Restless legs syndrome (RLS)

27. Which of the following parasomnias is *most* likely to occur in children and diminish in frequency with increasing age?
a. Non-rapid eye movement sleep arousal disorders
b. Nightmare disorder
c. Rapid eye movement sleep behavior disorder
d. Restless legs syndrome
e. None of the above

28. The symptoms of which of the following conditions are *most* likely to begin in the first third of the night during slow wave sleep?
a. Non-rapid eye movement sleep arousal disorders
b. Nightmare disorder
c. Rapid eye movement sleep behavior disorder
d. Restless legs syndrome
e. None of the above

29. All of the following statements regarding differences between nightmare disorder and sleep terror disorder are accurate *except:*
a. Only sleep terror disorder involves awakening or partial awakening with fearfulness and autonomic activation.
b. Nightmare disorder manifests in the later part of the night during REM sleep.
c Nightmare disorder produces vivid, storylike dreams that are recallable.
d. Sleep terror disorder manifests in the first third of the night during stage 3 or 4 NREM sleep.
e. Sleep terror disorder does not produce vivid or storylike recallable dreams.

30. Which of the following genes is *not* particularly associated with restless legs syndrome?
a. BTBD9
b. MAP2K5
c. MEIS1
d. PER3
e. All of the above

Matching

31–40. Match each listed term related to sleep-wake disorders with one of the following descriptions:

a. Difficulty falling asleep at bedtime
b. Frequent or prolonged awakening throughout the night
c. Early morning awakening and difficulty returning to sleep
d. Poor sleep quality and feeling unrested despite adequate duration
e. Prolonged impaired alertness during the sleep-wake transition
f. Vivid perceptual disturbance occurs just after wakening
g. Vivid perceptual disturbance occurs before or upon falling asleep
h. Reduction in airflow during breathing for at least 10 seconds in adults or two missed breaths in children
i. Total absence of airflow during breathing for at least 10 seconds in adults or two missed breaths in children
j. A breathing pattern with periodic crescendo-decrescendo variation in tidal volume, which leads to central apneas and hypopneas at a frequency of ≥ 5 events/hour along with frequent arousal

31. Nonrestorative sleep
32. Late insomnia
33. Middle insomnia
34. Initial insomnia
35. Sleep inertia
36. Hypnagogic hallucination
37. Hypnopompic hallucination
38. Cheyne-Stokes breathing
39. Apnea
40. Hypopnea

ANSWERS AND EXPLANATIONS

1. **(b)** "Hypochondriasis" is no longer a term used in DSM-5. Under the new category of DSM-5 "somatic symptoms and related disorders," all other listed terms are used along with "illness anxiety disorder," "other specified somatic symptoms and related disorder," and "unspecified somatic symptoms and related disorder" to describe different psychiatric conditions. As a matter of fact, the term "illness anxiety disorder" replaces hypochondriasis. Somatization disorder and pain disorder no longer exist in DSM-5, and body dysmorphic disorder is recategorized under "obsessive-compulsive and related disorders" in DSM-5. *(Ref. 4, pp. 309–327)*
2. **(d)** Upon appropriate investigation, the symptoms cannot be explained by a known general medical condition is a DSM-IV (not DSM-5) diagnostic criteria of "undifferentiated somatoform disorder" using the same code, 300.82, as the DSM-5 diagnosis of "somatic symptom disorder." DSM-5 reconceptualizes the condition and emphasizes that the diagnosis is made based on the *presence* of somatic symptoms and associated distress, abnormal thoughts, feelings, and behaviors in response to the somatic symptoms rather than the *absence* of a medical explanation for the somatic symptoms. In other words, the distinction is not the somatic symptoms per se, but instead, how the individual with the disorder manifests and interprets them. This effort is to make the diagnosis more useful for clinicians working in primary care and other nonpsychiatric settings where such patients are more likely to first present. *(Ref. 4, pp. 309–311)*
3. **(b)** A single dominant symptom is a more common presentation in children with somatic symptom disorder than in adults. Young children tend to focus more on the somatic complaints, and do not generally worry too much about "illness" per se until they become adolescents. Parents' response to the symptoms plays an important role in determining how to interpret the symptoms, the level of associated distress, and the associated time off from school and medical help seeking. *(Ref. 4, p. 313)*
4. **(c)** The diagnosis of conversion disorder (functional neurological symptoms disorder) does *not* require the judgment that the symptoms cannot be intentionally produced as seen in factitious disorder or malingering because there is no reliable way to assess conscious intention. But, if there is definite evidence of feigning conversion disorder, factitious disorder (primary goal is to assume sick role) or malingering (primary goal is to obtain a secondary gain) should be considered. The weakness of hip extension that returns to normal strength when the contralateral hip is able to flex against resistance is called Hoover's sign and can be used to assess incompatibility. Evidence of incompatibility between the symptom and recognized neurological or medical conditions through clinical examination is required to diagnose this disorder (Criterion B). *(Ref. 4, pp. 318–321)*
5. **(c)** When an adult falsifies symptoms in his or her child, only the adult—the perpetrator (not the child—the victim) gets the diagnosis of "factitious disorder imposed on another"—previously called "factious disorder by proxy," and the child may be given an abuse diagnosis as a victim. Falsification of symptoms or induction of injury on others may represent criminal behavior that is not mutually exclusive of mental illness. In contrast to factitious disorder that requires the absence of clear rewards, malingering (coded with a V code: V65.2 in DSM-5) requires the presence of intentional reporting of symptoms for clear personal gain, such as money, time off, etc. *(Ref. 4, pp. 324–326)*
6. **(d)** Using accommodative coping strategies, such as acceptance, distractions, self-encouragement, and cognitive reconstructing should be encouraged. However, passive strategies such as avoidance, denial, or wishful thinking should be discouraged. *(Ref. 3, p. 642)*
7. **(e)** The diagnosis can be given to an individual who has a breathing-related sleep disorder. As a matter of fact, insomnia disorder is commonly comorbid with other medical and mental health conditions. The diagnosis is given regardless of whether it occurs as an independent condition or is comorbid with other conditions (including but not limited to mental disorders, medical comorbidities, and other sleep disorders). However, the insomnia is not better explained by and does not occur exclusively during the course of another condition, and the coexisting condition cannot adequately explain the predominant complaints of insomnia. In DSM-5 there are three specifiers to describe such comorbidities: "with non-sleep disorder mental comorbidity," "with other medical comorbidity," and "with other sleep disorder." *(Ref. 4, pp. 362–363)*
8. **(e)** The most common presentation of a single symptom of insomnia is difficulty maintaining sleep, followed by difficulty initiating sleep. However, the combination of these symptoms is the most common overall manifestation of insomnia. *(Ref. 4, p. 363)*
9. **(b)** Based on DSM-5 diagnostic criteria (Criterion A) for *hypersomnolence disorder* even with sleep of at least seven hours there is still an existence of self-reported excessive sleepiness that is manifested as one of the following: recurrent periods of sleep or lapses into sleep during the same day; a prolonged nonrestorative sleep episode of > 9 hours; or difficulty remaining awake after abrupt awakening. *(Ref. 4, p. 368)*
10. **(d)** Low *cerebrospinal fluid (CSF)* hypocretin-1 level is called hypocretin-1 deficiency, which is measured using CSF hypocretin-1 immunoreactivity values, and must be less than or equal to 110/pg/ml. In some individuals with narcolepsy, their rapid eye movement (REM) sleep latency measured by nocturnal sleep polysomnography is shortened (less than or equal to 15 minutes), or a multiple sleep latency test (MSLT) may show a mean sleep latency less than or equal to eight minutes and two or more sleep-onset REM periods. In children or individuals within six months of onset, cataplexy can manifest as spontaneous grimaces or jaw-opening episodes with tongue

thrusting ("cataplectic faces"), or low grade continuous hypotonia, yielding a wobbling walk, which all could occur without obvious emotional triggers. In contrast, typical cataplexy presents with brief episodes of sudden bilateral loss of muscle tone while maintaining consciousness, which is precipitated by laughter or joking. *(Ref. 4, pp. 372–374)*

11. **(c)** Abrupt onset in latency children can be associated with obesity and premature puberty. In the majority of cases (90%), the initial manifestation of narcolepsy is sleepiness or increased sleep, followed by cataplexy (50% of the cases within one year, and 85% of the cases within three years). Often accompanied by hypnagogic hallucination, vivid dreaming, and REM sleep behavior disorder, excessive sleep can rapidly progress to an inability to stay awake during the day. *(Ref. 4, p. 375)*

12. **(a)** Hypersomnolence and narcolepsy are indistinguishable on the degree of daytime sleeping, age at onset, or stable course over time. However, some unique clinical and laboratory features can help to differentiate them. In general hypersomnolence presents with longer and less disrupted nocturnal sleep, greater difficulty awakening, more persistent daytime sleepiness (no discrete "sleep attacks" that are commonly seen in narcolepsy), longer and less refreshing daytime sleep episodes, and little or no dreaming during daytime naps. Hypersomnolence does not have sleep-related hallucination, sleep paralysis, or shortened REM sleep latency. *(Ref. 4, pp. 368–377)*

13. **(c)** In the absence of other sleep-related symptoms, the minimal number of obstructive apneas or hypopneas per hour of sleep based on polysomnography is 15 to meet diagnostic criteria for obstructive sleep apnea hypopnea. However, only five obstructive apneas or hypopneas per hour of sleep are needed when present with one of the following two sleep symptoms: nocturnal breathing disturbance; or daytime sleepiness, fatigue, or unrefreshing sleep despite sufficient opportunities to sleep. In children an apnea hypopnea index of 2 is used as the threshold of abnormality. *(Ref. 4, pp. 378–379, 381)*

14. **(c)** The apnea hypopnea index refers to the count of the number of apneas plus hypopneas per hour of sleep using polysomnography or other overnight monitoring, which may or may not be associated with breathing disturbances, such as snoring, snorting/gasping, or breathing pauses during sleep, or level of oxygen saturation. In DSM-5, specifiers are used based on the apnea hypopnea index: mild < 15, moderate: 15–30, and severe: < 30. However, regardless of the apnea hypopnea index, the disorder is considered as severe if oxygen saturation is lower than 90% during 10% of the sleep time. Furthermore, if sleep is severely fragmented as evidenced by arousal index > 30 or reduced stages in deep sleep (stage N3 sleep < 5%), the disorder is also considered as severe. *(Ref. 4, pp. 378–370)*

15. **(a)** Among individuals with narcolepsy, African Americans are *more* likely to manifest the disorder without cataplexy or with atypical cataplexy. It can complicate the diagnosis, especially when obesity and obstructive sleep apnea are present. *(Ref. 4, p. 378)*

16. **(b)** Among breathing-related sleep disorders, obstructive sleep apnea hypopnea disorder is the most common one, which presents in 1–2% in children, 2–15% in middle-aged adults, and >20% in older adults. It is a highly underdiagnosed disorder in elderly individuals. It is more prevalent in people with obesity and is male predominant (2:1 to 4:1). There is no significant gender difference in latency-aged children and the difference declines in older age, which may indicate increased prevalence in women after menopause. *(Ref. 4, p. 379)*

17. **(e)** In younger children obesity is a *less* common risk factor whereas developmental delay, delayed growth, and "failure to thrive" may be present. The diagnosis of the disorder is more difficult to establish in youth because the presentation is subtler and more often manifests as agitated arousals and unusual sleep postures, such as sleeping on the hands and knees. Other common features in children with the disorder may include daytime mouth breathing, difficulty swallowing, and poor speech articulation. Compared to younger children, in children older than 5 years the disorder is more likely to manifest as sleepiness plus behavioral problems such as ADHD-like symptoms, learning difficulties, and morning headache. *(Ref. 4, p. 380)*

18. **(a)** Despite a relatively low BMI, people of Asian ancestry may be at a higher risk for obstructive sleep apnea hypopnea because of their relatively narrow nasopharynx. *(Ref. 4, p. 381)*

19. **(e)** Pulmonary hypertension and right heart failure present either in very severe cases of obstructive sleep apnea hypopnea or when associated with hypoventilation or cardio-pulmonary comorbidities. Diabetes, coronary artery disease, stroke, and systemic hypertension are more common in moderate to severe cases. In addition, cerebrovascular disease, Parkinson's disease, and depression are also common comorbidity. *(Ref. 4, p. 383)*

20. **(d)** High loop gain refers to increased gain of the ventilator control system, which leads to instability in ventilation and $PaCO_2$ levels. The underlying pathogenesis of central sleep apnea comorbid with opioid use is believed to be related to the effects of opioid on the respiratory rhythm generator in the medulla and opioid's differential effects on hypoxic versus hypercapneic respiratory drive. All other listed conditions are associated with high loop gain. Complex sleep apnea refers to central sleep apnea that occurs in association with obstructive sleep apnea. *(Ref. 4, p. 384)*

21. **(c)** Congenital central alveolar hypoventilation can occur at birth with shallow, erratic, or absent breathing. It can persist into infancy, childhood, and adulthood depending on the severity that is related to variable penetration of the *PHOX2B* mutation. Its core feature is episodic decreased respiration (measured by polysomnography) associated with elevated CO_2 levels or persistent low levels of hemoglobin oxygen saturation unassociated with apneic/hypopneic events. *(Ref. 4, pp. 387–388)*

22. **(c)** Elongated face is a characteristic facial feature of Fragile X syndrome. On the other hand, box-shaped face (the face is short relative to its width) is the characteristic facial feature of congenital central alveolar hypoventilation. Comorbid with pulmonary disorders, neuromuscular or chest wall disorders, and certain medication use (such as benzodiazepines and opiates), it may also occur in association with autonomic dysfunction and Hirshsprung's disease. *(Ref. 4, pp. 389–390)*

23. **(e)** Listed in DSM-IV-TR, "dyssomnia not otherwise specified" refers to the conditions that present with insomnia, hypersomnia, or circadian rhythm disturbance but do not meet criteria for any specific disorder. Dyssomnia no longer exists in DSM-5. Delayed sleep phase type, advanced sleep phase type, irregular sleep-wake type, and non-24-hour sleep-wake type are all subtypes of circadian rhythm sleep-wake disorders in DSM-5 along with shift work type and unspecified type. *(Ref. 4. pp. 390–398)*

24. **(e)** The prevalence of delayed sleep phase type of circadian rhythm sleep-wake disorder is low in the general population (about 0.17%). However, the prevalence in adolescents is higher than 7%, which may be secondary to both behavioral and physiological factors such as hormonal changes from onset of puberty. *(Ref. 4, p. 391)*

25. **(d)** With unclear prevalence in the general population, non-24-hour sleep-wake type occurs among an estimated 50% of people who are blind, and rarely occurs in sighted people. *(Ref. 4, p. 396)*

26. **(b)** Sleep terror disorder was listed under parasomnias in DSM-IV-TR. However, neither sleepwalking disorder nor sleep terror disorder is categorized as a separate disorder in DSM-5. Instead, they are both under the category of non-rapid eye movement sleep arousal disorders, and they are further identified by specifiers as two different types: sleep walking type and sleep terror type. Nightmare disorder remains as a separate disorder, and restless legs syndrome is added as another separate disorder. *(Ref. 4, pp. 399–413)*

27. **(a)** Non-rapid eye movement sleep arousal disorders are more likely to start in childhood, and diminish in frequency over time with increasing age. The prevalence of nightmare disorder increases over time with increasing age. More commonly affecting males > 50 years, REM sleep behavior disorder is also seen in females and younger individuals. The prevalence of RSL increases with age. *(Ref. 4, pp. 401, 405, 408, 411)*

28. **(a)** Both sleep walking and sleep terror of non-rapid eye movement arousal disorders usually begin in the first third of the night during slow wave sleep. They are the repeated occurrence of incomplete arousals or precipitous awakenings from sleep, typically brief, lasting 1–10 minutes, but occasionally lasting longer, especially in children. *(Ref. 4, p. 400)*

29. **(a)** Both sleep terror disorder and nightmare disorder can involve awakening or partial awakening with fearfulness and autonomic activation. Nightmares usually lead to mild autonomic arousal and complete awakenings whereas sleep terrors lead to partial awakenings and may leave the individual confused, disoriented, minimally responsive, and with significant autonomic arousal. Sleep terrors do not lead to elaborate dreams. *(Ref. 4, p. 406)*

30. **(d)** Genome-wide association studies have confirmed RLS is significantly associated with genetic variants of three genes: MEIS1 (on chromosome 2p), BTBD9 (on chromosome 6p), and MAP2K5 (on chromosome 15p). BTBD9 represents 80% of excessive risk when in the presence of a single allele. Pathophysiologically RLS is involved with central dopaminergic and iron metabolic disturbances, and the endogenous opiate system may be involved. Response to dopaminergic drugs (such as D_2 and D_3 non-ergot agonists) supports the involvement of the dopaminergic system. Mutations in circadian genes (including PER2, PER3, and CKle) are associated with delayed sleep phase type and advanced sleep phase type of certain circadian rhythm sleep-wake disorders. *(Ref. 4, pp. 392, 394, 412)*

Matching

31. **(d); 32. (c); 33. (b); 34 (a); 35 (e); 36. (g); 37. (f); 38. (j); 39. (i); 40. (h)** Insomnia can manifest differently at different sleep periods. *Initial insomnia* (*sleep onset insomnia*) refers to difficulty initiating sleep or falling asleep at bedtime. *Middle insomnia* (*sleep maintenance insomnia*) refers to difficulty maintaining sleep and having frequent or prolonged awakenings throughout the night. *Late insomnia* refers to early morning awakening and difficulty returning to sleep. *Nonrestorative sleep* refers to poor-quality, unrefreshed, and unrested sleep despite adequate duration of sleep. *Sleep inertia* (i.e., sleep drunkenness) refers to prolonged, impaired performance and alertness and reduced vigilance during the sleep-wake transition. It commonly occurs in hypersomnolence disorder. Individuals with narcolepsy may experience vivid hallucinations before or upon falling asleep, which are called *hypnagogic,* and the experience can also occur right after awakening, which is called *hypnopompic.* Defined as a breathing pattern with periodic crescendo-decrescendo variation in tidal volume, which leads to central apneas and hypopneas at a frequency of ≥ 5 events/hour along with frequent arousal, *Cheyne-Stokes breathing* is one of the specifiers used to diagnose *central sleep apnea.* Apnea is defined as the total absence of airflow during breathing for at least 10 seconds in adults or two missed breaths in children. Hypopnea is defined as the reduction in airflow during breathing for at least 10 seconds in adults or two missed breaths in children. *(Ref. 4, pp. 363, 369, 374–375, 379, 383)*

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9

SUBSTANCE-RELATED AND ADDICTIVE DISORDERS

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QUESTIONS

Directions: Select the best response for each of the questions 1–23.

1. Which of the following disorders is formally included under the category of substance-related and addictive disorders in DSM-5?

a. Exercise addiction disorder
b. Gambling disorder
c. Internet gaming disorder
d. Sex addiction disorder
e. Shopping addiction disorder

2. All of the following substances are known to cause intoxication. Which of the following substances is *least* likely to cause withdrawal?

a. Alcohol
b. Caffeine
c. Cannabis
d. Inhalant
e. Opioids

3. Which of the following is the *least* likely sign of inhalant intoxication?

a. Nystagmus
b. Lethargy
c. Hypersensitive reflexes
d. Euphoria
e. Psychomotor retardation

4. Which of the following is the estimated 12-month prevalence rate of alcohol use disorder among American youth between ages 12 and 17 years?

a. 1.2%
b. 4.6%
c. 8.5%
d. 12.5%
e. 15%

5. Which of the following laboratory tests may have the *highest* sensitivity and specificity in detecting ongoing heavy alcohol drinking?

a. Alanine aminotransferase (ALT)
b. Alkaline phosphatase
c. Carbohydrate-deficient transferrin (CDT)
d. Gamma-glutamyltransferase (GGT)
e. Combination of CDT and GGT

6. All of the following statements regarding the development and course of cannabis use disorder are accurate *except:*

a. The most common age of onset of cannabis disorder is during early adolescence.
b. The progression of the disorder is more rapid in adolescents.
c. Compared to alcohol intoxication, cannabis intoxication leads to less severe behavioral or cognitive dysfunction.
d. Changes in mood stability, energy level, and eating patterns are commonly seen in adolescents who use cannabis.
e. Cannabis use prior to age 15 years indicates a higher risk for developing cannabis use disorder.

7. All of the following names commonly refer to the natural cannabis plant *except:*

a. Dope
b. Gangster
c. Grass
d. Hashish
e. Spice

8. Amotivational syndrome is *most* likely to be associated with which of the following substance use disorders?

a. Alcohol use disorder
b. Cannabis use disorder
c. Phencyclidine use disorder
d. Inhalant use disorder
e. Stimulant use disorder

9. Which of the following neurological conditions is *least* likely to occur during phencyclidine intoxication?

a. Dyskinesia
b. Catalepsy
c. Hypothermia
d. Hypotonia
e. Hyperthermia

10. Which of the following hallucinogens has longer duration of effects than the others listed?

a. 2, 5-dimethoxy-4-methylamphatamine (DOM)
b. Mescaline
c. Dimethyltryptamine (DMT)
d. Lysergic acid diethylamide (LSD)
e. Psilocin

11. Based on updated epidemiologic studies, all of the following descriptions regarding opioid use disorder are accurate *except:*

a. Male adolescents may have a higher likelihood of developing opioid use disorder than female adolescents.
b. Twelve-month prevalence of this disorder among American teens aged 12–17 years (community population) is about 1%.

c. The onset of this disorder can occur at any age, but most commonly begins in the late teens or early 20s.
d. Whereas 20–30% of individuals with this disorder achieve long-term abstinence, the long-term mortality rate may be as high as 2%.
e. Prevalence decreases with increasing age because of early mortality and the remission of symptoms after age 40 years.

12. Which of the following opioids is *not* detectable by standard urine drug tests?
a. Codeine
b. Fentanyl
c. Heroin
d. Morphine
e. Oxycodone

13. Which of the following signs is *least* likely to occur in opioid withdrawal?
a. Dysphoric mood
b. Lacrimation, rhinorrhea, and sweating
c. Muscle aches
d. Nausea and vomiting
e. Pupillary constriction

14. Which of the following sedative, hypnotic, or anxiolytic drugs *does not* result in sedative, hypnotic, or anxiolytic use disorder?
a. Benzodiazepines
b. Buspirone
c. Glutethimide
d. Secobarbital
e. Zolpidem

15. Up to how long after the administration of amphetamine-type stimulants can hair samples be used for detecting the substances?
a. One week
b. One month
c. Three months
d. Six months
e. One year

16. Which of the following conditions is *most* likely to increase the risk of starting and continuing tobacco use and tobacco use disorder in children?
a. ADHD
b. Anxiety
c. Bipolar disorders
d. Depression
e. Psychotic disorders

17. All of the following statements regarding gambling disorder are accurate *except:*
a. A pattern of behavior involving an urgent need to keep gambling to undo a loss or series of losses is often called "chasing one's losses."
b. The onset of the disorder can start in adolescence and young adulthood, as well as in older individuals.
c. Males are more likely to initiate gambling earlier in life than females.
d. Younger individuals are more likely involved with different forms of gambling than older ones.
e. Larger amounts of money spent wagering indicate a gambling disorder.

18. Based on the American Academy of Child and Adolescent Psychiatry practice parameters for the assessment and treatment of children and adolescents with substance use disorders (SUDs) (2005), all of the following are recommended *except:*
a. An appropriate level of confidentiality should be observed during the assessment and treatment.
b. More formal evaluation for SUDs should be conducted if the screening raises concerns about substance use.
c. Toxicology should be a routine part of formal evaluation and the ongoing assessment during and after treatment.
d. Residual treatment should be recommended if the SUDs are confirmed by positive toxicology.
e. Family involvement should be a component of treatment of SUDs.

19. All of the following are selected instruments for screening of substance use problems in adolescents *except:*
a. CRAFFT
b. Conners
c. Problem Oriented Screening Instrument for Teenagers (POSIT)
d. Substance Abuse Subtle Screening Inventory (SASSI)
e. Drug Abuse Screening Test for Adolescents (DAST-A)

20. All of the following instruments can be used as formal assessment tools to identify whether or not those individuals with substance use problems have a substance use disorder *except:*
a. Adolescent Alcohol and Drug Involvement Scale (AADIS)
b. Adolescent Problems Severity Index (APSI)
c. Adolescent Diagnostic Interview (ADI)
d. Customary Drinking and Drug Use Record (CDDR)
e. Comprehensive Addiction Severity Inventory for Adolescents (CASI-A)

21. Which of the following conditions is *least* likely to be comorbid with a substance use disorder?
a. Depression
b. Bipolar disorder
c. Anxiety disorder
d. ADHD
e. Anorexia nervosa, restricting type

22. All of the following stages of change are suggested in motivational interviewing *except:*

a. Precontemplation
b. Contemplation
c. Preparation
d. Recognition of higher power
e. Action

23. All of the following are general principles that effective substance use prevention programs should follow *except:*

a. Protective factors should be enhanced.
b. Addressing the most popular drug of choice in the community should be the focus to save limited resources and to enhance efficiency.
c. High-risk families and children should not be singled out.
d. The program should be long term, with repeated booster programs.
e. Multiple programs can be combined to enhance efficacy.

Matching

24–26. Match each substance use disorder with one of the following listed pharmacotherapies:

a. Disulfiram
b. Bupropion
c. Methadone

24. Opioid use disorder
25. Tobacco use disorder
26. Alcohol use disorder

ANSWERS AND EXPLANATIONS

1. **(b)** Gambling disorder (former "pathological gambling" in DSM-IV-TR under the category of "impulse-control disorders not elsewhere classified") is recategorized under "substance-related and addictive disorder" in DSM-5, which reflects evidence that gambling behaviors activate reward systems similar to those activated by drugs of abuse. The behavioral manifestations elicited are similar to those elicited by the substance use disorders. However, other addictive, repetitive behaviors such as exercise addiction, Internet gaming addiction, sex addiction, and shopping addiction are not recognized as disorders in DSM-5 because there is a lack of empirical research evidence or peer-reviewed consensus to support their listing. *(Ref. 4, p. 481)*
2. **(d)** In DSM-5 inhalant-related disorders include inhalant use disorder, inhalant intoxication, other inhalant-induced disorders, and unspecified inhalant-related disorder. Inhalants do not cause typical withdrawal symptoms that are seen in other substances listed in the question. Thus, no diagnosis of "inhalant withdrawal" is included in DSM-5. Common inhalants used include glue, shoe polish, toluene, gasoline, lighter fluid, and spray paints. Approximately one-tenth of 13-year-old American youth report having used inhalants ≥ once. The prevalence rate of inhalant use disorder among Americans aged 12–17 years is approximately 0.4% in the past 12 months, and is the highest among Native Americans and the lowest among African Americans. Withdrawal symptoms or signs with hallucinogens have not been established. Thus, no diagnosis of "hallucinogen withdrawal" is included in DSM-5 either. *(Ref. 4, pp. 523–525, 533–540)*
3. **(c)** Depressed reflexes can be one of the signs or symptoms of inhalant intoxication among others: dizziness, nystagmus, incoordination, slurred speech, unsteady gait, lethargy, psychomotor retardation, tremor, generalized muscle weakness, blurred vision or diplopia, stupor or coma, and euphoria, which usually develop during or shortly after use of or exposure to the inhalant. Volatile inhalant intoxication can also lead to unconsciousness, anoxia, cardiac arrhythmia or arrest, and "sudden sniffing death." In 2009 and 2010, 0.8% of all Americans > 12 years reported inhalant use in the past year, and the highest age group is among those between 12–17 years with a prevalence of 3.6%. The prevalence drops to 1.7% for an older age group between 18–25 years. *(Ref. 4, pp. 538–539)*
4. **(b)** The estimated 12-month prevalence rate of alcohol use disorder among American youth between ages 12 and 17 years is 4.6%, which increases to 8.5% among adults aged 18 years and older in the United States. Among those youth between ages 12 and 17 years, the prevalence rates are highest in Hispanic and Native Americans/Alaska Natives than among whites, and are lowest in African Americans and Asian Americans/Pacific Islanders. The first episode of alcohol intoxication commonly occurs during the mid-teens. *(Ref. 4, p. 493)*
5. **(e)** The combination of CDT and GGT can provide even higher sensitivity and specificity in detecting ongoing heavy alcohol drinking than either test used alone. People who are drinking heavily show modest elevation or high-normal levels of GGT. GGT is a relatively sensitive test. CDT is another test with even higher sensitivity and specificity. The GGT and CDT tests return to normal a few days after stopping drinking. Thus, they can be used to monitor abstinence and relapses. The combination of GGT and CDT can achieve even higher sensitivity and specificity. Elevated ALT and alkaline phosphatase indicate liver injury, but do not necessarily indicate ongoing heavy drinking. Elevated mean corpuscular volume (MCV) is seen in individuals who drink heavily. However because of the long half-life of red blood cells, it is a less useful test to monitor abstinence. There are some nonspecific laboratory markers for detecting alcohol use, such as elevated lipids and uric acids. *(Ref. 4, p. 495)*
6. **(a)** The most common age of onset of cannabis disorder is during adolescence and young adulthood, although onset of the disorder at other ages such as in the preteen years or in the late 20s and older can occur. Less severe presentation of cannabis intoxication may explain its more frequent use in more diverse situations than alcohol, which may also contribute to the potential rapid transition from "cannabis use" to "cannabis use disorder." Adolescents with cannabis use disorder may not only present with mood instability and energy level and eating pattern changes, but may also demonstrate a dramatic drop in grades, increased truancy, and decreased interest in school activities and performance. Cannabis use prior to age 15 years is a strong predictor of the development of cannabis use disorder along with other substance use disorders and comorbid mental illnesses during young adulthood, and is associated with concurrent externalized and internalized problems. *(Ref. 4, p. 513)*
7. **(e)** Spice, K2, JWH-018, and JWH-073 are all synthetic cannabinoid compounds in the form of plant material that has been sprayed with a cannabinoid formulation. The cannabis plant has many names (e.g., weed, pot, herb, grass, reefer, mary jane, dagga, dope, bhang, skunk, boom, gangster, kif, ganja, and hashish). Most commonly smoked via pipes, water pipes, and cigarettes, cannabis is at times ingested orally by mixing it into food and is inhaled via vaporization. *(Ref. 4, pp. 510–511)*
8. **(b)** Amotivational syndrome refers to a reduction in prosocial goal-directed activity, along with deterioration of school- or job-related performance, which results from cannabis use disorder (either from pervasive intoxication or recovery from the effects of intoxication). *(Ref. 4, p. 514)*
9. **(d)** Dyskinesia, catalepsy, hypothermia, hyperthermia, dystonia, and seizure are signs of possible neurological toxicity. Other effects may include deficits in memory, speech, and cognition, intracranial hemorrhage, rhabdomyolysis, respiratory problems, and occasionally cardiac arrest. *(Ref. 4, pp. 522, 528)*
10. **(d)** Lysergic acid diethylamide (LSD) and 3,4-methlenedioxymethamphetamine (MDMA)—also known as ecstasy—have

longer duration of effects than other hallucinogens, and it takes a longer time to recover from LSD or MDMA use. MDMA has both hallucinogenic and stimulant properties. In adolescents, MDMA use increases the rate of using other hallucinogens, which is in turn associated with other substance use disorders and major depressive disorder. Compared to males, female adolescents seem to have increased odds of other hallucinogen use disorder. *(Ref. 4, pp. 524–526)*

11. **(a)** Female adolescents have a higher likelihood of developing opioid use disorder than male adolescents. *(Ref. 4, p. 543)*

12. **(b)** Fentanyl is *not* detectable by standard urine drug tests, but can be identified by more specialized procedures up to several days after administration. However, most opioids such as codeine, heroin, morphine, oxycodone, and propoxyphene are readily detectable by standard urine tests within 12–36 hours after administration. Methadone, buprenorphine (or buprenorphine/naloxone combination), and L-alpha-acetylmethadol (LAAM) will not cause a positive result on routine tests for opioids, and they can be tested through specialized tests up to one week after administration. *(Ref. 1, p. 251; Ref. 4, p. 544)*

13. **(e)** Pupillary dilation (*not* constriction) is more likely to occur along with other potential signs and symptoms of opioid withdrawal. They are dysphoric mood, nausea, vomiting, muscle aches, lacrimation, rhinorrhea, piloerection, sweating, diarrhea, yawning, fever, and insomnia. They can occur within minutes to several days after cessation or reduction of opioid use that has been heavy and prolonged. Administration of an opioid antagonist after a period of opioid use can trigger withdrawal as well. *(Ref. 4, pp. 547–548)*

14. **(b)** Buspirone is a non-benzodiazepine antianxiety agent, and is not associated with significant misuse or sedative, hypnotic, or anxiolytic use disorder. However, all benzodiazepines and benzodiazepine-like agents (e.g., zolpidem, zaleplon) and all barbiturates (e.g., secobarbital) and barbiturate-like agents (e.g., glutethimide, methaqualone) can be misused and lead to sedative, hypnotic, or anxiolytic use disorder. The 12-month prevalence of this disorder is estimated to be higher among adolescents of ages 12–17 years (0.3%) than among adults (0.2%). It is a more male-predominant disorder in adults, but it is more female predominant in adolescents aged 12–17 years (female to male ratio: 0.4% versus 0.2%). *(Ref. 4, pp. 552–553)*

15. **(c)** The presence of amphetamine-like stimulants is still detectable by testing the hair samples up to 90 days after administration. However, by using urine samples it is generally only detectable for one to three days, and potentially up to four days depending on dosage and individual metabolism. *(Ref. 4, pp. 565–566)*

16. **(a)** ADHD and conduct disorder can increase the risk of developing tobacco use or tobacco use disorder in children. Adults with bipolar/depressive disorders, personality disorders, psychotic disorders, and other substance use disorders have a higher risk of developing tobacco use or tobacco use disorder. *(Ref. 4, pp. 573–574)*

17. **(e)** The amount of money spent wagering does not necessarily indicate a gambling disorder and depends on affordability because some individuals can wager a huge amount of money gambling and do not have a gambling disorder, whereas others may suffer a serious gambling disorder while wagering a much smaller amount. In addition to "chasing one's losses," individuals who experience gambling problems may lie to their family members to cover up their illegal activities, such as forgery, fraud, theft, or embezzlement, to obtain money, etc. *(Ref. 4, pp. 585–588)*

18. **(d)** Adolescents with SUDs should receive specific treatment for their substance use, but they should be treated in the least restrictive setting that is safe and effective. The treatment programs should be designed to minimize treatment dropouts and to maximize motivation, compliance, and completion of treatment. Nonuse peer support, family involvement, comprehensive services involving other domains (e.g., vocational, recreational, medical, and legal) are encouraged. Comorbid psychiatric disorders should be screened, assessed, and appropriately treated. Posttreatment aftercare should be arranged to avoid relapses. *(Ref. 1, p. 248)*

19. **(b)** The Conners rating scale is one of the most commonly used instruments for screening of ADHD, ODD, and conduct disorder in children, but it cannot be used for screening substance use problems. In addition to the listed instruments, instruments for screening substance use problems in adolescents include the Personal Experience Screening Questionnaire (PESQ) and the Adolescent Alcohol and Drug Involvement Scale (AADIS). *(Ref. 1, p. 249)*

20. **(a)** The Adolescent Alcohol and Drug Involvement Scale (AADIS) is a screening instrument. The other listed instruments are used as formal evaluation tools, along with others including: the Adolescent Drug Abuse Diagnosis (ADAD), the Teen Addiction Severity Index (T-ASI), the Global Appraisal of Individual Needs (GAIN), the Modified Structured Clinical Interview for DSM-IV (SCID), and the Personal Experience Inventory (PEI). *(Ref. 1, p. 250)*

21. **(e)** A comorbid psychiatric disorder with a substance use disorder is referred to as a "dual diagnosis." Adolescents and adults with substance use disorders have a higher chance than the general population to have another psychiatric condition, such as depression and other mood disorders, anxiety disorders, oppositional defiant disorder, conduct disorder, antisocial personality disorder, ADHD, schizophrenia, and bulimia. It is often difficult to distinguish whether substance use disorder is the primary or secondary disorder. Therefore, careful assessment and evaluation for a possible dual diagnosis and appropriate treatments for both disorders are important. *(Ref. 1, p. 244; Ref. 3, pp. 620–622)*

22. **(d)** Prochaska and DiClemente suggested several stages that people usually go through when trying to stop addictive behaviors. These stages are: precontemplation, contemplation, preparation, action, and maintenance. Recognition of a higher power belongs to the 12-step program (Step 2). Motivational interviewing, a nonconfrontational counseling approach developed by Miller and Rollnick (1991), has been used as a treatment modality in patients with alcohol and substance use disorders. *(Ref. 1, pp. 915–923; Ref. 3, p. 621)*

23. **(b)** Addressing all forms of drug abuse, alone or in combination, is an important principle of effective prevention programs.

This may include underage use of otherwise legal substances for adults (e.g., alcohol and tobacco, and recently in certain states, marijuana), inappropriate use of legally obtained substances (e.g., inhalants) and prescribed or over-the-counter medications. *(Ref. 1, pp. 246–247)*

Matching

24. (c) Methadone can be considered for adolescents (<18 years) with opioid use disorder who have failed at least two documented drug-free detoxifications, and it has to be prescribed at a certified clinic. A randomized clinical trial shows the effectiveness of using buprenorphine for adolescent detoxification. Naltrexone can be also considered for opioid use disorder. *(Ref. 3, p. 623)*

25. (b) Bupropion is an FDA-approved drug for smoking cessation in adults, which can be potentially considered for adolescents with tobacco use disorder. *(Ref. 3, p. 623)*

26. (a) Disulfiram as well as acamprosate and naltrexone are FDA-approved drugs for alcohol use disorder ("alcohol dependence" in DSM-IV) in adults. They may be considered for adolescents with serious alcohol use disorder. Topiramate (not FDA approved) shows some effectiveness for alcohol use disorder in adults. *(Ref. 3, p. 623)*

10

SPECIAL ISSUES (SUICIDE, SEXUAL DYSFUNCTION, GENDER DYSPHORIA, AIDS, PARAPHILIC DISORDERS, ABUSE, AND PERSONALITY DISORDERS)

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QUESTIONS

Directions: Select the best response for each of the questions 1–50.

1. Which of the following sexual dysfunctions is *least* commonly associated with male sexual complaints?

a. Delayed ejaculation
b. Erectile disorder
c. Male hypoactive sexual desire disorder
d. Premature (early) ejaculation
e. Substance/medication-induced sexual dysfunction

2. Which of the following conditions is *not* included under the category of sexual dysfunction in DSM-5?

a. Female orgasmic disorder
b. Male orgasmic disorder
c. Genito-pelvic pain/penetration disorder
d. Delayed ejaculation
e. Female sexual interest/arousal disorder

3. All of the following statements regarding gender dysphoria are accurate *except:*

a. In DSM-5 there are two different sets of diagnostic criteria for either gender dysphoria in children or gender dysphoria in adolescents and adults.
b. The specifier "posttransition" is only available for gender dysphoria in adolescents and adults.
c. Latency-age natal girls with gender dysphoria express the wish to be a boy, prefer boys' clothing and hairstyles, and like to participate in contact sports and rough-and tumble play.
d. Latency-age boys with gender dysphoria express the wish to be a girl, prefer dressing in girls' clothes, and like to participate in traditionally feminine activities and games.
e. Younger children with this disorder are more likely than older ones to express extreme anatomic dysphoria.

4. All of the following statements regarding the development and course of gender dysphoria are accurate *except:*

a. The onset of cross-gender behaviors occurs usually between ages 2 and 4 years during which time most children start expressing gendered behaviors and interests.
b. Few young children express anatomic dysphoria but it becomes a more common concern when approaching and anticipating puberty.
c. Most natal male children whose gender dysphoria does not persist become sexually attracted to males.
d. Some natal female children whose gender dysphoria does not persist become sexually attracted to females.
e. Natal males with late-onset gender dysphoria are mostly attracted to males and cohabit with natal males.

5. Which of the following factors is *least* likely to be associated with boys who have gender dysphoria?

a. Low activity level
b. Avoidance of rough-and-tumble play activities
c. Right-handedness
d. Having more brothers than sisters
e. Birth later in the order in a multiple brother sibling-ship

6. All of the following statements are accurate regarding the study "US National Longitudinal Lesbian Family Study: Psychological Adjustment of 17-year-old Adolescents" (N. Gartrell and H. Bos, 2010) *except:*

a. The objective of the study was to document the psychological adjustment of adolescents who were conceived through donor insemination and raised by the same lesbian mothers.
b. The index children were followed until they reached 17 years old.
c. The results are based on ratings and reports by their mothers.
d. The outcome measure used was Achenbach CBCL.
e. The study concluded that the index adolescents demonstrated fewer competencies and more behavioral problems than their peers in the normative American population.

7. All of the following are research findings of the study "Lesbian, Gay, Bisexual, and Transgender Adolescents School Victimization: Implications for Young Adult Health and Adjustment" (S.T. Russell et al. 2011) *except:*

a. Lesbian, gay, bisexual, and transgender (LGBT)-related school victimization is strongly associated with young adult mental health problems.
b. LGBT-related school victimization increases risk for STDs and HIV.
c. LGBT-related school victimization increases risk for depression.
d. LGBT-related school victimization increases risk for suicidal ideation among males.
e. LGBT-related school victimization is strongly associated with substance use or abuse.

8. Which of the following factors is the *strongest* predictor of future suicide?

a. History of suicide attempt
b. History of suicidality
c. History of suicidal ideation
d. History of nonsuicidal self-injurious behavior
e. None of the above

9. How many folds of increased risk could a loaded gun in the home lead to completed suicide?

a. 2-fold
b. 10-fold
c. 20-fold
d. 30-fold
e. 50-fold

10. All of the following statements regarding risk factors of completed suicide are accurate *except:*

a. Among all the comorbid conditions, major mood disorders are the most strongly associated with completed suicide.
b. Other high-risk comorbid conditions may include disruptive, anxiety, and substance use disorders.
c. In older adolescents there is a higher risk of using more lethal means while being influenced by substances.
d. Studies find a link between perfectionism and completed suicide.
e. Hopelessness seems to be an independent risk factor beyond its association with depression.

11. Which of the following is *least* likely to be a biological factor associated with suicidality?

a. Increased 5-HT_{2A} receptor binding of the serotonin metabolite 5-hydroxyindoleacetic acid
b. Increased protein kinase A and C activity
c. Down regulation of cAMP-response element binding protein (CREB)
d. Increased activity of brain-derived neurotropic factor in the prefrontal cortex and hippocampus
e. Increased cortisol levels in the late evening hours

12. Which of the following is *not* a protective factor linked to low suicidality?

a. Highly active parental supervision
b. Less leisure time spent together with parents
c. Clearer academic expectation from parents
d. Clearer behavioral expectation from parents
e. Religious affiliation

13. Which of the following components should *not* be included during the exploration of suicidal intent?

a. Belief about intent
b. Preparatory behavior
c. Prevention of discovery
d. Communication of suicidal intent
e. None of the above

14. Which of the following statements regarding assessment of suicidality is *least* correct?

a. Suicidal intent, suicide plan, access to means, lethality, precipitants, motivation, and consequences should all be included as components during the assessment.
b. Suicidal ideation should be evaluated based on both severity (intent) and pervasiveness (frequency and intensity).
c. Nonsuicidal self-injurious behaviors should be separated from suicide attempt because they are involved in separate populations with different lethality and risks.
d. Interpersonal conflict or loss, legal disciplinary problems, and chronic and ongoing physical and sexual abuse can all be precipitants.
e. Naturally occurring environmental contingencies may reinforce suicidality.

15. Based on the study "Clinical and Psychosocial Predictors of Suicide Attempts and Nonsuicidal Self-Injury in the Adolescent Depression Antidepressant and Psychotherapy Trial" (P. Wilkinson et al. 2011), all of the following conclusions were reported *except:*

a. High suicidality, nonsuicidal self-injury, and poor family functioning at study entry are significant independent predictors of suicide attempts over the 28 weeks of follow-up.
b. Nonsuicidal self-injury is an independent predictor of nonsuicidal self-injury over the follow-up period.
c. Hopelessness is an independent predictor of suicidal attempts over the follow-up period.
d. Anxiety disorder at baseline is an independent predictor of nonsuicidal self-injury over the follow-up period.
e. Being younger and female at study entry is an independent predictor of nonsuicidal self-injury over the follow-up period.

16. Which of the following statements regarding clinical management of adolescent suicidal behavior is *not* fully accurate?

a. Treatment of depression may not be sufficient to reduce suicide risk.
b. Clinical interventions include safety planning, psychosocial treatment package, and hospitalization.
c. Safety planning refers to negotiating a detailed written no-harm contract with the adolescent to prevent suicide.
d. Removal of guns from the homes of at-risk adolescents is highly recommended.
e. Receiving written contact via postcard after discharge from hospital reduces reattempt.

17. All of the following statements regarding psychotherapy approaches for treating youth suicidality are accurate based on the updated research *except:*

a. In one study (TADS, 2004), the combination of fluoxetine and CBT is associated with decreased suicidal ideation as compared to placebo.
b. Dialectical behavior therapy (DBT) focuses on developing mindfulness, emotional regulation, distress tolerance, and interpersonal skills.
c. Modified DBT was developed for use with suicidal adolescents to decrease the length of treatment.
d. Inpatient treatment with DBT for adolescents hospitalized for suicidal ideation or attempt reduces reattempts and rehospitalization as compared to the inpatient treatment without DBT.
e. Multisystemic therapy reduces the rates of reattempt as compared to usual care group.

18. All of the following are risk factors for child fatalities caused by maltreatment *except:*

a. Children under 3 years of age
b. Girls
c. Mother under 21 years of age
d. Non-European American ethnicity
e. Product of multiple births

19. All of the following reflect accurate epidemiological data available regarding sexual abuse *except:*

a. Prior to the age of 18 years, 10–25% of girls are sexually victimized in some fashion.
b. The most common age of initial sexual abuse is between 5 and 7 years.
c. The most common perpetrators of sexual abuse against girls are male parents or male parent figures.
d. 20% of cases are perpetrated by adolescents.
e. Unrelated males are the most common perpetrator of sexual abuse against boys.

20. All of the following statements regarding the profiles of perpetrators of sexual abuse are correct *except:*

a. Selection of victimized children is based primarily on their sexual attraction.
b. The victims are considered as their narcissistic extensions.
c. Appearance and age of the victims may match their own characteristics when they were first abused.
d. They are often described as passive and inadequate in most aspects of their life.
e. They tend to put themselves into situations where children can be accessed.

21. Which of the following is the *least* common characteristic of physical abuse?

a. Burns
b. Multiple injuries at similar stages of healing
c. Ruptured viscera
d. Head and eye injuries
e. Rib fractures and spiral fractures

22. All of the following are parts of a common constellation of clinical findings of whiplash shaken baby syndrome in infants and toddlers *except:*

a. Retinal hemorrhages
b. Subdural hemorrhage
c. Subarachnoid hemorrhage
d. Apparent external cranial trauma
e. None of the above

23. Which of the following technologies should be considered as the *first-line* choice in assessing children with suspected acute brain or head injury?

a. CT scanning
b. Bone scans
c. MRI
d. EEG
e. Ultrasound

24. Which of the following is the *least* likely sign of sexual abuse?

a. Vague somatic complaints
b. Primary enuresis or encopresis
c. Anal fissures or blood in the stool
d. Anogenital injuries
e. Redness or irritation of the vulva

25. Which of the following psychiatric disorders and conditions is *least* commonly associated with childhood physical abuse?

a. PTSD
b. Attachment dysregulation
c. Aggression
d. Obsessive-compulsive disorder
e. ADHD

26. Which of the following is the *least* likely outcome of sexual abuse in youth?

a. Sexual abuse and emotional abuse are independent risk factors for future engagement in sex trade work.
b. Long duration, use of force, penetration, and being victimized by perpetrators known to the victims are all associated with worse outcomes.
c. Overstimulation of the hypothalamic-pituitary-adrenal (HPA) axis leads to decreased cortisol levels.
d. Decreased hippocampus size is detected by MRI and PET scans in patients with PTSD due to severe sexual or physical abuse
e. Dissociation may be temporarily protective, and may become maladaptive over time.

27. All of the following statements accurately describe the relationship between childhood maltreatment and substance/nonsuicidal self-injury (NSSI) *except:*

a. Head banging, self-mutilation, rocking, and other painful stimuli may activate endogenous opiates, which facilitates dissociation.
b. Children with a maltreatment history are more likely to develop substance abuse as a way of self-medicating.
c. Alcohol activates the mesolimbic reward system in children deprived of true rewards in their lives.
d. Both emotional abuse and sexual abuse have the strongest link to NSSI.
e. Emotional abuse leads to NSSI, which might be due to the development of self-critical cognitive style.

28. Which of the following is the *most* predictive factor that is linked to resilience or lack of it based on Daigneault et al. (2007)?

a. Family violence

b. Interpersonal trust
c. Maternal conflicts
d. Out-of-home placements
e. None of the above

29. All of the following statements regarding legal considerations during the evaluation of child maltreatment are correct *except:*

a. All 50 states mandate physicians and mental health clinicians to report suspected child abuse to authorities.
b. Specific requirements and guidelines vary across different states.
c. The most important factor is prompt report and referral to ensure appropriate collection and validation of data.
d. The forensic evaluation and data collection should be completed by the treating provider who suspects the abuse.
e. Confidential issues need to be clarified prior to a forensic evaluation.

30. Which of the following types of child maltreatments may be *most* prevalent?

a. Emotional maltreatment (psychological maltreatment)
b. Physical abuse
c. Neglect
d. Sexual abuse
e. Sexual assault

31. Based on the "Childhood Trauma and Children's Emerging Psychotic Symptoms: A Genetically Sensitive Longitudinal Cohort Study" (L. Arseneault et al. 2011), which of the following types of maltreatment is *most* associated with reporting psychotic symptoms?

a. Maltreatment by siblings
b. Sexual abuse by parents
c. Neglect by caregivers
d. Emotional abuse by parents
e. Bullying by peers

32. Based on the "Childhood Trauma and Children's Emerging Psychotic Symptoms: A Genetically Sensitive Longitudinal Cohort Study" (L. Arseneault et al. 2011), which of the following childhood trauma factors is *most* strongly associated with reporting psychotic symptoms?

a. Timing of the trauma
b. Accumulative effect
c. Forms of trauma
d. Age of the victim
e. Sex of the victim

33. According to the study "Physical Punishment and Mental Disorders: Results From a Nationally Representative US Sample" (T.O. Afifi et al. 2012), all of the following statements are accurate *except:*

a. The study investigates the relationship between harsh physical punishment and mental disorders.
b. The data is based on the National Epidemiologic Survey on Alcohol and Related Conditions between 2004 and 2005.
c. Harsh physical punishment is associated with increased odds of mood, anxiety, and substance use disorders.
d. Harsh physical punishment is not associated with increased odds of personality disorders.
e. The study indicates that independent of other forms of child maltreatment harsh physical punishment is a risk factor for developing mental disorders.

34. All of the following interventions for foster families are used to treat children during middle childhood *except:*

a. Attachment and Biobehavioral Catch-up (ABC)
b. Fostering Individualized Assistance Program (FIAP)
c. Incredible Years (IY)
d. Keeping Foster Parents Trained and Supported (KEEP)
e. Middle School Success (MSS)

35. All of the following statements regarding the epidemiology of HIV/AIDS in youth are accurate based on the latest data *except:*

a. With nearly 1.2 million Americans infected with HIV/AID, pediatric AIDS is not uncommon.
b. Between 1994 and 2004 HIV/AIDS cases via maternal transmission decreased significantly.
c. Black/African American youth constitute almost 70% of the cases for adolescents.
d. Most female adolescents aged 13–19 are infected through heterosexual contact.
e. About three-fourths of male adolescent cases are transmitted through male-to-male sexual contact.

36. The *most* common way by which a child acquires HIV/AIDS is:

a. Being born to a mother infected with the human immunodeficiency virus (HIV)/AIDS
b. Receiving a blood transfusion
c. Homosexual activity with an HIV-infected person
d. Kissing an HIV-infected person
e. Heterosexual activity with an HIV-infected person

37. All of the following are possible neurological manifestations of HIV/AIDS *except:*

a. Central nervous system lymphoma
b. Cerebral toxoplasmosis
c. Dementia
d. Peripheral neuropathy
e. Seizure

38. All of the following statements regarding the treatment of HIV/AIDS in youth are appropriate *except:*

a. A multidisciplinary approach is ideal.
b. Family-centered approaches are recommended.
c. The aim of antiretroviral medications is the eradication of viral replications.

d. Combination of multiple drugs under different categories is recommended.
e. Antiretroviral medications can help improve cognitive deficits caused by HIV-associated encephalopathy.

39. Which of the following is *most* likely to have drug-drug interactions with certain psychotropic medications?
a. Abacavir
b. Didanosine
c. Emtricitabine
d. Ritonavir
e. Zidovudine

40. Based on research data in adults which of the following antidepressants does not seem to lead to clinically significant drug-drug interactions with ritonavir?
a. Citalopram
b. Escitalopram
c. Fluoxetine
d. Paroxetine
e. Sertraline

41. Under the personality disorder section of DSM-5, there are 10 specific personality disorders included. Which of the following is *not* one of them?
a. Antisocial personality disorder
b. Borderline personality disorder
c. Histrionic personality disorder
d. Passive-aggressive personality disorder
e. Schizoid personality disorder

42. According to DSM-5, all of the following personality disorders can be potentially assigned to individuals under the age of 18 years *except:*
a. Antisocial personality disorder
b. Dependent personality disorder
c. Narcissistic personality disorder
d. Obsessive personality disorder
e. Schizotypal personality disorder

43. What is the *minimal* duration of symptoms of personality disorders that must be present in order to diagnose personality disorders in individuals younger than 18 years?
a. Three months
b. Six months
c. One year
d. Two years
e. Five years

44. All of the following statements regarding borderline personality disorder are accurate *except:*
a. Prevalence of this disorder is higher in older age groups than in the young adult group.
b. The risk of suicide is highest in the young adult group.
c. Youth and young adults with identity problems may be misperceived temporarily as having a personality disorder.
d. This disorder is five times more likely to occur in those who have first-degree biological relatives with the disorder.
e. This disorder is female predominant (about 75%).

45. All of the following biological findings based on neuroimaging studies are associated with borderline personality disorder *except:*
a. Bilateral increases in activation of the amygdala in response to affective stimuli
b. Increased left amygdala activation to facial expression of emotion
c. Increased amygdala and hippocampal volume
d. Dysfunction of frontal-limbic network
e. Dysfunction of anterior cingulate cortex, orbitofrontal and dorsolateral prefrontal cortex

46. Which of the following should be *excluded* from the potential psychosocial factors for youth developing borderline personality disorder?
a. History of trauma (physical abuse, sexual abuse, and other maltreatment)
b. History of neglect
c. History of separation from primary caregivers
d. Serious parental psychopathology
e. None

47. In comparison of the prevalence rates of comorbid conditions between youth with borderline personality disorder and those without, which of the following conditions is significantly *more* prevalent in youth with borderline personality disorder?
a. ADHD
b. Conduct disorder
c. Major depressive disorder
d. Oppositional defiant disorder
e. Separation anxiety disorder

48. Multimodal treatments of borderline personality disorder usually include all of the following *except:*
a. Individual therapy
b. Parental/family therapy
c. ECT
d. Pharmacological interventions
e. Partial and inpatient hospitalization and residential programs

49. Which of the following *most* accurately reflects the concept of hypermentalizing?
a. Over-interpretative mental state reasoning
b. Attrition of lower levels of intentionality than what appears contextually appropriate
c. Over-suppressing irrelevant aversive information

d. Desensitized response to social-emotional stimuli
e. All of the above

50. Based on the DSM-5 diagnostic criteria for pedophilic disorder what is the *minimal* age difference required between an individual with pedophilic disorder and the potential child victim?
a. 1 year
b. 3 years
c. 5 years
d. 10 years
e. 15 years

Matching

51–55. Choose one from the following descriptions that describes the terms *most* accurately:
a. Any self-inflicted destructive conduct with intent to physically harm self without intent to die
b. All suicide-related behaviors and thoughts
c. Thoughts of harming or killing self
d. Self-inflicted destructive conduct with explicit or implicit intent to die, but not necessarily leading to injury
e. Fatal, self-inflicted, destructive conduct with explicit or implicit intent to die

51. Suicide
52. Suicide attempt
53. Suicidal ideation
54. Suicidality
55. Nonsuicidal self-injurious behavior

56–59. Match each of the following descriptions to the term that it describes *most* accurately:
a. Anatomic dysphoria
b. Androphilic
c. Gynephilic
d. Natal gender

56. The gender being assigned to (usually at birth)
57. Sexually attracted to females
58. Sexually attracted to males
59. Discomfort with own sexual anatomy

60–70. Choose one from the following descriptions that describes the terms *most* accurately:
a. Pattern of erotic responsiveness, including sexual fantasy, patterns of physiological arousal, sexual behavior
b. Individual's sense of self as male or female
c. Adoption of male and female cultural markers
d. Gender nonconforming and gender-discordant individuals
e. Discrepancy between anatomical sex and gender identity
f. Variation from norms in gender role behavior such as toy preferences and rough-and-tumble play
g. Individual and societal assumptions promoting heterosexuality
h. Self-loathing by homosexual people based on the adoption of anti-homosexual attitude
i. Biased and hostile attitude toward homosexual people
j. Perception of one's sex on the part of society as male or female
k. Sense of being male or female based on anatomical sex

60. Gender identity
61. Gender role behavior
62. Sexual orientation
63. Sex
64. Gender
65. Sexual prejudice (homophobia)
66. Internalized sexual prejudice
67. Heterosexism
68. Childhood gender nonconformity
69. Gender discordance
70. Gender minority

71–74. Match each antiviral medication to one of the following drug classes:
a. Nucleoside and nucleotide reverse transcription inhibitors
b. Nonnucleoside reverse transcription inhibitors
c. Protease inhibitors
d. Fusion inhibitors

71. Enfuvirtide
72. Fosamprenavir
73. Nevirapine
74. Zidovudine

ANSWERS AND EXPLANATIONS

1. **(a)** The prevalence of delayed ejaculation is unknown because of the lack of a precise definition of the syndrome, and it is the *least* common sexual complaint among men. The prevalence of all other male sexual dysfunctions is variable, and is strongly related to age factors (e.g., only about 2% of men younger than age 40–50 years frequently experience problems with erections, whereas almost half of men older than 60–70 years may experience significant problems with erection). There are five factors that are relevant to the etiology and treatment of sexual dysfunctions in general: (1) partner factors; (2) relationship factors; (3) individual vulnerability factors; (4) cultural/religious factors; and (5) medical factors. *(Ref. 4, pp. 424–449)*

2. **(b)** Male orgasmic disorder (used to be listed in DSM-IV) is no longer listed in DSM-5. All other conditions listed, along with male hypoactive sexual desire disorder, premature (early) ejaculation, and substance/medication-induced sexual dysfunction are all under the category of sexual dysfunction in DSM-5 *(Ref. 4, pp. 423–450)*

3. **(e)** Older children, adolescents, and adults with this disorder are more likely than younger children to express extreme and persistent anatomic dysphoria. The incongruence between experienced gender and somatic sex is a core feature of the disorder among adolescent and adult patients. Such distress can be mediated by environmental support and availability of existing biomedical treatment to reduce such incongruence. *(Ref. 4, pp. 452–455)*

4. **(e)** Natal males with late-onset gender dysphoria are most likely to engage in transvestic behavior with sexual excitement, and are likely to be attracted by females and tend to cohabit with or are married to natal females. *(Ref. 4, pp. 454–456)*

5. **(c)** Left-handedness is more common among boys with gender dysphoria. *(Ref. 3, pp. 674–675)*

6. **(e)** This particular study is the longest running prospective longitudinal study of same sex parented families. The authors concluded that adolescents of both genders raised by lesbian mothers since conception demonstrated healthy psychological adjustment. They were rated higher by their mothers in social, school, and total competence and lower in social or behavioral problems compared to the control group (age-matched youth in Achenbach's normative sample). *(N. Gartrell and H. Bos: US National Longitudinal Lesbian Family Study: Psychological Adjustment of 17-year-old Adolescents.* Pediatrics, *126: 28–36, 2010)*

7. **(e)** There is no strong association between LGBT-related school victimization and substance use or abuse. The authors concluded that reduction of LGBT-related school victimization would probably lead to a significant long-term health gain and reduction of health disparities for the LGBT population. (*S. T. Russell et al.: Lesbian, Gay, Bisexual, and Transgender Adolescents School Victimization: Implications for Young Adult Health and Adjustment.* Journal of School Health, *81: 223–230, 2011)*

8. **(a)** History of suicide attempt is the strongest predictor of future suicide. Suicidality is a generic term that refers to all suicide-related behavior and thoughts. Follow-up studies show 6–15% of adolescent suicide attempters will reattempt. The highest risk period is within three months of the initial attempt, and/or following discharge from an inpatient psychiatric facility. Youth suicide attempters who have a history of using more lethal means tend to have a higher risk of eventual completed suicide. Younger children may overestimate the lethality of the means they use. Using relatively low lethal means may not reflect low lethality. *(Ref. 1, pp. 532–533)*

9. **(d)** Availability of a firearm at home increases risk of completed suicide significantly, especially when the gun is loaded (more likely to be chosen as a means of suicide). One study shows a loaded gun increases by 30-fold the risk for completing suicide, even among youth with no apparent psychopathology. *(Ref. 1, p. 533)*

10. **(d)** Studies failed to find a link between perfectionism and completed suicide even though a perfectionism personality trait seems to be associated with suicide attempts in youth. Homosexuality seems to be associated with suicidality, which is mediated by gender nonconformity, parental and peer rejection/bullying, and/or the increased risk for depression and substance abuse. *(Ref. 1, p. 533)*

11. **(b)** Among other factors listed, *decreased* protein kinase A and C activity is another biological factor that is associated with completed suicidality. Both altered serotonergic and adrenocortical functions are found in suicidal depressed adolescents. Blunting of sleep-stimulated growth hormone secretion is another biological factor. *(Ref. 1, p. 534)*

12. **(b)** A positive child-parent connection (such as leisure and meal times spent together, active parental supervision, clearer academic and behavioral expectation), school/academic success, prosocial peer interactions, and religious affiliation are all associated with a lower rate of suicidality. *(Ref. 1, p. 534)*

13. **(e)** Belief about intent, preparatory behavior, prevention of discovery, and communication of suicidal intent are four components that should be explored during the evaluation of suicidal intent. Belief about intent refers to the extent to which the person wishes to die. Preparatory behavior may include giving away prized possessions, writing suicidal notes, etc. Prevention of discovery refers to planning the attempt in a way that rescue is unlikely. Expressing a wish to die, planning the attempt ahead of time, timing the attempt to avoid detection, and confiding suicide plans are all indications of high intent, which are all associated with recurrent suicide attempts and completed suicide. *(Ref. 1, p. 535)*

14. **(c)** Nonsuicidal self-injurious behavior should be differentiated from a suicide attempt. However, the risk factors often overlap, and it is not uncommon for youth to engage in both behaviors, and either behavior can potentially lead to high lethality and poor outcomes (even accidental suicide). Thus, a

thorough assessment is warranted for both behaviors. *(Ref. 1, pp. 534–535)*

15. **(c)** Hopelessness, anxiety disorder, and being younger and female are all independent predictors of nonsuicidal injury over the follow-up period, but not predictors of suicide attempts. *(P. Wilkinson et al.: Clinical and Psychosocial Predictors of Suicide Attempts and Nonsuicidal Self-Injury in the Adolescent Depression Antidepressant and Psychotherapy Trial/ADAPT.* Am J Psychiatry, *168: 495–501, 2011)*

16. **(c)** Safety plans are the most critical components of clinical management of adolescent suicidality, which involve collaborative efforts among the clinician, patient, and family. Written no-harm contracts alone are not sufficient to prevent suicidality. The plans should include assessment and determination of the appropriate level of care (i.e., outpatient or inpatient), elimination of lethal means, implementation of coping skills, strategies for identifying warning signs, and potential ways of stepping up level of services, etc. Depression is a risk factor for suicidality. However, treatment of depression alone may not necessarily reduce suicidal risk. Specific interventions targeting suicidality per se are often required. The highest risk period for suicide and reattempt happens after discharge from the hospital; studies show that sending out written contact postcards to the patients reduces the risk of reattempt. Aftercare arrangements, such as scheduling the initial outpatient appointment, may be helpful. *(Ref. 1, pp. 536–537)*

17. **(d)** Inpatient treatment *with* and *without* DBT for adolescents hospitalized for suicidal ideation or attempt both reduce self-reported depression, suicidal ideation, and hopelessness in similar fashions, but there are no differences in reattempts, compliance with outpatient treatment, or rehospitalization. In one study (Huey et al. 2004), at one-year follow-up, the MST group shows significant reduction in reattempts as compared to the usual care group whereas there are higher rates of hospitalization in the MST group. The other potential psychosocial interventions include home-based family therapy, youth-nominated support teams, developmental group therapy, skills-based therapy, and school-based prevention, all of which have variable levels of empirical support. *(Ref. 1, pp. 537–538)*

18. **(b)** Being a boy (not girl), under the age of 3 years, having a mother under the age of 21, being the product of a multiple birth, and non-European ethnicity are all risk factors for child fatalities due to maltreatment. Death from homicide during the first week of life is almost always perpetrated by mothers, whereas death occurring between ages 1 week and 13 years are equally caused by mothers and fathers. However, in older age groups, fathers are more likely to be responsible for the majority of parent-perpetrated homicides: 63% among 13- to 15-year-olds, and 80% among 16- to 19-year-olds. *(Ref. 1, p. 480)*

19. **(b)** The most common age of initial sexual abuse is 8–11 years. Boys are less willing to disclose sexual abuse, and are more likely to be victimized by unrelated males. When sexually victimized, boys are more likely to ultimately express homosexual identity than boys without such a history. *(Ref. 1, p. 480)*

20. **(a)** Perpetrators tend to select their victims primarily based more on their emotional needs than sexual attraction, and select victims that match the age and appearance of themselves when they were first abused. They view their victims as their narcissistic extensions. They often are described as passive and inadequate, although they are found to seek circumstances and events where children can be accessed. *(Ref. 1, pp. 480–481)*

21. **(b)** Multiple injuries with various (not similar) stages of healing are more characteristic of physical abuse. Other characteristic injuries include bruises in the configuration of fingers or a belt, spiral fractures, subdural hematoma, radiographic evidence of old fractures, and multiple rib fractures. *(Ref. 1, pp. 482–483)*

22. **(d)** Little or no evidence of external cranial trauma exists in whiplash shaken baby syndrome in infant and toddlers. The subdural hematoma can be caused by tearing of cortical bridging veins. *(Ref. 1, p. 482)*

23. **(a)** CT scanning has high sensitivity to hemorrhage (intraparenchymal, subarachnoid, subdural, and epidural) and mass effect. Thus, CT scanning should be considered as the first-line choice over MRI or other technologies. *(Ref. 1, p. 482)*

24. **(b)** Secondary (*not* primary) enuresis or encopresis could be a sign of sexual abuse in children among other signs such as vague somatic complaints (headaches, abdominal pain), redness or irritation of the vulva, anogenital injuries (lacerations, scarring, or bruising of genitalia), anal dilation or scarring, repeated urinary tract infections, hematuria, anal fissure, and blood in the stool. *(Ref. 1, p. 483)*

25. **(d)** Obsessive-compulsive disorder is not commonly associated with physical abuse. Other characteristics of abused children include anxiety disorders and PTSD, cognitive and neurological impairments, dissociative disorders, ADHD, depression and suicide, self-destructive behavior, impaired impulse control and aggression, and impaired social relations. *(Ref. 1, pp. 485–488)*

26. **(c)** Overstimulation of the hypothalamic-pituitary-adrenal (HPA) axis leads to increased cortisol levels. *(Ref. 1, pp. 484–485)*

27. **(c)** Stimulants (*not* alcohol) activate the mesolimbic dopaminergic reward system in children deprived of true rewards in their lives. Alcohol usually reduces anxiety, and opiates trigger soothing dissociation, which all can lead to higher rates of use of such substances by youth with a maltreatment history. *(Ref. 1, p. 486)*

28. **(b)** All of the factors listed are predictive of resilience studied by Daigneault et al. (2007), among which interpersonal trust is the most predictive of resilience. Thus, development of a trusting relationship and promotion of a sense of empowerment and self-efficacy in treating youth with traumas are critically important. Other positive factors that can enhance resilience include the child's above-average intelligence, high self-esteem, internal locus of control, external attribution of blame, presence of spirituality, and high ego control. Family cohesiveness, competent foster care, and positive school experiences can also promote resilience. *(Ref. 1, pp. 490–491)*

29. **(d)** The forensic evaluation should be completed by a forensic-trained clinician separate from the treating provider who suspects the abuse in the first place. From a legal standpoint, the initial clinician who suspects the abuse is only obligated to report to appropriate authorities according to the local state

laws and regulations, but is not responsible for performing a forensic evaluation on the case. The treating clinician should try to document direct statements of disclosure (e.g., quotations) in the medical record. The confidential issues should be addressed and clarified prior to a forensic evaluation because such an evaluation is done for the purpose of court proceedings. *(Ref. 1, p. 491)*

30. **(a)** Emotional maltreatment (psychological maltreatment) may be the most prevalent form of child maltreatment, and may be the most likely to be underreported. Unfortunately, there is no universally agreed upon definition of such maltreatment. Six types of psychopathologically abusive behaviors by caregivers are proposed to indicate possible emotional or psychological maltreatment including: spurning, terrorizing, isolating, exploiting/corrupting, denying emotional responsiveness, and mental health/medical/educational neglect. *(R. Hibbard et al.: Psychological Maltreatment.* Pediatrics, *130: 372–378, 2012)*

31. **(e)** Both bullying by peers and maltreatment by an adult with intent to harm are strongly associated with self-reported psychotic symptoms, which suggests intention to harm and perceived threat could be factors regardless of the forms of maltreatments per se. *(L. Arseneault et al.: Childhood Trauma and Children's Emerging Psychotic Symptoms: A Genetically Sensitive Longitudinal Cohort Study.* Am J Psychiatry, *168: 65–72, 2011)*

32. **(b)** The accumulative effect of abuse or trauma confers the highest risk for developing psychotic symptoms. *(L. Arseneault et al.: Childhood Trauma and Children's Emerging Psychotic Symptoms: A Genetically Sensitive Longitudinal Cohort Study.* Am J Psychiatry, *168 :65–72, 2011)*

33. **(d)** Being associated with increased odds of mood, anxiety, and substance use disorders, harsh physical punishment is also associated with increased odds of personality disorders. Harsh physical punishment refers to pushing, grabbing, shoving, slapping, and hitting, etc. in the absence of more severe child maltreatments (i.e., physical, sexual, and emotional abuse, neglect, and inter-partner violence). *(T. O. Afifi et al.: Physical Punishment and Mental Disorders: Results From a Nationally Representative US Sample.* Pediatrics, *130: 184–192, 2012)*

34. **(a)** As one of the interventions for foster families during early childhood, Attachment and Biobehavioral Catch-up (ABC) is designed to help caregivers to be highly responsive to the child's emotional needs and to promote the caregiver in providing nurturing care and attachment security. Other interventions used during early childhood include Multidimensional Treatment Foster Care for Preschoolers (MTFC-P) and Bucharest Early Intervention Project (BEIP). Multidimensional Treatment Foster Care for Adolescents (MTFC-A) has shown positive outcomes for foster adolescents. *(L. D. Leve et al.: Practitioner Review: Children in Foster Care—Vulnerabilities and Evidence-based Interventions that Promote Resilience Process.* J of Child Psychology and Psychiatry, *53: 1197–1211, 2012)*

35. **(a)** With nearly 1.2 million Americans infected with HIV/AIDS, pediatric AIDS is fortunately rare. Significantly (approximately 75%) decreased maternal transmission of HIV/AIDS between 1944 and 2004 in the United States is attributed to more widespread HIV testing and antiretroviral therapy for pregnant women. A 40% increase in adolescents and young adults living with HIV/AIDS in the United States is found since 2000. Because of emergent risk behaviors, teenagers are at risk for acquiring HIV and sexually transmitted diseases. *(Ref. 1, pp. 495–496)*

36. **(a)** The majority of pediatric HIV/AIDS cases are the result of children being born to mothers who have AIDS or are HIV positive. Kissing an HIV-infected person is not known to cause AIDS. Breastfeeding carries some risks. There is evidence to show that oral sex may also lead to HIV infection. *(Ref. 1, pp. 496–497; Ref. 3, pp. 946–947)*

37. **(c)** The term "dementia" should not be commonly used to describe HIV-associated cognitive deficits. Instead, such cognitive deficits are commonly referred to as either "HIV encephalopathy" or "HIV-associated progressive encephalopathy." In DSM-5 "dementia due to HIV disease" was eliminated. Instead, the term "major or mild neurocognitive disorder due to HIV infection" is used to describe such cognitive deficits. As a matter of fact, dementia is subsumed under the new term "major and neurocognitive disorder" in DSM-5, and specifiers are used to specify the etiologies, such as "due to Alzheimer's disease," "due to Lewy body disease," "due to vascular disease," and "due to traumatic brain injury," etc. HIV-associated encephalopathy in children manifests as a triad of symptoms: impaired brain growth, progressive motor dysfunction, and loss or plateau of developmental milestones. Three patterns of abnormal developmental course are described: rapid progressive encephalopathy with loss of attained milestones, subacute progressive course with relatively stable periods, and static encephalopathy with failure to achieve new milestones. *(Ref. 1, pp. 497–498; Ref. 3, pp. 948–949; Ref. 4, pp. 591, 602–603)*

38. **(c)** The aim of antiretroviral medications is not the eradication of viral replications. Instead, the goal is to suppress viral replication, which usually requires a combination of multiple antiretroviral medications with different mechanisms. *(Ref. 1, pp. 499–500; Ref. 3, pp. 949–951)*

39. **(d)** As a protease inhibitor and a potent inhibitor of 3A4 and paninhibitors of other P450 isoenzymes ritonavir is most likely to have drug-drug interactions with certain psychotropic medications. In general, nonnucleoside reverse transmission inhibitors and protease inhibitors are metabolized by different P450 isoenzymes and also inhibit those enzymes. Thus, they are more likely to cause drug-drug interactions with psychotropic medications that are also metabolized through the same route. *(Ref. 1, p. 500)*

40. **(b)** Based on research data from adults escitalopram does not seem to lead to clinically significant drug-drug interactions with ritonavir. However, there are case reports of serotonin syndrome in adults when combining ritonavir with fluoxetine. *(Ref. 1, pp. 500–501)*

41. **(d)** Passive-aggressive personality is not listed as a formal personality disorder in DSM-5. However, it can be considered under "other specified personality disorder and unspecified personality disorder" if the individual meets the general criteria for a personality disorder, but cannot be categorized into one of the former personality disorders. In addition to the personality disorders listed in the question, the other six are:

paranoid personality disorder, schizotypal personality disorder, narcissistic personality disorder, avoidant personality disorder, obsessive-compulsive personality disorder, and dependent personality disorder. *(Ref. 4, pp. 645–646)*

42. (a) Antisocial personality disorder is the only personality disorder that has an age diagnostic requirement in DSM-5 (at least age 18 years). However, there must be a history of symptoms of conduct disorder before age 15 years, manifested as a repetitive and pervasive pattern of disregard for and violation of the rights of others or age-appropriate societal norms/rules. *(Ref. 4, pp. 659–660)*

43. (c) Personality disorder diagnoses can be given in individuals younger than 18 years (except for antisocial personality disorder). However, the symptoms must be present for more than one year. In these cases the maladaptive personality traits must be pervasive, persistent, and unlikely to be limited to a particular developmental stage or be related to another mental disorder. In general, personality traits observed in childhood often end up changing over time into adulthood. *(Ref. 4, p. 647)*

44. (a) The prevalence of borderline personality disorder decreases as people age, and is lower in the older age groups. The overall impairment and suicide risk associated with this disorder gradually decreases when people age. Studies show half of the individuals no longer meet the criteria at 10-year follow up. In primary care settings the prevalence rate is about 6%, about 10% in outpatient mental health clinics, and about 20% in psychiatric hospital settings. *(Ref. 4, pp. 665–666)*

45. (c) Decreased amygdala and hippocampal volume is found in patients with borderline disorder by structural MRI. In addition to the neuroimaging findings listed in the question, studies of serotonergic metabolites indicate serotonergic involvement in impulsive aggressiveness, and neuroimaging studies also confirmed reduced serotonergic neurotransmission in cortical inhibitory areas that are responsible for regulating or dampening aggression in patients with borderline personality disorder. *(Ref. 3, p. 683)*

46. (e) None of the listed factors should be excluded as psychosocial risk factors for developing borderline personality disorder. Among them, sexual abuse is more discriminatory between borderline personality disorder and other personality disorders, although such a correlation does not imply causality, and studies show most abused children do not grow into adults with borderline personality disorder. *(Ref. 3, p. 683)*

47. (b) All of the listed conditions are commonly comorbid conditions with borderline personality disorder and are quite prevalent in youth without borderline personality disorder. However, only conduct disorder is statistically significant in being more prevalent among youth with borderline personality disorder than those without the disorder. *(Ref. 1, pp. 686–687)*

48. (c) Many different interventions have been used for treating borderline disorder in children and adolescents without any published, well-controlled studies indicating the best therapeutic modality. Because of the complex nature of the disorder multimodal treatment approaches are proposed, relying on no single approach but rather combining them when clinically indicated. ECT, however, has not been considered as one of the recommended approaches. *(Ref. 3, pp. 687–689)*

49. (a) Over-interpretative mental state reasoning is one of the features of hypermentalizing, along with others such as attrition of higher levels of intentionality than what appears contextually appropriate, failure of suppression of irrelevant aversive information, and hypersensitivity to social-emotional stimuli. The term "mentalizing" has been used interchangeably with the term "theory of mind" in the psychoanalytic literature, and later in neurobiological and developmental literature to describe the capacity to interpret others' behavior within a mentalistic framework of how self and others think, perceive, respond, attribute, etc. Dysfunction of mentalizing and theory of mind are believed to be key elements of interpersonal disturbances seen in individuals with borderline personality disorder. *(C. Sharp et al.: Theory of Mind and Emotion Regulation Difficulties in Adolescent With Borderline Traits.* JAACAP, *50: 563–573, 2011)*

50. (c) The core feature of pedophilic disorder is recurrent, intense sexually arousing fantasies, sexual urges, or sexual acting out behaviors with a prepubescent child or children lasting more than six months, which causes marked distress or interpersonal difficulty. The individual with the disorder has to be at least 16 years old and five years older than the victim(s). *(Ref. 4, pp. 697–698)*

Matching

51. (e); 52. (d); 53. (c); 54. (b); 55. (a) To correct a history of inconsistent and unclear terminology in regards to suicide-related behavior, a set of terms was developed by O'Carroll et al. (1996). Suicide refers to fatal, self-inflicted, destructive conduct with explicit or implicit intent to die. Suicide attempt are nonfatal, self-inflicted, destructive conduct with explicit or implicit intent to die, which may not necessarily lead to injury. Suicidal ideation refers to thoughts of harming or killing self. Suicidality refers to all suicide-related behaviors or thoughts. Nonsuicidal self-injurious behavior refers to any self-inflicted, destructive conduct with full intent to inflict self-harm without intent to die. *(Ref. 1, pp. 531–532)*

56. (d); 57. (c); 58 (b); 59. (a) Natal gender refers to the assigned gender at birth. Androphilc and gynephilc refer to being sexually attracted to males and females, respectively. Anatomic dysphoria refers to discomfort with one's own sexual anatomy or the desire to have a sexual anatomy corresponding to the experienced gender (not natal gender). *(Ref. 4, pp. 453–455)*

60. (b) Gender identity is usually established by 3 years of age and as early as 24 months. *(Ref. for questions 60–70: Practice Parameter on Gay, Lesbian, or Bisexual Sexual Orientation, Gender Nonconformity, and Gender Discordance in Children and Adolescents.* JAACAP, *51: 957–974, 2010)*

61. (c) Gender role behavior is the adoption of male and female cultural markers (either feminine or masculine), such as clothing, toy interests, fantasy play, mannerisms, and gender of playmates. It is typically established between 1 and 6 years of age, with girls having wider variability.

62. (a) Sexual orientation may be heterosexual, homosexual, or bisexual. Most experts agree that it takes place after gender

role and gender identity have been established, but the agreement is not universal.

63. (k) Sex refers to the individual's sense of being male or female based on the person's anatomical sex. However, disorders of sex development can lead to intersex conditions, which result in ambiguity.

64. (j) Gender refers to the perception of an individual's sex on the part of society as male or female.

65. (i) Sexual prejudice (homophobia) refers to biased and hostile attitude toward homosexual people. Technically homophobia is not a phobia, rather an prejudice.

66. (h) Internalized sexual prejudice refers to a syndrome of self-loathing by homosexual people themselves based on the adoption of anti-homosexual attitudes.

67. (g) Heterosexism refers to individual and societal assumptions promoting heterosexuality.

68. (f) Childhood gender nonconformity refers to variation from norms in gender role behavior such as toy preferences, rough-and-tumble play, aggressive tendency, or playmate gender. The terms "gender variance" and "gender atypicality" are used interchangeably in the literature.

69. (e) Gender discordance refers to discrepancy between anatomical sex and gender identity. Transgender refers to people who have a gender identity that is discordant with their anatomical sex. Transsexual refers to transgender people who make their perceived gender and/or anatomical sex conform to their gender identity.

70. (d) Gender minority refers to gender nonconforming and gender-discordant individuals.

71. (d) Enfuvirtide is under the drug class of fusion inhibitors. *(Questions 71–74: Ref. 1, p. 499)*

72. (c) Protease inhibitors include atazanavir, fosamprenavir, indinavir, lopinavir, nelfinavir, ritonavir, and saquinavir.

73. (b) Nonnucleoside reverse transcription inhibitors include delavirdine, efavirenz, and nevirapine.

74. (a) Nucleoside and nucleotide reverse transcription inhibitors include abacavir, didanosine, emtricitabine, lamivudine, stavudine, tenofovir, zalcitabine, and zidovudine.

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11

PSYCHOLOGICAL TESTING AND RATING SCALES

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QUESTIONS

Directions: Select the best response for each of the questions 1–20.

1. All of the following statements regarding referral questions for psychological testing describe good practice *except:*

a. Referral for assessment of a child's developmental process.
b. Referral for assessment of a child's intellectual capacity and academic achievement.
c. Referral for clarification of a child's diagnoses and assistance with therapeutic interventions.
d. Referral questions should be explained to the parents.
e. Referral questions should be formulated by the testing clinician after evaluation.

2. Which of the following is the *best* definition of construct validity on a testing instrument?

a. The test's capacity to measure what it is supposed to measure (such as underlying theoretical, intangible qualities or traits in which individuals differ)
b. The test's effectiveness in predicting an individual's performance in specific areas
c. The fact that the test's content covers a representative sample for the property being measured
d. The degree to which the test results can be reproduced
e. Pretesting of the test on a large, demographically representative group of individuals

3. All of the following intelligence tests can be used in younger children (<4 years) *except:*

a. Differential Ability Scales, Second Edition (DAS-II)
b. Kaufman Assessment Battery for Children, Second Edition (KABC-2)
c. Stanford-Binet Intelligence Scale, Fifth Edition (SB-5)
d. Wechsler Abbreviated Scale of Intelligence (WASI)
e. Wechsler Preschool and Primary Scale of Intelligence, Third Edition (WPPSI-III)

4. All of the following statements regarding the Vineland Adaptive Behavior Scales, Second Edition are accurate *except:*

a. It is an excellent measurement of adaptive behavior.
b. It assesses psychosocial functioning.
c. It can be used in individuals with cognitive delay.
d. It can be completed by the child's teacher.
e. It measures academic achievement.

5. The Rorschach inkblots can be used for children as young as:

a. 2 years
b. 5 years
c. 9 years
d. 12 years
e. 16 years

6. All of the following are projective assessment procedures that can be used in children *except:*

a. Adolescent Apperception Cards
b. Children's Apperception Test (CAT)
c. Children Personality Questionnaire (CPQ)
d. Sentence and Story Completion Tasks
e. Tell-Me-A-Story (TEMAS)

7. All of the following instruments can be used during early infancy *except:*

a. Bayley Scales of Infant Development-II
b. Gesell's Developmental Schedules (GDS)
c. Denver Developmental Screening Test-II
d. Brazelton Neonatal Behavioral Assessment Scale-2
e. Draw-A-Person Test (DAP)

8. Which of the following instruments has the *best* performance data and the *greatest* usage in measuring childhood behavior problems?

a. Missouri Assessment of Genetics Interview for Children (MAGIC)
b. Child Behavior Checklist (CBCL) (Achenbach)
c. Child Schedule for Affective Disorders and Schizophrenia (K-SADS)
d. Diagnostic Interview Schedule for Children and Adolescents (DICA)
e. Interview Schedule for Children and Adolescents (ISCA)

9. Neuropsychological evaluation is useful in the assessment of all of the following areas *except:*

a. Sensory perception
b. Motor function and visuomotor integrity
c. Executive functions
d. Specific brain damage site
e. Language, memory, and concept formation

10. All of the following areas can be reliably assessed in children and adolescents using psychological tests *except:*

a. Intellectual ability
b. Personality functioning
c. Life expectancy
d. Educational accomplishment
e. Adaptive behaviors

11. Which of the following statements regarding intelligence tests is *inaccurate?*

a. Intelligence tests measure both a global/overall capacity and separate/subscale abilities.
b. IQ score is not used to determine severity of intellectual disability in DSM-5.
c. The most widely used tests to assess intelligence and cognitive functioning are the Wechsler scales.
d. Individuals' IQ scores demonstrate wide variability after the age of 5 years.
e. IQ testing can be used to assist making diagnoses of specific learning disabilities.

12. Which of the following is *not* a nonverbal and language-free test?
a. Comprehensive Test of Nonverbal Intelligence (CTNI)
b. McCarthy Scales of Early Learning (MSEL)
c. Leiter International Performance Scale, Revised (Leiter-R)
d. Raven's Progressive Matrices
e. Wechsler Nonverbal Scale of Ability (WNV)

13. All of the following are achievement tests *except:*
a. Kaufman Test of Educational Achievement, Second Edition (KTEA-II)
b. Kaufman Assessment Battery for Children, Second Edition (KABC-II)
c. Peabody Individual Achievement Test, Revised (PIAT-R)
d. Wide Range Achievement Test, Fourth Edition (WRAT4)
e. Woodcock-Johnson, Third Edition Test of Achievement (WJ III ACH)

14. Which of the following tests can be only used for assessing receptive language but *not* expressive language?
a. Clinical Evaluation of Language Fundamentals (CLEF)
b. A Developmental Neuropsychological Assessment-Second Edition (NEPSY-II)
c. Peabody Picture Vocabulary Test (PPVT)
d. Test of Language Competence (TOLC)
e. Woodcock Johnson-III (WJ-III)

15. Which of the following tests is *not* a commonly used projective test for clinical hypothesis generation?
a. Thematic apperception test
b. Wisconsin card sorting test
c. Draw-a-person test
d. Kinetic family drawing
e. Sentence completion test

16. Which of the following objective personality measures can be administered to children as young as five years old?
a. Millon Adolescent Personality Inventory (MAPI)
b. Millon Adolescent Clinical Inventory (MACI)
c. Millon Pre-Adolescent Clinical Inventory (M-PACI)
d. Minnesota Multiphasic Personality Inventory, Adolescent (MMPI-A)
e. Personality Inventory for Children, Second Edition (PIC-2)

17. Which of the following is *not* an instrument based on interviewing the parents and the parents' reports for assessment of communication?
a. Autism Diagnostic Interview, Revised
b. Children's Communication Checklist-2
c. Denver II
d. Language Development Survey
e. MacArthur-Bates Communication Development Inventory

18. All of the following are considered as interrelated and interdependent domains of executive function *except:*
a. Attention control
b. Cognitive flexibility
c. Goal setting
d. Information processing
e. None of the above

19. Which of the following reliability concepts is measured by the consistency obtained by the same person who takes the same test on two different occasions?
a. Alternate-form reliability
b. Interitem reliability
c. Interrater reliability
d. Split-half reliability
e. Test-retest reliability

20. Which of the following T-scores is equivalent to a typical mean score of 100?
a. 20
b. 30
c. 40
d. 50
e. 60

Matching

21–25. Select from the following descriptions the one that *best* matches each psychological test or rating scale:
a. Preschool intelligence test
b. Modified Beck Inventory
c. Neuropsychological battery
d. Attention-deficit/hyperactivity disorder (ADHD)
e. Internalizers-externalizers

21. Bayley-III
22. Wechsler Preschool and Primary Scale of Intelligence, Third Edition (WPPSI-III)

23. Conners' Rating Scale, Revised (CRS-R)

24. Child Behavior Checklist (CBCL)

25. Children's Depression Inventory (CDI)

26–30. Select from the following descriptions the one that *best* matches each of the following terms related to psychological testing:

a. Continued rise in IQ test performance

b. Lack of enough easy items

c. Lack of enough hard items

d. Effects of level of language, memory, and speed of processing on the overall IQ scores

e. Improvement of the score due to the familiarity of the test

26. Practice effects

27. Item content differences

28. Ceiling effects

29. Floor effects

30. The Flynn effect

ANSWERS AND EXPLANATIONS

1. (e) To ensure the efficiency and efficacy of the assessment, it is critical to develop a list of referral questions to be answered by the psychological evaluations. The specific relevant referral questions should be formulated by the referring clinician and explained to the parents of the child being assessed. Several areas referral questions commonly address are: assessments of developmental process, intellectual capacity, academic achievement, learning disabilities, diagnoses, treatments, and prediction of course of treatment. *(Ref. 1, pp. 135–138; Ref. 3, pp. 357–359)*

2. (a) Answer (b) defines criterion-related validity, answer (c) defines content validity, answer (d) defines reliability, and answer (e) defines standardization. It is important to know the reliability and validity of a particular test in interpreting the results. *(Ref. 1, pp. 136–137; Ref. 3, pp. 360–361)*

3. (d) The Wechsler Abbreviated Scale of Intelligence (WASI) is designed to be used for individuals age 6:0 to 89:0 years of age. The DAS-II is designed for children age 2:6 to 17:11 years, the KABC-2 for children age 3:0 to 18:11 years, the SB-5 for children age 2:0 to adults age 89:11 years, and the WPPSI for those age 2:6 to 7:3. *(Ref. 1, pp. 154–155; Ref. 3, p. 365)*

4. (e) The Vineland does not measure academic achievement, as does the Woodcock-Johnson Psychoeducational Battery or the Wide Range Achievement Test. Many factors can influence the assessment of adaptive functioning, and there is some reported fluctuation in means and standard deviations across age groups with the Vineland. It does come with a teacher form. *(Ref. 1, pp. 155–156; Ref. 3, pp. 365–367)*

5. (b) Besides the Thematic Apperception Test, the Rorschach is also a projective test. It is used to assess personality organization and provides data regarding the child's developmental capacities for reality testing, integration of affect, and maturational level of object relations in children as young as five years. It can be used to evaluate personality development, and help to reveal children's hidden emotions or internal conflicts. *(Ref. 1, p. 144; Ref. 3, pp. 365–366)*

6. (c) The Children Personality Questionnaire (CPQ) is one of the objective personality measures for children among others including: High School Personality Questionnaire (HSPQ), Millon Adolescent Personality Inventory (MAPI), Millon Adolescent Clinical Inventory (MACI), Millon Pre-Adolescent Clinical Inventory (M-PACI), Minnesota Multiphasic Personality Inventory, Adolescent (MMPI-A), and Personality Inventory for Children, Second Edition (PIC-2). Besides all the listed projective measures other such measures may include Projective Drawings, Roberts Apperception Test for Children, Second Edition (Roberts-2), and Rorschach inkblot tests. *(Ref. 5, pp. 966–969)*

7. (e) The Draw-A-Person Test (DAP) can be used as a projective test in subjects 5–17 years. The other tests listed are measures of neonate, infant, and toddler development, and can all be used during early infancy. *(Ref. 3, pp. 310, 317, 366)*

8. (b) The CBCL has been considered a gold standard among behavioral rating scales. It is validated and is the most widely used instrument in research and clinical settings to measure a range of internalizing and externalizing behaviors. The K-SADS, MAGIC, ISCA, and DICA are diagnostic interviews, not behavior rating scales. *(Ref. 1, p. 91; Ref. 3, pp. 348–349; Ref. 5, p. 972)*

9. (d) Variability in cerebral organization makes it impossible to determine that one specific brain region is involved or damaged, especially using one particular test. Neuropsychological testing is rarely used to find the "site of lesion" and brain regions are interrelated in a manner that makes it very unlikely that only one particular brain region is involved. All other areas listed are commonly assessed through neuropsychological testing. *(Ref. 3, pp. 368–369)*

10. (c) Psychological testing cannot assess life expectancy. All other listed areas can be reliably assessed by psychological testing. Psychological testing can also provide concrete, standardized data about language skills, visual-motor coordination, developmental level, neurocognitive functioning, and occupational interest and aptitude. *(Ref. 1, pp. 135–147; Ref. 3, pp. 363–369)*

11. (d) Individual IQ scores are relatively stable after about age five, although there may be individual differences. The Wechsler scales are most widely used for testing intellectual functioning. IQ score per se is no longer used as a diagnostic criterion for intellectual disability in DSM-5 (in contrast to DSM-IV). The severity of the intellectual disability is based on adaptive functioning, but not IQ scores. Deficits of intellectual functioning must be confirmed by both clinical assessment and individualized, standardized intelligence testing. *(Ref. 1, pp. 39, 154; Ref. 3, pp. 363–364; Ref. 4, pp. 33–37)*

12. (b) McCarthy Scales of Early Learning (MSEL) is an intelligence test consisting of six scales including verbal, perceptual performance, quantitative, general cognitive, memory, and motor. It is a good assessment tool for measuring general strength and weakness in young children. The other listed instruments are all considered as nonverbal and language free or culture free. Some of them depend more on abstract pattern recognition and make fewer demands on language systems, which are considered as less biased by cultural differences. *(Ref. 5, p. 976)*

13. (b) The Kaufman Assessment Battery for Children, Second Edition (KABC-II) is not an achievement test. Instead, it is an intelligence test that consists of subtests including measures of sequential and simultaneous processing, fluid reasoning and crystallized ability, and long-term retrieval. Most of the intellectual, achievement, and processing tests are structured in a similar way using 100 as the mean score and 15 as the standard deviation in order to be compared across instruments. *(Ref. 5, pp. 976–977)*

14. (c) The Peabody Picture Vocabulary Test (PPVT) can be used only to assess receptive language. The rest of the tests listed

can be used to assess both receptive and expressive language. *(Ref. 5, p. 978)*

15. (b) The Wisconsin card sorting test (not a projective test) is used to measure executive functioning and attention capacity. All of the other tests listed are projective tests useful for generating clinical hypotheses regarding children's feelings about themselves and their families. The information generated needs to be integrated into the clinical evaluation and cannot be used alone. *(Ref. 3, p. 366; Ref. 5, p. 949)*

16. (e) The Personality Inventory for Children, Second Edition (PIC-2) can be administered for youth between the ages of 5 and 19 years. The M-PCI is for older children (between the ages of 9 and 12 years), and so is the Children's Personality Questionnaire (CPQ) (between the ages of 8 and 13 years). In addition to the High School Personality Questionnaire (HSPQ), the rest of the listed tests are all for adolescents. *(Ref. 5, pp. 968–969)*

17. (c) The Denver II is administered by the clinician/examiner, and is not based on the parents' report. The rest of the listed instruments are used for assessing communication based on interviewing the parents and the parents' report. *(Ref. 5, pp. 372–373)*

18. (e) Attention control (e.g., selective attention, self-regulation, self-monitoring, and inhibition), cognitive flexibility (e.g., divided attention, working memory, conceptual transfer, and feedback utilization), goal setting (e.g., initiative, conceptual reasoning, planning, and strategy organization), information processing (e.g., efficiency, fluency, and speed of processing) are four domains of executive function in children and adolescents. *(Ref. 1, p. 146)*

19. (e) Test-retest reliability is measured and obtained by the same person taking the same test on two different occasions. On the other hand, the interrater reliability is obtained by getting the same results when the same test is administered by different examiners. *(Ref. 3, p. 361)*

20. (d) A T-score of 50 is equivalent to a typical standard mean score of 100. Standard scores are very useful for making comparisons across tests. Thus, most cognitive and achievement tests use standard mean scores of 100 with a standard deviation of 15. However, many behavioral checklists use T-scores that have a mean of 50 with a standard deviation of 10. *(Ref. 3, pp. 363–364)*

Matching

21. (c) The Bayley among others such as the Halstead-Reitan Neuropsychological Test Battery, Second Edition, the Luria-Nebraska Neuropsychological Battery, and NEPSY-II are all comprehensive neuropsychological batteries that have been developed to assess across multiple neurological systems. (*Ref. 1, p. 146)*

22. (a) The WPPSI-III is intended for use in children age 2:6–7:3 years. (*Ref. 3, p. 365)*

23. (d) The Conners' Rating Scale-Revised is a measure of externalizing behaviors and is best known for use in the assessment of ADHD. (*Ref. 3, p. 95)*

24. (e) The CBCL uses factor-derived scores to classify behaviors as externalizing or internalizing. It has been the gold standard for research and clinical work among broad-band behavior rating scales. (*Ref. 1, pp. 91–92; Ref. 3, p. 366)*

25. (b) The CDI is derived from the adult Beck Depression Inventory, written at first grade level and used in both young children and teenagers. *(Ref. 1, pp. 98–99; Ref. 3, p. 489)*

26. (e); 27. (d); 28. (c); 29. (b); 30. (a) Practice effects refer to improved scores due to familiarity with or prior exposure to the test items. Item content differences refer to the differences in the measures of the content. Ceiling effects occur when there are not enough hard items. Floor effects occur when there are not enough easy items. The Flynn effect refers to the continuous increase in IQ performance over years. *(Ref. 3, p. 364)*

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12

PSYCHOPHARMACOLOGY AND MEDICATION-INDUCED MOVEMENT DISORDERS AND OTHER ADVERSE EFFECTS OF MEDICATION

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QUESTIONS

Directions: Select the best response for each of the questions 1–50.

1. Which of the following statements regarding developmental changes in neurochemical systems that can influence both therapeutic and side effects of psychotropic medications is *not* accurate?

a. Adolescents have a higher risk of dystonic reactions to conventional antipsychotics in comparison to adults.
b. Younger children have a higher risk of activating side effects to the SSRIs.
c. Developmental differences in the maturation of the noradrenergic neurotransmission system may in part explain the lack of effectiveness of tricyclic antidepressants in children.
d. Major neurochemical systems that are altered by psychotropic medications are subject to age-related effects.
e. None of the above.

2. Which of the following is *not* one of four functionally distinct phases of pharmacokinetics?

a. Absorption
b. Distribution
c. Excretion
d. Metabolism
e. Neurotransmission and receptor binding

3. All of the following statements regarding the effect of age on the absorption of psychotropic medications are correct *except:*

a. The pH-dependent diffusion has a major influence on gastrointestinal absorption.
b. During the first week of infancy the gastric pH is nearly neutral.
c. The gastric pH reaches adult level by age 3 years.
d. In toddlers, weakly acidic drugs tend to be more likely ionized in the stomach because of less acidic stomach content.
e. In young children, intestinal transit time is decreased and the intestinal absorptive surface area is increased.

4. Relatively lower plasma concentration of lithium in the pediatric population compared to adults is *most* likely to be due to which of the following factors?

a. The first pass effect
b. Fat distribution
c. Body weight
d. Volume of distribution
e. Cytochrome enzymes (CYPs)

5. What percentage of Caucasians have a genetic deficiency of CYP 2D6, which causes less efficiency at metabolizing CYP 2D6 substrates?

a. 0.5–1%
b. 3–5%
c. 7–10%
d. 12–15%
e. 16–20%

6. Which one of the following syndromes is associated with a reduced activity of UDP-glucuronylsyltransferase 1A1 (UGT-1A1)?

a. Down syndrome
b. Fragile X syndrome
c. Gilbert's syndrome
d. Prader-Willi syndrome
e. Williams syndrome

7. All of the following statements regarding unique developmental characteristics of CYPs and Phase II enzymes are correct *except:*

a. CYP 3A4 are higher in youth than in adults.
b. CYP 2D6 matures to adult level by age 10 years.
c. CYP 2C19 are highly variable from 5 months to 10 years.
d. UGT1A1 is immature in premature infants.
e. UGT 1A19 only develops after the second year of life.

8. Which one of the following statements can clearly explain the reason(s) why children under 10 years require larger, weight-adjusted doses of most hepatically metabolized medications than adults to achieve comparable blood levels and therapeutic responses?

a. Children have greater liver to body mass ratio compared to adults.
b. Children have more efficient CYP enzymes than adults.
c. Children have uniformly increased phase II conjugates.
d. All of the above.
e. None of the above.

9. An adolescent who develops Steven-Johnson syndrome because of an elevated level of lamotrigine after combining lamotrigine with valproate is *most* likely the result of which of the following mechanisms?

a. Valproate as an inhibitor of CYP 2C19
b. Valproate as an inhibitor of 2D6
c. Valproate as an inhibitor of UGT2B7
d. Lamotrigine as a self-inducer of UGT 1A4
e. Lamotrigine as an inhibitor of CYP3A4

10. Paroxetine is both substrate and inhibitor of which of the following CYPs?

a. CYP1A2
b. CYP2B6

c. CYP2C9
d. CYP2C19
e. CYP2D6

11. All of the following general principles of psychopharmacological treatment are appropriate *except:*

a. A thorough psychiatric assessment is the first step prior to starting the treatment.
b. An appropriate biopsychosocial formulation and treatment planning improves treatment compliance and outcomes.
c. Target symptoms should be the key focus regardless of diagnoses or disorders.
d. Unique pharmacokinetic and pharmacodynamics difference in youth should be considered.
e. Start medications with relatively low doses and titrate slowly.

12. Clomipramine (Anafranil) potentially benefits all of the following disorders *except:*

a. OCD
b. ADHD
c. Trichotillomania (hair-pulling disorder)
d. OCD-like symptoms in children with autism
e. Self-injury and stereotypic behaviors

13. Based on our current knowledge, all of the following statements regarding the use of amphetamine and methylphenidate in the treatment of ADHD are correct *except:*

a. Amphetamine is FDA approved for children as young as 3 years of age.
b. They both invariably worsen tics when used in children with ADHD comorbid with tic disorders.
c. In general, an effective dose of amphetamine is lower than that of methylphenidate.
d. Methylphenidate blocks the reuptake of dopamine and facilitates the release of stored dopamine.
e. Amphetamine more specifically facilitates the release of newly synthesized dopamine in addition to blocking its reuptake.

14. All of the following statements regarding long-acting stimulants are true *except:*

a. They do not cause insomnia.
b. The peak levels come later than those of immediate-release agents.
c. They help overcome tachyphylaxis.
d. Usually children do not need to take a dose in school, which can enhance compliance.
e. They may minimize the rebound phenomenon commonly seen in immediate-release formulations.

15. All of the following statements regarding atomoxetine (Strattera) reflect the current state of our knowledge *except:*

a. It has both noradrenergic reuptake and dopaminergic properties.
b. The FDA approved it for treatment of ADHD in both children and adults.
c. It can increase diastolic blood pressure and heart rate.
d. It can have drug-drug interactions with MAOIs and CYP 2D6 inhibitors.
e. It can rarely cause serious hepatotoxicity.

16. Which of the following is *not* a required baseline medical test prior to initiating treatment with lithium?

a. Urinalysis
b. Blood urea nitrogen (BUN)
c. Thyroid function test
d. Liver function test
e. Electrolytes test

17. Which of the following SSRIs is the *most* potent serotonin reuptake inhibitor?

a. Citalopram
b. Escitalopram
c. Fluoxetine
d. Fluvoxamine
e. Paroxetine

18. Which of the following SSRIs follows linear (first order) kinetics?

a. Fluoxetine
b. Fluvoxamine
c. Paroxetine
d. Sertraline
e. None of the above

19. Which of the following SSRIs has the *lowest* incidence of sexual side effects?

a. Citalopram
b. Fluoxetine
c. Fluvoxamine
d. Paroxetine
e. Sertraline

20. Which of the following SSRIs shows a significant increase in plasma levels when administered with food?

a. Citalopram
b. Fluoxetine
c. Fluvoxamine
d. Paroxetine
e. Sertraline

21. Small studies show which of the following properties of bupropion (Wellbutrin) explains its effectiveness in the treatment of ADHD?

a. Norepinephrine-dopamine reuptake inhibition
b. Selective serotonin-norepinephrine reuptake inhibition

c. Noradrenergic and specific serotonergic
d. Serotonin agonist and serotonin reuptake inhibition
e. Selective serotonin reuptake inhibition

22. All of the following antidepressants have almost no sexual side effects *except:*
a. Bupropion (Wellbutrin)
b. Duloxetine (Cymbalta)
c. Mirtazapine (Remeron)
d. Trazodone (Desyrel)
e. Venlafaxine (Effexor)

23. All of the listed antidepressants follow linear kinetics *except:*
a. Bupropion (Wellbutrin)
b. Duloxetine (Cymbalta)
c. Mirtazapine (Remeron)
d. Trazodone (Desyrel)
e. Venlafaxine (Effexor)

24. Lithium has all of the following effects on the central nervous systems (CNS) at the second messenger level *except:*
a. Block the activity of inositol polyphosphatase 1-phosphatase
b. Inhibit adenyl cyclase by competing with magnesium
c. Up-regulate hippocampal serotonin (5-HT_{1A}) receptors
d. Increase the proportion of low-affinity beta receptors
e. Induce sensitivity of alpha 2 receptors

25. Which of the following agents shows short-term efficacy compared to placebo based on a randomized, controlled, double-blind clinical trial conducted in children and adolescents with bipolar I disorder?
a. Carbamazepine
b. Lamotrigine
c. Oxcarbazepine
d. Topiramate
e. Valproate

26. A genetic variant inherited by patients of Chinese ancestry, strongly associated with Stevens-Johnson syndrome induced by carbamazepine, is present on which of the following human leukocyte antigen (HLA) genes?
a. HLA-A
b. HLA-B
c. HLA-C
d. HLA-DR
e. HLA-DQ

27. Which of the following agents or types of agents is *least* likely to have an increased drug level when co-administered with carbamazepine?
a. Atypical antipsychotics
b. Lamotrigine
c. Oral contraceptives
d. Phenobarbital
e. Tricyclic antidepressants

28. Which of the following numbers reflects the approximate elevated risk of developing serious rashes in youth taking lamotrigine younger than 16 years compared to older individuals?
a. Three times greater
b. Five times greater
c. Eight times greater
d. Ten times greater
e. Twenty times greater

29. Which of the following agents is *not* metabolized or protein bound and does *not* alter hepatic enzymes or interact with other anticonvulsants?
a. Gabapentin
b. Lamotrigine
c. Oxcarbazepine
d. Topiramate
e. Valproate

30. Which of the following agents is *most* likely to be associated with nephrolithiasis?
a. Gabapentin
b. Lamotrigine
c. Oxcarbazepine
d. Topiramate
e. Valproate

31. Blocking which of the following receptors can *best* explain certain antipsychotics' less frequent association with extrapyramidal symptoms (EPS)?
a. Dopamine D_2
b. Alpha-1 adrenergic
c. Alpha-2 adrenergic
d. Muscarinic $M_{2\text{-}4}$ (peripheral)
e. Serotonin 5-HT_{2A}

32. Compared to most of the other antipsychotics, which of the following antipsychotics requires a higher level of occupancy of the D2 receptor to achieve an equivalent level of blockade and therapeutic effect?
a. Aripiprazole
b. Clozapine
c. Paliperidone
d. Risperidone
e. Ziprasidone

33. The pharmacokinetic rebound effect experienced during switching of antipsychotics is *least* likely to be seen in which of the following situations?

a. When a patient is noncompliant with the new antipsychotic or the dose of the new antipsychotic is too low.
b. When there is a lack of adequate overlap during the switching.
c. When the dose of the new agent is titrated up rapidly.
d. When there is a low bioavailability because of taking it without food (e.g., ziprasidone).
e. When it is less ready to cross the blood-brain barrier.

34. All of the following antipsychotic-induced side effects are more prevalent in children and adolescents *except:*

a. Sedation
b. Akathisia
c. Withdrawal dyskinesia
d. Weight gain and metabolic abnormalities
e. Prolactin abnormalities

35. Based on updated research data all of the following statements regarding antipsychotic-induced weight gain in youth are accurate *except:*

a. Longer exposure to antipsychotics increases risk of weight gain or obesity.
b. Associated with a relatively lower risk of gaining weight, aripiprazole and ziprasidone are not weight neutral, especially in subgroups of pediatric patients.
c. Combination of an antipsychotic with a stimulant medication can attenuate the antipsychotic-induced weight gain.
d. Combination of an antipsychotic with a mood stabilizer is associated with more weight gain than with mood stabilizer monotherapy or treatment with combined mood stabilizers.
e. Olanzapine carries a higher risk for weight gain, whereas risperidone and quetiapine carry intermediate risk.

36. A 16-year-old boy who has been treated with risperidone for his psychotic symptoms develops gynecomastia. Which of the following antipsychotics should be considered *first* as an alternative?

a. Aripiprazole
b. Clozapine
c. Paliperidone
d. Quetiapine
e. Ziprasidone

37. Which of the following antipsychotics is associated with myocarditis, especially early in treatment?

a. Aripiprazole
b. Clozapine
c. Paliperidone
d. Risperidone
e. Ziprasidone

38. Which of the following ethnic groups is associated with benign ethnic (or cyclic) neutropenia?

a. African descent
b. Asian descent
c. Latinos
d. American Indians
e. Europeans

39. Which of the following symptoms is a cardinal feature of neuroleptic malignant syndrome (NMS)?

a. Akinesia
b. Dysphagia
c. Generalized rigidity (“lead pipe”)
d. Sialorrhea
e. Tremor

40. Which of the following SSRIs is *most* likely to be associated with antidepressant discontinuation syndrome?

a. Citalopram
b. Fluoxetine
c. Fluvoxamine
d. Paroxetine
e. Sertraline

41. All of the following statements regarding the study “ADHD Drugs and Serious Cardiovascular Events in Children and Young Adults” (W. O. Cooper et al. 2011) are accurate *except:*

a. This is a retrospective study of data collected from about 1.2 million children and young adults who use ADHD drugs.
b. Serious cardiovascular events (sudden cardiac death, acute myocardial infarction, and stroke) are identified.
c. The incidence of serious events is 3.1 per 100,000 person-years.
d. Use of ADHD drugs is not associated with an increased risk of serious cardiovascular events in children and young adults.
e. Because of the upper limit of the 95% confidence interval, a doubling in the risk has been ruled out.

42. All of the following statements regarding the study “A Double-Blind Randomized Controlled Trial of N-Acetylcysteine in Cannabis-Dependent Adolescents” (K. M. Gray et al. 2012) are correct *except:*

a. As an over-the-counter supplement, N-acetylcysteine (NAC) down-regulates the cysteine-glutamate exchanger in the nucleus accumbens.
b. This eight-week trial enrolled 116 youth (ages 15–21) who have cannabis dependence.
c. Either 1200 mg NAC or placebo twice daily was provided to the subjects (two groups of 58 patients each).
d. The primary outcome measure is the odds of negative weekly urine tests comparing the two groups.
e. Via an intent-to-treat analysis, the drug group has more than twice the odds of having negative urine tests compared to the placebo group.

43. All of the following statements regarding the "Neurocognitive Outcomes in the Treatment of Early-Onset Schizophrenia Spectrum Disorders Study" (J.A. Frazier et al. 2012) are accurate *except:*

a. The study assesses neurocognitive functioning of youth (ages 8–19 years) who are enrolled in the Treatment of Early-Onset Schizophrenia Spectrum Disorders (TEOSS)—a clinical trial comparing molindone, olanzapine, and risperidone.
b. Six domains are used to measure neurocognitive functioning in 116 TEOSS participants.
c. Three treatment groups were analyzed separately to reach the study conclusion.
d. Primary outcomes are changes from baseline scores at eight weeks to continued treatment up to 52 weeks.
e. Antipsychotic treatment led to a modest improvement in neurocognitive functioning.

44. All of the following are the conclusions made by authors L. Scahill et al. (2012) in the study "Effects of Risperidone and Parent Training on Adaptive Functioning in Children With Pervasive Developmental Disorder and Serious Behavioral Problems" *except:*

a. Both medication only (MED) and combination (COMB) groups show improvement over the 24-week trial on all Vineland domains.
b. The COMB group shows greater improvement than the MED group in the Vineland Socialization and Adaptive Composite Standard Scores.
c. The COMB group shows a greater improvement than the MED group on age equivalent scores in the Socialization and Communication domains.
d. The COMB group shows a significantly greater gain in the Vineland Daily Living Skills domain than the MED group.
e. There is evidence to show additive benefits of parent training to medication management in school-aged children with PDDs and serious behavioral problems.

45. Based on the American Academy of Child and Adolescent Psychiatry "practice parameter for the use of atypical antipsychotic medications in children and adolescents" all of the following recommendations are considered as "clinical standards" *except:*

a. Clinicians should follow the most current available evidence in the scientific literature when selecting any atypical antipsychotic agent (AAA).
b. Clinicians should obtain baseline BMI and monitor it throughout treatment course.
c. Clinicians should monitor the risk of developing diabetes, and baseline blood glucose and other parameters should be obtained and monitored at regular intervals.
d. Clinicians should obtain baseline measurements of movement disorders using structured measures, and continue to monitor at regular intervals and during the tapering of the AAAs.
e. Clinicians should obtain baseline EKG and again when a stable dose is achieved when prescribing ziprasidone.

46. Based on the study "Antipsychotic Medication Use Among Children and Risk of Diabetes Mellitus" (S.E. Andrade et al. 2011), which of the following numbers reflects the approximate increased rate of diabetes among children exposed to second-generation antipsychotics (SGAs)?

a. Twofold
b. Fourfold
c. Sixfold
d. Eightfold
e. Tenfold

47. All of the following statements regarding desmopressin (DDAVP) are correct *except:*

a. Desmopressin is an analog of the hormone arginine vasopressin (AVP) that is naturally secreted by the neurohypophysis.
b. The primary role of AVP is to concentrate urine.
c. AVP decreases urine output by increasing urine reuptake in the renal tubules.
d. AVP has a more potent antidiuretic effect than DDAVP.
e. AVP also has a vasopressor effect, and can play a role in regulating blood pressure.

48. Which of the following is the *most* likely mechanism of the action of buspirone?

a. Binding to a GABA receptor
b. Binding to a histamine receptor
c. Binding to a noradrenergic receptor
d. Binding to a serotonin receptor
e. Binding to a muscarinic receptor

49. Which of the following agents is *most* commonly used by children and adolescents as a sleeping aid?

a. Estazolam
b. Eszopiclone (Lunesta)
c. Melatonin
d. Zaleplon (Sonata)
e. Zolpidem (Ambien)

50. Among all of the following sedative-hypnotics which one has a totally different mechanism of action compared to others?

a. Eszopiclone (Lunesta)
b. Ramelteon
c. Zaleplon (Sonata)
d. Zolpidem (Ambien)
e. Zolpidem CR (Ambien CR)

Matching

51–54. For each of the following medications, select the relative neurotransmitter effect that provides the *best* description of its action. Use each effect profile only once.

a. Primarily noradrenergic
b. Serotonergic and noradrenergic
c. Primarily serotonergic
d. Dopaminergic and noradrenergic

51. Venlafaxine
52. Clomipramine
53. Atomoxetine
54. Bupropion

55–58. For each of the following neuroleptics, select the profile that *best* describes its side effects. Use each side effect profile only once.

a. Relatively high risk of extrapyramidal symptoms
b. Blood disorder and seizure
c. Relatively low risk of EPS
d. QTc prolongation

55. Quetiapine (Seroquel)
56. Ziprasidone (Geodon)
57. Risperidone (Risperdal)
58. Clozapine (Clozaril)

59–70. Select from the following the description that *best* matches each of the pharmacological terms:

a. Conversion of drugs to forms more suitable for elimination
b. Drug concentration is reduced before reaching target tissues
c. Availability of unbound drugs reaching target tissues
d. Measurement of medication through concentration level in blood
e. Lowest concentration of a drug in serum required to produce a desired effect
f. An equilibrium between the amount of drug ingested and the amount of drug eliminated
g. The concentration of drug decreases by one-half
h. Fixed amount of drug being eliminated per unit of time
i. Amount of drug eliminated being proportional to its amount circulating in the bloodstream
j. Biochemical and physiological effects of drugs at the effect sites
k. Handling and disposition of drugs within the body
l. Conjugation of drug metabolites

59. Pharmacokinetics
60. Pharmacodynamics
61. First-order kinetics
62. Zero-order kinetics
63. Elimination half-life
64. Steady-state concentration (Css)
65. Minimal effective concentration (MEC)
66. Therapeutic drug monitoring (TDM)
67. Bioavailability
68. First pass effect
69. Phase I metabolic reactions
70. Phase II metabolic reactions

ANSWERS AND EXPLANATIONS

1. **(e)** All of the statements correctly reflect how developmental changes in neurochemical systems influence both therapeutic and side effects of psychotropic medications. *(Ref. 3, p. 742)*
2. **(e)** Neurotransmission and receptor binding are a part of pharmacodynamics, which refers to what a drug does to the body. In contrast, pharmacokinetics refers to what the body does to a drug, which involves four functionally distinct phases: absorption, distribution, metabolism, and excretion. The speed of onset of drug effect is determined by the first two phases, whereas metabolism and excretion are responsible for terminating the action of the drugs by removing the active form of the agent from the body. Overall, the four phases determine the duration of drug activity. *(Ref. 3, pp. 742–743)*
3. **(e)** In young children, intestinal transit time is increased and the intestinal absorptive surface area is reduced, which can potentially lead to incomplete absorption of sustained-release drugs and certain drugs with long phases of absorption (e.g., carbamazepine). Weakly acidic drugs may be absorbed more slowly in young children because they are more likely to be ionized. *(Ref. 3, p. 745)*
4. **(d)** The volume of distribution is higher in youth than in adults. There is increased body water in children. Because lithium is primarily distributed in body water the levels can be relatively lower in youth than in adults. Plasma concentration (Cp) = drug absorbed (D)/volume distribution(Vd). Lithium is a drug that is renally excreted unmetabolized, bypassing phase I metabolic reactions (hydroxylation, reduction, and hydrolysis) and phase II reactions (conjugation). *(Ref. 3, pp. 746–747, 749)*
5. **(c)** About 7–10% of Caucasians have a genetic deficiency of CYP 2D6, which causes less efficiency at metabolizing CYP 2D6 substrates (such as a lot of psychotropic medications). Some Asians also have a 2D6 genetic variant that leads to their being "somewhat slow" in metabolizing the substrates. Some African Americans also have an allelic variant of 2D6, which can cause slow or poor metabolism. People with variants in 2D6, in general, require lower dosages of relevant medications to achieve therapeutic levels. There are some other ethnic genetic differences in CYPs, which are also relevant in considering dosing psychotropic medications. *(Ref. 3, p. 747)*
6. **(c)** With a reduction of UGT1A1 activity (about 70%), Gilbert's syndrome manifests with fluctuating bilirubinemia and can lead to toxic levels of certain drugs that are metabolized through UGT1A1 during the phase II metabolic reactions. Genetic polymorphisms of individual UGTs have been linked to clinical outcomes of certain psychotropic medications. The psychiatric field is becoming more aware of the increasing clinical relevance of UGTs in regards to the psychotropic medication metabolism. The FDA has approved a genetic test for UGT1A1. *(Ref. 3, pp. 745–747)*
7. **(a)** CYP 3A4 are lower in youth than in adults. A lot of medications are metabolized through this system. Jaundice in premature births is associated with immature hepatic UGT1A1, which leads to bilirubinemia. Most UGTs reach adult levels by three to six months, although both UGT1A9 and UGT2B4 do not start to develop until after the second year of life. *(Ref. 3, pp. 748–749)*
8. **(e)** Clinical observation and experience confirm that children under 10 years require larger, weight-adjusted doses of most hepatically metabolized medications than adults to achieve comparable blood levels and therapeutic responses. However, the reason behind the phenomenon is not obvious or clear. None of the reasons listed in the question can sufficiently or clearly explain the phenomenon based on recent studies. The phase II conjugates do not show uniform increases in young children. *(Ref. 3, p. 749)*
9. **(c)** Valproate is an inhibitor of UGT2B7 that is likely the phase II conjugate besides UGT 1A4, which are both responsible for metabolizing lamotrigine. Combining valproate with lamotrigine can inhibit such enzymes, which leads to an elevation of the lamotrigine blood level that can result in severe rashes, such as Steven-Johnson syndrome. *(Ref. 3, pp. 750–752)*
10. **(e)** Paroxetine is both substrate and inhibitor of CYP2D6. This can explain the nonlinear kinetic nature of paroxetine (e.g., a dose of 10 mg being changed to 20 mg can potentially increase plasma concentration more than sixfold rather than twofold). *(Ref. 3, pp. 743, 751–752)*
11. **(c)** Target symptoms should not be the key focus of psychotropic medications. Instead, treating psychiatric disorders/syndromes should be the primary focus. *(Ref. 1, pp. 668–677)*
12. **(b)** Clomipramine has its greatest effect on the serotonergic system, which is abnormal in obsessive-compulsive disorder (FDA approved) and trichotillomania (hair-pulling disorder). It also shows beneficial effects on OCD-like symptoms and repetitive behaviors in children with autism. It has not been effective in the treatment of ADHD. However, desipramine (a stronger noradrenergic agent) shows efficacy in treating ADHD. *(Ref. 1, pp. 357–358; Ref. 3, pp. 444, 555, 559, 764)*
13. **(b)** Some studies show stimulants can worsen tics. However, studies also show children with ADHD comorbid with tic disorders may not necessarily experience tic exacerbation during treatment with stimulants. Potential risks and benefits need to be considered in these situations. Even though more research data support the efficacy of methylphenidate agents in treating ADHD in children younger than 6, only amphetamine agents (such as Dexedrine and Adderall) have been approved by the FDA for use in children ages 3 and up. Although the exact mechanisms of stimulants are not fully understood, amphetamine agents seem to have a different mechanism of action than that of methylphenidate agents. *(Ref. 1, pp. 682–685; Ref. 3, pp. 756–757)*
14. **(a)** Long-acting preparation stimulant agents can cause insomnia depending on the length of duration of different preparations, the time of administration, and metabolism of the drug. In general, long-acting preparations are considered as

effective as immediate-release agents, needing no additional dose during school time, minimizing noncompliance and behavioral rebound. *(Ref. 3, pp. 685–687)*

15. (a) Atomoxetine is mostly a noradrenergic reuptake inhibitor without dopaminergic properties, and is not a controlled substance. It may cause mild appetite suppression, but no data indicate long-term growth suppression. Having a better side effect profile compared to TCAs, it can still cause increased blood pressure and heart rate. Potential drug-drug interactions should be considered. There are case reports of serious hepatotoxicity. *(Ref. 1, pp. 688–690; Ref. 3, pp. 444–446)*

16. (d) Liver function tests are not mandatory. The rest of the listed tests are needed prior to initiation of lithium treatment. Because preexisting cardiac conduction problems can be exacerbated by lithium, many recommend a baseline EKG even though some scholars believe an EEG should not be a mandatory test. These tests along with a lithium level should be repeated and monitored with each dose change and every three to six months. *(Ref. 1, pp. 725–728; Ref. 3, pp. 522–523)*

17. (b) Escitalopram is the S-enantiomer of citalopram, and is twice as potent as citalopram in regard to serotonin reuptake inhibition. They are the most serotonin selective of all SSRIs. The S-enantiomer of citalopram is the active compound of serotonin reuptake inhibitor, and the R-enantiomer of citalopram is inactive. *(Ref. 3, pp. 704–705)*

18. (d) Only sertraline along with citalopram and escitalopram are the SSRIs that follow first-order (linear) kinetics. The rest of SSRIs all follow zero-order (nonlinear) kinetics. In children and adolescents, dose titration of these SSRIs with nonlinear kinetics should be more careful because doubling the dose of such a drug may lead to many folds increase of plasma drug level. *(Ref. 1, p. 708; Ref. 3, p. 743)*

19. (c) Fluvoxamine has the lowest incidence of sexual side effects among all the SSRIs. The peak plasma concentration is significantly higher in female children than male children, but no such difference is observed in adolescents. This indicates female children may need lower doses than males. With multiple CYPs involvements, drug-drug interactions should be monitored. Fluvoxamine is FDA approved for the treatment of pediatric OCD. *(Ref. 1, p. 719)*

20. (e) The maximum plasma drug level increases about 25% and time to the peak plasma concentration is reduced when sertraline is taken along with food. Studies show that in lower dose ranges sertraline has decreased half-lives in youth. Thus, instead of once-a-day dosing, twice-daily dosing may be considered when using the lower dose range. Sertraline is FDA approved for the treatment of pediatric OCD. *(Ref. 1, pp. 711–712)*

21. (a) Bupropion (Wellbutrin) is a norepinephrine-dopamine reuptake inhibitor, with FDA-approved indications for depression and smoking cessation in adults. A small study shows its effectiveness in treating both depression and ADHD symptoms in youth, although more rigorous random controlled trials are needed to verify the finding. The effectiveness is likely due to its norepinephrine-dopamine reuptake inhibition property. *(Ref. 1, pp. 714–715; Ref. 3, p. 766)*

22. (d) Among all the listed antidepressants, only trazodone seems to show significant potential sexual side effect (priapism). Bupropion is a norepinephrine-dopamine reuptake inhibitor. Duloxetine and venlafaxine are both selective serotonin-norepinephrine reuptake inhibitors. Mirtazapine is a noradrenergic and specific serotonergic antidepressant. Trazodone is a serotonin agonist and serotonin reuptake inhibitor. They should not be taken together with any monoamine oxidase inhibitors (MAOIs), or within two weeks of beginning or discontinuing MAOIs to avoid potential serious side effects such as confusion, HTN, tremor, hyperactivity, and death. None of these agents has a current FDA-approved indication for children or adolescents. *(Ref. 1, pp. 712–713)*

23. (d) Among all the listed antidepressants, only trazodone (Desyrel) follows nonlinear kinetics. It is associated with priapism, and unfortunately one-third of such cases need surgery, which can potentially comprise erectile functioning permanently. *(Ref. 1, p. 717)*

24. (c) The CNS effects caused by lithium include down-regulating hippocampal serotonin ($5\text{-}HT_{1A}$) receptors along with increasing dopamine levels in tuberoinfundibular pathway along with the others listed. In addition, based on recent data, lithium along with valproate may have neurotrophic effects through regulating a number of factors involved in cell survival pathways indirectly. These factors may include cAMP response element-binding protein, brain-derived neurotrophic factor, bcl-2, and mitogen-activated protein kinases. *(Ref. 1, p. 726)*

25. (e) Based on the NIMH-funded randomized, controlled, double-blind trial of lithium versus divalproex versus placebo in youth ages 7–17 years with bipolar I disorder (Kowatch et al. 2007), at the end of eight weeks, divalproex showed efficacy on both a priori outcome measures whereas lithium did not: improvement on divalproex, 54%; lithium, 42%; and placebo, 29% respectively. *(Ref. 1, p. 729)*

26. (b) HLA-B*1502 is an inherited variant present in some individuals of Chinese ancestry, and is strongly associated with the risk of developing Stevens-Johnson syndrome and toxic epidermal necrolysis (TEN) during treatment with carbamazepine. Testing for HLA-B*1502 is recommended prior to starting carbamazepine in patients of Chinese ancestry and a positive result is considered as a contraindication for carbamazepine. Interestingly, this variant is largely absent in individuals of non-Asian origin. *(Ref. 1, p. 731; Ref. 2, p. 302)*

27. (a) Serum levels of many atypical antipsychotics can be decreased when co-administered with carbamazepine. Drug-drug interactions of carbamazepine can be extensive; they can also increase the lithium level. Some medications such as erythromycin, cimetidine, fluoxetine, verapamil, and valproate can also increase the carbamazepine level. *(Ref. 1, p. 732)*

28. (a) There is about 3 times greater risk of developing serious rashes in youth (younger than 16 years) who are taking lamotrigine than in adults. The frequency of serious rashes associated with lamotrigine is about 1% in youth younger than 16 years versus about 0.3% in adults. *(Ref. 1, p. 734)*

29. (a) Eliminated from systemic circulation by renal excretion, gabapentin is not appreciably metabolized in humans. It is an

FDA-approved anti-seizure medication for the treatment of partial seizure in individuals older than 12 years. Adult studies show it plays a role as an adjunct agent to lithium or valproate, or other mood stabilizing agents, but show no benefit as a monotherapy agent. *(Ref. 1, pp. 734–735)*

30. (d) Because of carbonic anhydrase inhibition, nephrolithiasis occurs in about 1–2% of patients taking topiramate. Several adult trials failed to demonstrate the efficacy of this drug in treating bipolar disorder, which led to an early termination of a double-blind, placebo controlled clinical trial in children in 2005. Even though being a weak inducer of CYPs, it is potentially associated with failure of oral contraceptives. It can also lower the serum levels of risperidone and valproate. *(Ref. 1, pp. 735–736)*

31. (e) Tighter binding of certain non-dopaminergic receptors (such as Histamine H_1, Muscarinic M_1-central, 5-HT_{1A}, and 5-HT_{2A}) by certain antipsychotics seems to be associated with less propensity for EPS. Blocking D_2 is the primary cause of EPS. Blocking alpha-1 may cause postural HTN, dizziness, and syncope. Blocking alpha-2 may cause increased alertness and HTN. Blocking H_1 can cause sedation, weight gain, and anxiolytic effects. Blockade of central M_1 may interfere with memory and cognition. Dry mouth, constipation, and urinary retention are associated with the blockade of peripheral $M_{2\text{-}4}$. *(Ref. 1, pp. 747–748)*

32. (a) Aripiprazole is a partial agonist and requires a higher degree of D_2 occupancy (80–85%) to achieve the equivalent level of blockade and therapeutic effect. In general, most other antipsychotics only need 60–70% dopamine receptor occupancy to achieve therapeutic efficacy. *(Ref. 1, p. 747)*

33. (c) When the new agent requires a slower titration pharmacokinetic rebound is more likely to occur, which may be avoided by using an overlapping or "plateau" cross-titration. *(Ref. 1, p. 747)*

34. (b) Compared to adults, children and adolescents are more sensitive to most antipsychotic-induced side effects, including EPS, but not akathisia. The risk of akathisia is less known in youth, and seems to be comparable to that experienced by adults. Relatively higher rates of akathisia in placebo groups in pediatric schizophrenia trials may reflect a carryover effect from prior antipsychotic treatment or withdrawal after the brief washout period. *(Ref. 1, pp. 753–755; Ref. 2, pp. 298–299)*

35. (c) Combination of an antipsychotic with a stimulant medication does not seem to attenuate the antipsychotic-induced weight gain. *(Ref. 1, pp. 755–759)*

36. (a) Because of its partial D_2 agonistic property, aripiprazole does not cause an increased level of prolactin. Instead, it may decrease the prolactin level. The likelihood of prolactinemia increases with increased potency of antipsychotics and follows the pattern: paliperidone ≥ risperidone > haloperidol > olanzapine > ziprasidone > quetiapine ≥ clozapine >aripiprazole. Prolactinemia is associated with amenorrhea or oligomenorrhea, erectile dysfunction, decreased libido, hirsutism, gynecomastia/breast engorgement/pain, and galactorrhea. *(Ref. 1, p. 760)*

37. (b) Clozapine seems to be the only second-generation antipsychotic that is associated with myocarditis risk that is highest early in treatment. The associated signs and symptoms may include palpitation, chest pain, shortness of breath, syncope, and EKG changes such as ectopic beats, atrioventricular block, atrial fibrillation or flutter, intraventricular conduction disturbance, ventricular tachycardia or fibrillation, and low QRS voltage. Among antipsychotics thioridazine and ziprasidone are associated with higher risks of QTc prolongation. EKGs may be needed if there is a family history of early sudden death, prolonged QT syndrome, or a personal history of irregular heartbeat, tachycardia at rest, shortness of breath, dizziness on exertion, or syncope. *(Ref. 1, p. 760)*

38. (a) A subgroup (about 25–50%) of individuals of African descent and some people of Middle Eastern origin have low white blood cell (WBC) counts without signs of any infection. The phenomenon is called benign ethnic (or cyclic) neutropenia. Males have lower WBCs than females independent of ethnicity. Monitoring WBCs during treatment with clozapine among certain ethnic groups can be adjusted accordingly. *(Ref. 1, p. 765)*

39. (c) Generalized rigidity ("lead pipe") is a cardinal feature of NMS, and it does not usually respond to anti-Parkinsonian agents. Another distinguishing feature is hyperthermia (> 100.4° F) with profuse diaphoresis. Other associated symptoms and signs are: elevated creatine kinase, changes in mental status, autonomic activation and instability, and other neurological symptoms such as sialorrhea, tremor, akinesia, dystonia, trismus, myoclonus, dysphagia, dysarthria, and rhabdomyolysis. Epidemiological data suggest incidence rates of 0.01 to 0.02% among individuals treated with antipsychotics, with fatality rates of 10–20% when the disorder is not recognized even though total resolution of the symptoms can be obtained in most cases. *(Ref. 4, pp. 709–710)*

40. (d) The short-acting SSRI paroxetine is most likely associated with antidepressant discontinuation syndrome because of its relatively short half-life. The symptoms can be nonspecific such as dizziness, ringing in the ears, "electric shocks in the head," insomnia, and increased anxiety, etc. The severity of the syndrome also depends on the dosage of medication used and the length of time it takes to taper off. Abrupt discontinuation is associated with a higher risk. *(Ref. 4, p. 713)*

41. (e) Because of the upper limit of the 95% confidence interval, a doubling in the risk cannot be ruled out at this time, although the absolute magnitude of any increased risk should be low. *(W. O. Cooper et al.: ADHD Drugs and Serious Cardiovascular Events in Children and Young Adults.* N Engl J Med, *365: 1896–1904, 2011)*

42. (a) As an over-the-counter supplement, N-acetylcysteine (NAC) up-regulates the cysteine-glutamate exchanger in the nucleus accumbens. Animal studies have shown that chronic self-administration of the drug down-regulates the cysteine-glutamate exchanger in the nucleus accumbens, and NAC's role is to reverse the process via glutamate modulation and other mechanisms. *(K. M. Gray et al.: A Double-Blind Randomized Controlled Trial of N-Acetylcysteine in Cannabis-Dependent Adolescents.* Am J Psychiatry, *169: 805–812, 2012)*

43. (c) Three treatment groups are combined into one group and the composite scores were used for the final analysis because of the lack of significant group differences in the neurocognitive outcomes. *(J. A. Frazier et al.: Neurocognitive Outcomes*

in the Treatment of Early-Onset Schizophrenia Spectrum Disorders Study. JAACAP, *51: 496–505, 2012)*

44. (d) Based on the results of the study the COMB group did not show a significantly greater gain in the Vineland Daily Living Skills domain than did the MED group. *(L. Scahill et al.: Effects of Risperidone and Parent Training on Adaptive Functioning in Children With Pervasive Developmental Disorder and Serious Behavioral Problems.* JAACAP, *51: 136–146, 2012)*

45. (e) EKG monitoring and related recommendations are under the category of "clinical guideline" not "clinical standard" based on strong empirical evidence and/or overwhelming clinical consensus but lack of rigorous empirical evidence. *(R. L. Findling et al.: Practice Parameter for the Use of Atypical Antipsychotic Medications in Children and Adolescents.* AACAP, *www.aacap.org, 2011)*

46. (b) This is a retrospective chart review study involving patients ages 5 to 18 years to compare the incidence of diabetes in patients who have been exposed to SGAs to controls or to those patients who have been exposed to antidepressants. The authors identify a fourfold increased risk of developing diabetes in patients taking SGAs compared to the controls, but it is not statistically different compared to the antidepressant group. *(S. E. Andrade et al.: Antipsychotic Medication Use Among Children and Risk of Diabetes Mellitus.* Pediatrics, *128: 1135–1141, 2011)*

47. (d) DDAVP has a more potent antidiuretic effect than that of AVP, but it is less potent as a vasopressor. *(Ref. 1, p. 782)*

48. (d) Acting as a partial agonist, buspirone selectively binds to the 5-HT_{1A} receptor, and has a weak dopamine antagonist effect. It is not an additive drug because it does not bind to benzodiazepine receptors or enhance GABA. Thus, it cannot be used for benzodiazepine withdrawal. It is FDA approved for the treatment of GAD only in adults, and there is no strong empirical evidence to support its use in children and adolescents. However, some case reports and open-label trials indicate that it can be considered for the treatment of mild anxiety or as an adjunctive agent to SSRIs in the pediatric population. *(Ref. 1, pp. 781–782)*

49. (c) Melatonin is the leading medication used in youth in the United States, especially in youth with ADHD, developmental delays, autism spectrum disorder, and other neurodevelopmental conditions. It is also one of the eight most commonly prescribed drugs by British child psychiatrists. It is an indoleamine with sleep-promoting and chronobiotic (influencing the time) properties. Because of the short half-life, it is more useful in helping the initiation of sleep. *(Ref. 3, p. 788)*

50. (b) Ramelteon is an FDA-approved medication for the treatment of initial insomnia in adults, and has potent agonistic effects on melatonin receptors (MT_1 and MT_2). It has major drug-drug interactions with fluvoxamine, and its common side effects may include nausea, dizziness, somnolence, fatigue, and depression. *(Ref. 1, p. 790)*

Matching

51. (b); 52. (c); 53. (a); 54. (d) In addition to the antidepressants listed: desipramine—primarily noradrenergic; trazodone and nefazdone—both serotonin reuptake blockers and 5-HT_{2A} antagonists. *(Ref. 1, p. 689; pp. 701–723)*

55. (c) Seroquel has a relatively lower risk of EPS. (*Ref. 1, pp. 743–774)*

56. (d) QTc prolongation has been associated with Geodon based on premarketing data. An EKG may be needed. (*Ref. 1, pp. 743–774)*

57. (a) Among atypical antipsychotics, risperidone is more like a high-potency typical agent, with a relatively high risk for EPS. (*Ref. 1, pp. 743–774)*

58. (b) The prominent side effects of clozapine, used for treatment-refractory psychosis, include lowered seizure threshold, as well as granulocytopenia and agranulocytosis. *(Ref. 1, pp. 743–774)*

59. (k); 60. (j) Pharmacokinetics refers to how the body handles and disposes of drugs within the body through biological processes: absorption, distribution, metabolism, and excretion. Pharmacodynamics refers to how a drug has biomedical and physiological effects on the body. *(Ref. 3, pp. 742–743)*

61. (i); 62. (h) First-order kinetics refers to the amount of drug eliminated, which is proportional to the amount of drug circulating in the bloodstream. Zero-order kinetics refers to only a fixed amount of drug that can be eliminated per unit of time because of the saturation of the eliminating mechanisms. *(Ref. 3, p. 743)*

63. (g); 64. (f) Elimination half-life refers to the time required for the plasma concentration of a drug to be decreased by one-half. Steady-state concentration (Css) refers to a stable and steady plasma concentration level reached because of the establishment of an equilibrium between the amount of drug ingested and the amount of drug eliminated. *(Ref. 3, p. 743)*

65. (e); 66. (d) The minimal effective concentration refers to the lowest plasma concentration of drug required to produce clinical effects. Therapeutic drug monitoring refers to measuring and monitoring the medication concentration level in the blood, which should be checked at "trough" level (just prior to the next dose). TDM is an important tool to use for those drugs that have narrow therapeutic windows, significant consequences associated with drug toxicity, and a wide range of inter-patient variability. It can help reveal individuals with unusual metabolism, uncover noncompliance, and confirm toxicity. *(Ref. 3, p. 744)*

67. (c); 68. (b) Bioavailability refers to the availability of unbound drugs in the systemic circulation that can exert biological effects on the target tissues. The first pass effect (also called presystemic clearance) refers to drugs being metabolized through the liver before they reach their target tissues in the systemic circulation. Different drugs have very different first pass effects, which lead to different bioavailability. *(Ref. 3, p. 745)*

69. (a); 70. (l) The phase I metabolic reactions refer to the process of converting drugs to forms more suitable for elimination through hydroxylation, reduction, and hydrolysis. The phase II metabolic reactions refer to the process of conjugating of metabolites generated by the phase I metabolic reactions by phase II enzymes in order to be excreted in urine or through other body fluids. However, some drugs can be processed directly through the phase II metabolic reactions without going through any phase I metabolic reaction. *(Ref. 3, pp. 746–747)*

13

PSYCHOTHERAPIES

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QUESTIONS

Directions: Select the best response for each of the questions 1–26.

1. Which of the following is (are) the reason(s) that delay(s) the conduct of the kind of research that might enable nonmanualized individual psychotherapy to reach the current criteria for being "evidence based"?

a. Difficulty in following control subjects as long as some individual cases actually take in therapy
b. Difficulty in locating proper comparison groups
c. Challenge of "double blinding"
d. Difficulty in getting funding and institutional approval
e. All of the above

2. All of the following tactics for working with parents in parent counseling should be recommended *except:*

a. Model appropriate parent-child interactions for the parents to follow.
b. Guide parents to understand the purposes of consequences and to find an appropriate consequence that works for the child.
c. Eliminate using any punishment and replace it with rewards.
d. Refer parents to receive other needed services that you cannot provide.
e. Encourage parents to receive therapy for themselves.

3. All of the following are advantages that multifamily psychoeducation groups have in comparison to individual family psychoeducation *except:*

a. Cost-effective and delivered in a large clinic
b. Chance to discuss and share with both professionals and other families
c. Establishment of support network
d. Identification with other families and learning from others' success
e. Privacy

4. All of the following are appropriate age adjustments needed for psychoeducation targeting children and adolescents with mental illness compared to those programs targeting adults *except:*

a. Emphasizing social skills training
b. Assisting adjusting environmental expectations
c. Emphasizing the important aspects of the home environment
d. Higher intensity of service and longer follow up
e. None of the above

5. All of the following are psychoeducation core concepts *except:*

a. Behavioral inhibition
b. Cognitive restructuring
c. Daily routines
d. Relapse prevention
e. Social functioning

6. All of the following are examples of techniques used in psychoeducation *except:*

a. Bibliotherapy
b. Daily routine tracking
c. Mood chart
d. Naming the friend
e. Thinking, feeling, doing

7. It is not uncommon for the leaders of a parent group or support group to face some challenges and difficult situations. Which of the responses by the group leaders should be *excluded* if one parent dominates the discussion?

a. Setting limits
b. Setting amount of time for people to take turns
c. Reminding the group of time and schedule
d. Thanking the parent who is sharing and asking if others would like to talk
e. None of the above

8. Setting treatment goals is an important step of behavioral parent training. All of the following are appropriately applicable to the discussion of establishing initial treatment goals between the therapist and the parent *except:*

a. Eliciting the parent's goal (commonly involves modifying child's behavior)
b. Explicitly identifying the parent's behavior that causes the child's problems
c. Finding a goal that is the best fit between parenting practices and the child's personality
d. Setting the initial goal at a level where both child and parent can experience success
e. Consider usage of shaping process

9. In regards to behavioral parent training, a concept of "coercive process" was proposed by Patterson (1982). Which of the following descriptions *best* explains its meaning?

a. Parents overly control their children
b. Children's behavior controls the parents' reactions
c. External factors influence both children's and parents' behavior
d. Parents and children with behavioral problems control each other through negative reinforcement
e. None of the above

10. All of the following statements regarding the effectiveness and efficacy of behavioral parent training (BPT) are accurate based on updated research *except:*

a. BPT is effective in treating disruptive behavior disorders during preschool and elementary school.
b. Family-centered behavioral interventions are effective for adolescents.
c. BPT improves parenting skills; improvements of child behavior are associated with the degree of changes in parenting.
d. BPT effectiveness does not extend to untreated siblings.
e. BPT can alleviate marital stress.

11. All of the following statements regarding the factors that can influence the outcomes of BPT are accurate *except:*

a. Lower level of socioeconomic status (SES) predicts poorer overall outcome.
b. Lower level of SES predicts differentially more dropouts for behavior therapy versus other psychosocial interventions.
c. Involvement of both parents in treatment may not affect outcome, but may increase the maintenance of treatment gains.
d. Parental psychopathology, parental involvement with illicit drugs, and severe marital discord all predict reduced efficacy.
e. Severity and nature of the child's symptoms strongly influence outcome.

12. Which of the following family therapies emphasizes in-session interaction?

a. Bowen family systems therapy
b. Experiential family therapy
c. Multisystemic therapy (MST)
d. Strategic family therapy
e. Structural family therapy

13. Which of the following concepts is *most* closely associated with Winnicott's theory?

a. Circular causality
b. Constraints
c. Holding environment
d. Narratives
e. Negative affective reciprocity

14. Among all of the following models of family therapy, which is the *newest* one?

a. Bowen family systems therapy
b. Experiential family therapy
c. Integrative module-based family therapy
d. Strategic family therapy
e. Structural family therapy

15. Interpersonal psychotherapy for depressed adolescents (IPT-A) is *not* recommended for adolescents with all of the following conditions *except:*

a. Actively abusing substances
b. Actively psychotic
c. Actively suicidal or homicidal
d. Significantly intellectually disabled
e. Very anxious

16. All of the following statements regarding IPT-A are accurate *except:*

a. IPT-A, a time-limited and manualized psychotherapy, was originally adapted from IPT for adults.
b. IPT is based on interpersonal theories and attachment theory.
c. Parental participation is mandatory.
d. IPT-A includes three phases: initial, middle, and termination.
e. Assigning the adolescent with a "limited sick role" is recommended during psychoeducation.

17. During the initial phase of IPT-A, the therapist helps the client identify interpersonal problem areas. If an adolescent's depression coincides with a relationship conflict, which of the following problem areas should be *primarily* identified?

a. Grief due to the death of a loved one
b. Interpersonal deficits
c. Interpersonal role disputes
d. Interpersonal role transitions
e. None of the above

18. Which of the following techniques is *not* commonly used in the middle phase of IPT-A?

a. Communication analysis
b. Decision analysis
c. Encouragement of affect and linkage with interpersonal events
d. Role playing
e. Transference interpretation

19. Which of the following therapy modalities meets the American Psychological Association Division 12 criteria for a "well-established" psychotherapy for depression in youth?

a. Behavioral parent training
b. Individual psychodynamic psychotherapy
c. IPT-A
d. Psychoeducation
e. Structured family therapy

20. During a session involving cognitive-behavioral therapy (CBT) for anxiety disorder, the therapist suggests the patient remain in contact with the feared stimulus until physiological response and subjective distress dissipate. Which of the following techniques *best* fits this description?

a. Between-session habituation
b. Graduated exposure
c. Implosion

d. Relaxation training
e. Within-session habitation

21. Which of the following specific intervention(s) is (are) commonly used in cognitive-behavioral therapy (CBT) for depression?
a. Activity scheduling
b. Affect regulation
c. Assertiveness
d. Attachment security
e. All of the above

22. All of the following factors clearly predict poor outcomes of CBT in the treatment of depression among adolescents *except:*
a. Greater sense of hopelessness
b. Greater severity of depression
c. Higher chronicity of depression
d. Higher level of cognitive distortion
e. Presence of comorbidity

23. All of the following are applied behavior analysis (ABA) techniques used as interventions for children with autism spectrum disorders *except:*
a. Fading
b. Forward chaining
c. Prompting
d. Shaping
e. Task analysis

24. Which of the following stages should be *excluded* from systematic desensitization commonly used in the treatment of anxiety?
a. Relaxation training
b. Constructing the anxiety hierarchy
c. Desensitization in imagination
d. In vivo desensitization
e. None of the above

25. All of the following are developmental advantages that adolescents may possess in favor of the motivational interviewing (MI) approach *except:*
a. Emphasizing autonomy and self-determination
b. Positive relational connection
c. Lack of discrepancies
d. Avoidance of labels
e. Positive reinforcement

26. In a recent study by S.N. Merry et al. (2012), which of the following symptoms was treated with a computerized self-help intervention, Smart, Positive, Active, Realistic, X-factor thoughts (SPARX), and did not show inferiority to treatment as usual?
a. Addiction
b. Anxiety
c. Depression
d. Inattention and hyperactivity
e. Psychosis

Matching

27–30. Match the treatment name with the *best* treatment description. Use each description only once.
a. Emphasizing the establishment of boundaries within the family
b. Addressing the function of symptoms in family interaction, enhancing supportive interactions, and reducing defensive interactions
c. Focusing on the "unconscious" life of the family members, disentangling interlocking alliance
d. Interrupting rigid feedback, maintaining the family homeostasis, and strengthening the parental alliance using paradoxical instructions

27. Functional family therapy
28. Psychodynamic family therapy
29. Strategic family therapy
30. Structural family therapy

31–36. Match each of the parent training topics with the *best* description or example of such a topic.
a. Utilizing more desirable activities as reinforcers for the purpose of completing less desirable ones
b. Removing the tokens, points, or privileges the child previously earned because of current negative behaviors
c. Removing the child from positive reinforcement or enjoyable activity for a period of time as a consequence of specific target negative behaviors
d. Assigning tokens, points, or privileges to each positive behavior and cashing them out for rewards
e. Finding salient positive behavior to praise and to reward through reinforcement
f. Parent actively attending child-directed activities and paying no attention to mild negative behaviors

31. Attending and ignoring
32. Praise/positive reinforcement
33. Token economy/point system
34. Time out
35. Response-cost procedures
36. When-Then/If-Then/ "Grandma's Rule"

37–40. In Bowen family systems therapy the therapist functions as a coach, using a genogram, educating about multigenerational family processes, and emphasizing both the individual and family dimensions contributing to family problems. The approach evaluates and intervenes through seven interlocking concepts. Match each of the following concepts with the *best* description listed.

a. Family members' cessation of relating to each other when the conflict or reactivity is too intense
b. Intergenerational patterns of assigned roles to family members
c. Overall heightened reactivity to others because of insufficient differentiation of self
d. Making more "I statements" and not reacting beyond a normal range in response to others

37. Differentiation of self
38. Nuclear family emotional process
39. Family projection process
40. Emotional cutoffs

ANSWERS AND EXPLANATIONS

1. **(e)** All of the listed reasons along with difficulty in getting parental and child consents have led to only a few clinical case series and a handful of controlled research projects in this field over many years. *(Ref. 1, p. 807)*

2. **(c)** Appropriate punishment should not be eliminated, but the importance of counterbalancing punishment with rewards should be emphasized to the parents. Other tactics may include: assist parents to reframe the problems in a way that seems manageable and does not place responsibility solely on them; provide parents with supplemental materials for them to review outside of the sessions; and remind parents to be patient with gradual small incremental progress made without a quick cure. *(Ref. 1, p. 827)*

3. **(e)** Along with privacy, ease of being implemented by a private practitioner, scheduling flexibility, and flexibility in tailoring topics to meet individual special needs are the advantages that individual family psychoeducation has over the multifamily psychoeducation groups. *(Ref. 1, p. 828)*

4. **(e)** All listed are appropriate age adjustments needed for psychoeducation targeting children and adolescents with mental illness compared to those programs for adults. In addition, because children may not have developed a healthy identity separate from the psychiatric symptoms that they suffer it is important to clarify with the child and family what the disorder is and what the child's traits are. With variable levels of development, developmentally appropriate contents should be used in different age groups. *(Ref. 1, p. 829)*

5. **(a)** Behavioral activation (not inhibition) is one of the core concepts of psychoeducation along with others such as types of disorders and symptoms, medication and side effects, problem-solving skills, treatment and services, and communication skills. *(Ref. 1, p. 836)*

6. **(d)** Naming the enemy (not friend) is one of the techniques used in psychoeducation to help the child and parents distinguish the difference between the child's symptoms and his/her own personality. Bibliotherapy refers to the usage of written information, video, and resources from media and the Internet to further educate families. Daily routine tracking and mood charts can help tracking daily routine activities such as sleep-wake cycles, eating, changes in mood, and how different activities or circumstances influence mood. "Thinking, feeling, doing" helps in gaining the insight of parents and child into the connections among their thoughts, feelings, and behaviors. Another technique called "tool kit" refers to the development of a series of pleasure and relaxing activities for the child to use in helping affective regulation. *(Ref. 1, p. 838)*

7. **(e)** All of the listed responses are appropriate in this situation. There are many other frequent challenges and situations group leaders may face, such as arguing among members, crying, discussion of inappropriate topics, discussion shifts away from the scheduled topic, incomplete homework, late arrival, non-participation, lack of time to cover the topic, only one attendee, and silence. (please see the referenced section for details). *(Ref. 1, p. 839)*

8. **(b)** Modifying or changing the parent's behavior can be somehow discussed although this goal may not need to be explicitly stated because the therapist needs to communicate in a way to avoid the parent feeling that she or he is to blame for the child's behavior. *(Ref. 1, pp. 847–848)*

9. **(d)** The theory behind behavioral parent training programs is based on the belief that dysfunctional parent-child relationship and interaction patterns are possible driving forces of the child's behavior problems. As a learned process, "coercive process" describes those families with a child having behavioral issues that have a tendency to control one another through negative reinforcement. *(Ref. 1, p. 846)*

10. **(d)** Research supports that BPT effectiveness can be extended to the untreated siblings. BPT does have positive effects on parent functioning, which leads to lower parenting stress, marital conflicts, depression; unifying childrearing approaches; gaining parental confidence in managing their child's behavior; and extending benefits to untreated siblings. Parents are more likely to report high levels of satisfaction with this approach. *(Ref. 1, p. 859)*

11. **(b)** Lower level of SES predicts early termination from the treatment, but it does not differentially predict more dropouts for behavior therapy in comparison to other psychosocial interventions. *(Ref. 1, pp. 859–860)*

12. **(b)** Represented by Carl Whitaker and Virginia Satir, experiential family therapy emphasizes the in-session interactions, and tends to guide a conflicted parent-dyad to talk about the problems in the session. This approach demonstrates that the recognition of the here-and-now experience of family members is beneficial to the treatment. *(Ref. 1, p. 871)*

13. **(c)** Holding environment is a critical component of D.W. Winnicott's theory. This refers to the caregivers providing a safe and nurturing environment to fulfill the child's needs and to facilitate the child's normal growth and development. *(Ref. 1, pp. 872–873)*

14. **(c)** Several newer models of family therapy have been developed to meet the clinical challenges we are facing today. Integrative module-based family therapy is one such model among two others including multisystemic therapy (MST) and meta-frameworks. *(Ref. 1, pp. 875–877; Ref. 3, pp. 854–858)*

15. **(e)** Research shows adolescents with depression can respond to IPT-A even when the depression is comorbid with anxiety disorder, ADHD, and ODD. However, the treatment is most effective when the primary diagnosis is depression with limited comorbidities, and it is not recommended for some of the conditions listed in answers (a) through (d). *(Ref. 1, pp. 887–888)*

16. **(c)** Parental participation is highly encouraged, but not mandatory or required. Parental participation can be helpful at different phases of the treatment (e.g., education about depression

and IPT-A treatment itself during the initial phase, providing opportunities to practice during the middle phase, and education about warning signs of depression recurrence in the termination phase). *(Ref. 1, pp. 887–888)*

17. (c) Interpersonal role disputes should be identified in this case because the depression coincides with a relationship conflict, and resolving such a conflict is the goal of the treatment. In general, only one of the four listed areas needs to be identified, but it is also possible to identify a secondary problem area. Adolescents with interpersonal role dispute may fall into one of the following stages: renegotiation stage, impasse stage, and dissolution stage. During the first two stages, the therapist should assist the adolescent to define and to resolve the dispute. However, the treatment strategy will be focused on mourning the loss of the relationship if the adolescent is in the dissolution stage. *(Ref. 1, pp. 889–891; Ref. 3, pp. 823–824)*

18. (e) Transference interpretation is *not* commonly used in the middle phase of IPT-A. Instead, all of the other techniques listed can be appropriately used in the middle phase of IPT-A. *(Ref. 1, pp. 890–891)*

19. (c) Among all the listed therapy modalities, IPT-A is the only one that meets the American Psychological Association Division 12 criteria for a "well-established" psychotherapy for depression in youth. *(Ref. 1, p. 894)*

20. (e) Exposure is the key element of CBT for anxiety. Graduated exposure involves introducing the situation that elicits a low level of fear, followed by gradually introducing situations that elicit more intense fear; eventually the fearful behaviors or responses are eliminated (extinction). In a session when the fear-producing situation remains until the individual's fear response extinguishes, the process is called within-session habituation. If the individual is exposed to the situation that elicits the highest fear (not graduated) over repeated treatment sessions and the fear response dissipates, this process is called between-session habituation. Graduated exposure is more often reserved for younger children, whereas adolescents may be able to tolerate more intensive exposure techniques. Implosion therapy refers to utilizing horrific, frightening, and psychodynamic cues to enhance and maximize fear response and arousal state in order to achieve rapid extinction. Studies show this approach is often ineffective, and may be even countertherapeutic. Usually, as an adjunctive approach, relaxation training involves either muscle tension-relaxation sequences or cognitive meditation to decrease patients' physiological fear response and subjective arousal. *(Ref. 1, pp. 897–900)*

21. (e) All are specific interventions commonly used in CBT among others including introduction and treatment rationale, goal setting, mood monitoring, rational problem-solving, rationally disputing automatic thoughts and replacing them with adaptive self-statements, correction of cognitive distortions, social skills training, communication and compromise, parent training, booster sessions, and relapse prevention. *(Ref. 1, pp. 908–910)*

22. (e) There are conflicting data regarding whether comorbidity predicts a poor outcome. In addition, lower level of suicidal ideation, higher overall baseline functioning, consistency in completing homework, therapeutic warmth, responsiveness, and cultural sensitivity all predict positive response and outcome. *(Ref. 1, p. 912)*

23. (b) Backward chaining is an ABA technique, which refers to a complex behavior that is taught by starting with reinforcing the successful performance of the final step, and working backward one step after another to the initial step of the behavior. The goal is to eventually reinforce the child being able to perform the whole behavior. *(Ref. 3, p. 811)*

24. (e) The choices comprise the four stages of systemic desensitization and none of them should be excluded. *(Ref. 3, p. 805)*

25. (c) Lack of discrepancies is a challenge to using MI in adolescents because assisting an adolescent to examine discrepancies with risk-taking behavior may backfire if the adolescent is in denial. *(Ref. 1, pp. 918–919)*

26. (c) Smart, Positive, Active, Realistic, X-factor thoughts (SPARX) is a computerized cognitive behavior therapy model. The study is a randomized controlled non-inferiority trial that compared SPARX to treatment as usual (face-to-face counseling delivered by trained counsellors and clinical psychologists) for adolescents seeking help for depression. The symptom reduction of the SPARX group was not inferior to treatment in the as usual group, and SPARX groups had a higher remission rate. The authors concluded that SPARX is a potential alternative treatment option to conventional treatment. *(S.N. Merry et al.: The Effectiveness of SPARX, a Computerised Self Help Intervention for Adolescents Seeking Help for Depression: Randomised Controlled Non-inferiority Trial.* BMJ, *344: e2598, 2012)*

Matching

27. (b) Functional family therapy is an intensive home-based approach, and is designed to address the function of symptoms in family interaction. The goals are to enhance supportive interactions and to reduce defensive interactions. *(Ref. 3, p. 856)*

28. (c) Psychodynamic family therapy focuses on the "unconscious" life of family members and encourages them to share their unconscious conflicts and defenses, and intra-familial transference reactions in the therapy. Psychodynamic family psychotherapy is good for families with long-standing but subtle symptoms, and it can be combined with individual therapies. Object relations theory is applied in psychodynamic therapy. To enhance the therapeutic process, attachment theory can be used as well to differentiate between "defensive" and "attachment" affects. *(Ref. 3, p. 856)*

29. (d) Strategic family therapy sees families in terms of process and maladaptive problem-solving efforts. In the therapy, strategies should be developed to identify the family rules, interrupt rigid feedback, strengthen the parental alliance, and maintain the family's homeostasis. Paradoxical intervention, circular questioning, extended family intervention, and narrative therapy techniques can be used. *(Ref. 1, p. 870–871; Ref. 3, p. 856)*

30. (a) Structural family therapy focuses on adaptive and maladaptive structure, particularly in relation to power, boundaries, and preferred transactional patterns. Reestablishing and realigning

boundaries are emphasized in the therapy. *(Ref. 1, pp. 870–871; Ref. 3, p. 856)*

31. (f); 32. (e); 33. (d); 34. (c); 35. (b); 36. (a) In addition to those listed in the questions, there are other core topics in parent training, such as psychoeducation/background information, giving effective instruction, developing a plan for homework, homeschool report cards, managing behavior in public places, and planning ahead/anticipating future behavior problems (please review the referenced section for the detailed key elements of each topic). *(Ref. 1, pp. 865–868)*

37. (d); 38. (c); 39. (b); 40. (a) In addition to the four listed concepts the rest of them are: emotional triangles, multigenerational transmission, and sibling positions. *(Ref. 1, p. 871; Ref. 3, p. 856)*

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14

TREATMENT SETTINGS, HEALTH CARE SYSTEM, AND OUTCOME

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QUESTIONS

Directions: Select the best response for each of the questions 1–20.

1. All of the following statements regarding wraparound services are accurate *except:*

a. Wraparound services are child and family centered.
b. Wraparound services are community based.
c. Value is placed on cultural competency.
d. A problem is identified based on a deficit model and ameliorating the problem is the treatment focus.
e. The family determines the mix of services.

2. Research shows which of the following groups of youth are *most* likely to respond to multisystemic therapy?

a. Youth with anxiety disorders
b. Youth who are juvenile offenders
c. Youth with depressions
d. Youth who are psychotic
e. Youth with bipolar disorders

3. The federal government established the Child and Adolescent Service System Program (CASSP) in 1984. All of the following are major principles of the CASSP *except:*

a. To individualize care that recognizes strengths in the child, family, and community
b. To include the family at every level of the clinical process and system organization
c. To coordinate and collaborate among different agencies and to integrate services across agencies
d. To serve youth in more restrictive and structured environments or settings to meet their clinical needs
e. To provide culturally competent services

4. According to the article "Physician Leadership in Residential Treatment for Children and Adolescents" by Christopher Bellonci (2010), all of the following statements are accurate *except:*

a. Residential treatment centers (RTCs) formally require a physician to be the medical director who can provide the leadership.
b. The physician can provide a comprehensive review of the child's and family's strengths and needs.
c. Past treatment histories and records and current information about the child need to be collected, and the physician needs to interpret the data and to work with the multidisciplinary team to develop a bio-psycho-social-educational formulation.
d. Integrating and incorporating all the past and current data, the physician needs to lead the team to make diagnoses and to develop treatment plans.
e. The physician also plays a role in teaching child care staff theories regarding development and mental illness and its treatments.

5. All of the following statements accurately describe the Intensive In-Home Child and Adolescent Psychiatric Service (IICAPS) developed at Yale in 1997 *except:*

a. The IICAPS serves children and adolescents with serious emotional and behavioral problems in home/family settings.
b. The IICAPS believes that the family has the capacity and is essential to make sustainable changes in a child's life.
c. The families have to be partners in the treatment process and co-lead the treatment planning.
d. A psychologist is required to serve as the director to co-lead the interdisciplinary team meetings.
e. The IICAPS provides 24/7 mobile crisis services.

6. All of the following statements regarding milieu treatment (MT) are accurate *except:*

a. Therapeutic milieu is central to inpatient hospital units (IU), partial hospital (PH), day treatment (DT), and residential treatment centers (RTCs).
b. IU, PH, DT, and RTCs are considered as restrictive or intensive services, but federal reports combine IU and RTCs into statistical analysis, and PH and DT are now grouped into outpatient treatments.
c. Managed care involvement has not lessened the difficulty of accessing and appropriately using IU care across the nation.
d. Most outcome studies have used "change analysis" (i.e., the differences between before and after service delivery).
e. Conclusive evidence has demonstrated the effectiveness of MT.

7. All of the following critical factors should be determined prior to admission to MT *except:*

a. Child and family functioning
b. Consistency of discipline within the family
c. Family perceived stress
d. Contact with delinquent peers for those with disruptive disorders
e. None of the above

8. If a child is at high risk of danger to self or others, which of the following MT programs is *not* appropriate?

a. Acute inpatient
b. Day treatment
c. Partial hospital
d. Residential treatment center
e. All of the above

9. Based on the most recent research findings, all of the following statements regarding aggressive behaviors, seclusion, and restraint in MT settings are correct *except:*

a. All MT programs are expected to be able to manage youth with highly aggressive, violent, and destructive behaviors.
b. Stricter federal policy on seclusion and restraint is associated with the highly publicized concerns of the adverse effects of mechanical and other forms of restraint.
c. Multiple attempts have been made to reduce seclusion and restraint.
d. Some case studies have shown how leadership serves to decrease seclusion and restraint through organizational and cultural change.
e. A recent study shows hospitalized youth prefer timeout to medication (e.g., chemical restraint and prn medication).

10. Which of the following is the *best* way to prevent elopement from MT programs?

a. Effective communication among staff and between staff and patients
b. Onsite schooling
c. Negative consequences such as timeout, seclusion, and restraint
d. Sufficient dosage of psychotropic medications
e. Use of video surveillance system

11. Which of the following is (are) the risk factor(s) warranting an admission to an appropriate MT program?

a. A suicide attempter with clear abnormal mental state, or an individual with suicidal ideation
b. An individual with persistent wish to die
c. Lack of adequate supervision or support outside of therapeutic milieu
d. Unsafe to return home because of unresolved biopsychosocial risk factors that are unlikely to change
e. All of the above

12. All of the following safety factors should be considered prior to discharging youth from an MT program to a lower level of care *except:*

a. Crisis issue resolved to acceptable level
b. Suicidal potential is minimal
c. Home environment is sanitized (e.g., no firearms and medication secured)
d. Family-related issues addressed
e. None of the above

13. All of the following are recommended to assure effective milieu treatment *except:*

a. Optimize safety for patients, peers, and staff members
b. Require onsite school education
c. Actively involve the family
d. Actively address the factors identified in the formulation and treatment plan
e. Discharge only when a lower level of care can provide sufficient services

14. All of the following correctly describe the differences between residential treatment centers (RTCs) and inpatient hospital units (IU) *except:*

a. RTCs provide more comprehensive services than inpatient hospital units.
b. Only IU provides 24-hour nursing and medical care.
c. African American youth are less likely to be admitted to RTCs.
d. RTCs expect less regression than IUs.
e. Youth view themselves as "residents" in RTCs in contrast to "sick persons" in IUs.

15. All of the following factors predict poor treatment outcome for RTCs *except:*

a. Presence of psychosis
b. Below-average level of intelligence
c. Presence of antisocial and bizarre behavior
d. Longer length of stay
e. Inadequate aftercare services

16. Which of the following is the *main* tool that is used for assessing RTCs' treatment outcome?

a. Behavior Assessment System for Children, Second Edition (BASC-2)
b. Child Behavior Checklist (CBCL)
c. Child Functional Assessment Rating Scales (CFARS)
d. Child Symptom Inventory (CSI)
e. Children's Global Assessment Scale (CGAS)

17. All of the following are considered common functions of an acute inpatient psychiatric unit (IU) *except:*

a. Minimizing potential for harm (e.g., separation from family and community and monitoring behavior)
b. Psychological testing
c. Case formulation and diagnosis
d. Developing a treatment plan and rapidly implementing it
e. Stabilizing symptoms and crisis

18. Which of the following is associated with higher readmission rates after discharge from an IU?

a. Severe conduct problems
b. Disengaged parent-child relations
c. Harsh parental discipline
d. All of the above
e. None of the above

19. All of the following statements regarding partial hospitalization (PH) and day treatment (DT) are accurate *except:*

a. Both PH and DT are less than 24-hour hospital-level daily care to prevent relapses and rehospitalizations.

b. Both PH and DT must be part of a hospital clinic or an IU.
c. Youth in the programs are expected to have sufficient self-control to avert dangerous behavior.
d. Chemical or manual restraints are not commonly used in DT.
e. The PH model can be employed in specialized milieu treatments for substance-related disorders, eating disorders, victims of abuse, and those with medical and psychiatric comorbidities.

20. All of the following are considered as routine laboratory tests prior to or upon admission to a psychiatric facility *except:*

a. Complete blood counts
b. Liver functioning tests
c. Electroencephalography (EEG)
d. Thyroid function tests
e. Pregnancy tests for female patients of child-bearing potential

ANSWERS AND EXPLANATIONS

1. (d) In contrast to the traditional mental health treatment that uses a deficit model, wraparound services use strength-based approaches that uncover positive coping mechanisms and resiliency factors in the family. Wraparound services are especially beneficial to the children and families that have significant emotional and behavioral difficulties and previously experienced treatment failure. They are child and family centered, community and strength based, and contain culturally competent services that integrate the family as an active participant in building the treatment plan. *(Ref. 1, pp. 926–927; Ref. 2, p. 331)*

2. (b) Youth who are juvenile offenders and youth who are abusing substances and are at risk for out-of-home placement respond to the MST more robustly. Short-term data support the efficacy of reducing inpatient psychiatric hospitalization and out-of-home placements, improving externalizing symptoms and family relationships, and increasing school attendance. *(Ref. 1, pp. 932–933)*

3. (d) One of the five principles of CASSP is to serve youth in the communities or in the least restrictive environment or setting to meet their clinical needs. *(Ref. 1, pp. 926–927; N. C. Winters and W. P. Metz: The Wraparound Approach in System of Care.* Pscyhiatr Clin N Am, *32: 132–151, 2009)*

4. (a) Even though physicians are increasingly included in leadership roles in RTCs, licensing for most RTCs does not formally request a medical director. Traditionally, physicians/psychiatrists are responsible for prescribing psychotropic medications without further integration into the administrative or leadership structure. *(C. Bellonci: Physician Leadership in Residential Treatment for Children and Adolescents.* Child Adolesc Psychiatric Clin N Am, *19: 21–30, 2010)*

5. (d) IICAPS requires a child and adolescent psychiatrist to serve as the medical director to co-lead the interdisciplinary treatment rounds. Programmatically, IICAPS is designed as the following: six to eight cases per team, four teams to a rounds group, one to four rounds groups to a program, and 15 programs to a network. *(Ref. 1, p. 933)*

6. (e) Because of the significant difficulties in study design and implementation, even though some studies have shown positive outcomes of RTCs and IU services, conclusive evidence demonstrating MT's effectiveness is still largely lacking. *(Ref. 1, pp. 939–940)*

7. (e) None of the listed factors should be excluded as critical factors that should be determined prior to admission, and another factor is extent of drug and/or alcohol use or abuse. *(Ref. 1, p. 941)*

8. (d) A residential treatment center would not be sufficient to provide care for youth at high risk of danger to self or others. Acute inpatient is the most appropriate setting, and partial hospital and day treatment can potentially provide the needed acute services. For those with low risk of danger to self or others, acute inpatient is the least appropriate, but PH, DT, and RTCs all can provide the appropriate level of care. *(Ref. 1, p. 942; Ref. 2, p. 332)*

9. (e) A recent study shows hospitalized youth prefer medication to timeout or seclusion in contrast to earlier studies advocating for timeout. *(Ref. 1, pp. 941–943)*

10. (a) Effective communication among staff and between staff and patients is the best way to prevent elopement and other risky behaviors in the MT programs. *(Ref. 1, p. 943)*

11. (e) All listed are the risk factors that warrant an admission to an appropriate MT program. *(Ref. 1, p. 943)*

12. (e) None of the listed safety factors should be excluded when considering discharging youth from an MT program to a lower level of care. Other safety factors may include aftercare planning such as providing appropriate psychoeducation to the family and patient and setting up realistic transition plans (ongoing psychosocial interventions and medication follow ups). *(Ref. 1, p. 943)*

13. (b) Onsite school education may not be available to all the MT programs and is a key factor for assuring effective milieu treatment. Providing financial support for duration of needed treatment is also recommended. *(Ref. 1, p. 944)*

14. (c) African American youth are more likely to be admitted to RTCs than whites. Data also shows that mental health services are disproportionally provided to white youth in juvenile justice facilities compared to those of minority races. *(Ref. 1, pp. 945–946)*

15. (d) Inadequate length of stay and insufficient duration to allow for consolidation of gains from the treatment predicts poor outcome. Another negative outcome factor is a dysfunctional family. *(Ref. 1, p. 946)*

16. (c) Child Functional Assessment Rating Scales (CFARS) is the main tool that is used to evaluate residential treatment outcomes. Using this tool, administrators and providers can generate data through a system-wide assessment and report the findings efficiently via a Web-based system. *(Ref. 1, p. 946)*

17. (b) Psychological testing is not a common function of an acute psychiatric inpatient unit. Disposition planning and transition to less restrictive care are other common functions of an IU. *(Ref. 1, p. 947)*

18. (d) A 2004 study by J. C. Blader indicates that predictors for the readmission of 109 school-aged children who were previously hospitalized in a psychiatric facility are severe conduct problems, disengaged parent-child relations, and harsh parental discipline. *(Ref. 1, p. 948)*

19. (b) Unlike PH, DT can be freestanding or a part of an IU, a hospital clinic, a school, or an RTC. DTs are structured and attend to patients' educational needs and provide multimodel treatments. The restrictive practice (i.e., seclusion and restraints) in DTs is limited to those methods acceptable and available in most school or home environments, whereas the restrictive

practice in PH depends on the hospital configuration. Chemical or physical restraints are not used in DT programs, but personal ("therapeutic") holding of young children and quiet rooms are sometimes used in certain DT programs. *(Ref. 1, p. 949)*

20. (c) Electroencephalography (EEG) is not a routine test, but can be potentially useful in cases of suspected seizure disorders such as Landau-Kleffner syndrome (manifesting as declination of language skills). Neuroimaging studies are not considered as routine laboratory tests, but at times can be useful to rule out an alternative etiology of psychosis (such as tumors, hemorrhage, and other brain lesions, etc.). Blood levels of certain psychotropic medications may be useful, and toxicological analysis of urine is a common routine admission test. *(Ref. 3, p. 873)*

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SPECIAL TOPICS (CONSULTATION, FORENSICS, AND PUBLIC HEALTH)

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QUESTIONS

Directions: Select the best response for each of the questions 1–28.

1. All of the following are areas of focus for a school consultant working in a systems consultation model *except:*

a. Addressing individual students' needs
b. Creating a positive school environment
c. Developing and coordinating mental health programs
d. Improving attendance
e. Valuing diversity in the school

2. During the past 50–60 years mental health consultation services to schools have undergone five major periods of significant changes triggered by major sociocultural movements. All of the following accurately describe such periods *except:*

a. Since World War II it is believed that schools are appropriate community-based sites to deliver mental health services.
b. Educational rights legislation prohibiting discrimination against students with mental disabilities resulted from the civil rights movement in the 1960s.
c. Reduction of risky behavior in youth between the 1960s and the 1980s decreased school involvement in providing mental health services.
d. The growth of the school-based general health clinic movement in the 1990s resulted in the recognition of the high prevalence of mental illnesses among the consumers of the clinics and led to the subsequent increased need for mental health services.
e. Most recently there has been a call for parallel accountability in both academics and social-emotional domains of education.

3. All of the following are the characteristics of mental health services delivered in school settings compared to those provided in conventional settings *except:*

a. Enhancement of access
b. Reduction of stigma
c. Reduction of generalization and maintenance of treatment effects
d. Increased clinical productivity
e. More ecologically grounded roles played by mental health clinicians

4. All of the following are key components to promote a positive school climate *except:*

a. Parent and community participation
b. Respectful peer and adult relations
c. Diversified learning experiences
d. Moderate expectations for achievement and academic success
e. Participation in extracurricular activities

5. The sense of school connectedness is associated with a perceived positive school climate. School connectedness can predict which of the following positive health outcome(s)?

a. Better sense of emotional well-being
b. Less involvement with illicit substances
c. Reduction in suicidal ideation
d. Reduction in teen pregnancy
e. All of the above

6. Based on Section 504 of the Rehabilitation Act of 1973, schools need to develop a 504 plan to provide appropriate accommodations to students with physical or mental impairments. The behavioral intervention plan (BIP) should be written in the 504 plan for those students with disruptive behaviors, and it is derived from a functional behavioral assessment. All of the following are the key components of the functional behavioral assessment *except:*

a. Define behavior (such as aggression)
b. Describe behavior (e.g., Tommy hits the peer who sits next to him, especially when the teacher is not watching)
c. Describe antecedents (when bored, when provoked, and when unsupervised)
d. Describe consequences (getting attention, suspension, being picked up by mother and going home early)
e. None of the above

7. Which of the following processes or procedures is designed to clarify whether a behavior resulting in school suspension is related to the child's disability?

a. Functional behavioral assessment
b. Behavioral intervention plan (BIP)
c. Manifestation determination review (MRD)
d. 504 plan
e. IEP annual review

8. A student with a disability cannot be expelled or transferred to a temporary alternative placement unless which of the following(s) is (are) present?

a. If the student carries a weapon to school or a school function
b. If the student possesses, uses, or sells illegal drugs or controlled substances at school or a school function
c. If continuation of the student's current placement will likely lead to injury to the child or others
d. If the student commits a violation of school policies, which acts would cause other students without disabilities the same disciplinary measures
e. All of the above

9. Under the Individuals With Disabilities Education Act (IDEA) a student is eligible for special education services as long as

the student meets the criteria for one or more categories of disability. A student diagnosed with ADHD should be categorized into which of the following?

a. Emotional disturbance
b. Intellectual disabilities
c. Multiple disabilities
d. Other health impairment
e. Specific learning disability

10. Because of the shortage of child psychiatrists, primary care physicians (PCPs), pediatricians, or family physicians are required to provide mental health services in their offices. All of the following are needed for them to feel comfortable to treat mental health problems in primary care settings *except:*

a. Ability to recognize signs and symptoms
b. Ability to perform psychiatric assessment
c. Appropriately prescribe psychotropic medications
d. Complete post-residency formal psychiatric training
e. Knowledge of when and how to refer for psychotherapy and other treatment options

11. All of the following are core principles of collaborative care in the primary care setting *except:*

a. Employ the clinic's own mental health professionals (e.g., psychiatrists) to provide direct mental health services
b. Establish clear and regular communication with emergency rooms, psychiatrists, and psychologists, ideally via electronic medical records
c. Establish the availability of mental health professionals in the clinic to provide triage, crisis assessment, and patient/family education
d. Establish screening protocols, mechanisms, and assessment/intervention pathways in order to provide standard care
e. Encourage continuing education via lectures, case discussion, etc., to bring connections among psychiatrists, psychologists, other mental professionals, and the PCPs

12. The level of collaborative care is determined by the acuity of the mental disorders. A child with depression does not respond to SSRIs along with CBT provided by an individual therapist. The PCP refers him to a child and adolescent psychiatrist for an emergency consultation, but then participates in the ongoing care of the patient with other providers. Under which of the following levels of collaborative care is this categorized?

a. Primarily primary care
b. Primarily primary care with consultation
c. Shared care
d. Shared care and higher levels of care
e. Primarily mental health care

13. All of the following screening tools can be used in the primary care clinic for children ages 0–4 years *except:*

a. Ages and Stages Questionnaire (ASQ)
b. Ages and Stages Questionnaire Socio-Emotional (ASQ-SE)
c. Pediatric Screening Checklists (PSC)
d. Strength and Difficulty Questionnaire (SDQ)
e. None of the above

14. Studies have found that which of the following aged youth and younger have significantly less understanding and appreciation of the significance of the Miranda warning?

a. 8 years
b. 10 years
c. 15 years
d. 17 years
e. 18 years

15. Younger children acquire less knowledge about the legal system. During the arrest and interrogation process all of the following accurately describe the differences in younger children compared to older youth and adults *except:*

a. They are more suggestible.
b. They are more likely to confess.
c. They have less capacity to understand the nature of the charges and the potential consequences.
d. They are more likely to cooperate with counsel.
e. They are less capable of understanding the nature and process of the proceeding.

16. Execution of juveniles was legally permissible in the United States until which of the following Supreme Court rulings?

a. In *Roper v. Simmons*
b. In *Kent v. United States*
c. In *Santosky v. Krammer*
d. In *re Gault*
e. In *Rennie v. Klein*

17. Which of the following conditions is the *most* prevalent among juvenile detainees?

a. Disruptive disorders
b. Anxiety disorders
c. Substance abuse
d. Major depressive disorder
e. PTSD

18. A consultation child psychiatrist working in a children's hospital is asked to see a child with an acute medical illness and the child says his illness is caused by his bad behavior. Which one of the following cognitive developmental stages according to Piaget's theory is the child in?

a. Sensory motor stage
b. Preoperational stage
c. Concrete operational stage
d. Formal operational stage
e. None of the above

19. Children who have received certain central nervous system (CNS) cancer treatments are at risk for cognitive impairment,

including learning problems. Which of the following(s) is (are) common area(s) that can be affected by such medical treatments?

a. Attention and concentration
b. Handwriting
c. Math
d. Memory
e. All of the above

20. All of the following statements regarding organ transplantation are accurate *except:*

a. Current use of tobacco is considered an absolute contraindication to lung transplantation.
b. Alcohol use by a liver transplant adolescent patient is extremely dangerous.
c. Liver failure can be insidious and unpredictable.
d. Most transplant services view occasional experimentation with alcohol by adolescents as an absolute contraindication for future liver transplant.
e. Adolescents with end-organ failure other than liver failure are at risk of use or abuse of alcohol or other drugs.

21. Which of the following is the *least* common cause of seizure?

a. Hyperthermia
b. Hyperglycemia
c. Head trauma
d. Meningitis
e. Tuberous sclerosis

22. A child presents with staring spells and multiple brief episodes of behavioral arrests. Which type of seizure does the child *most* likely have?

a. Absence seizure (petit mal)
b. Frontal lobe epilepsy
c. Juvenile myoclonic epilepsy (JME)
d. Parietal/occipital lobe epilepsy
e. Rolandic epilepsy

23. During a court proceeding, the party who calls a witness to testify first questions the witness. Which of the following legal terms *best* fits this description?

a. Cross-examination
b. Direct examination
c. Expert witness
d. Fact witness
e. Redirect examination

24. Which of the following legal terms explains the process that a court uses to determine or verify a child psychiatrist's credentials, training, and experiences?

a. Expert witness
b. Fact witness
c. Subpoena
d. Subpoena duces tecum
e. Voir dire

25. All of the following statements regarding a child psychiatrist participating in a testimony as a fact witness are accurate *except:*

a. The child psychiatrist cannot bill the patient/family or an insurance company for the time spent for the testimony.
b. All the responses have to be verbal because the testimony is recorded or transcribed.
c. Only factual information should be given, and speculations or personal opinions should be avoided.
d. The child psychiatrist has to answer each question asked.
e. When objection is made the child psychiatrist should not answer the questions or should stop speaking in the middle of the answering.

26. All of the following statements regarding court-ordered evaluations or expert witness testimony are accurate *except:*

a. A child psychiatrist should not serve as both therapy and expert witness for any of his or her clients.
b. It is important to clarify the specific requests for the expert testimony from the start.
c. A child psychiatrist should not feel pressured into taking cases when inadequate time is given to complete a thorough evaluation.
d. The expert should seek contingent reimbursement based on the outcome of the trial.
e. The expert may be requested to present his or her updated curriculum vitae.

27. All of the following statements regarding impacts on youth from families with separated or divorced parents are accurate *except:*

a. Divorce increases overall risk for adjustment problems in youth.
b. Preschoolers are more likely to present with regression, intense anxiety, and fear.
c. Middle school-aged children are more likely to experience loneness and a sense of powerlessness.
d. Adolescents are more likely to experience acute depression and concern about their own future relationships.
e. Girls are more vulnerable than boys in both short-term and long-term consequences.

28. To substantiate malpractice, the plaintiff must establish all of the following points (known as 4Ds) by a preponderance of the evidence *except:*

a. Duty of reasonable care
b. Deception in treatment
c. Dereliction of duty
d. Damage, a compensable injury, or harm
e. Direct result

Matching

29–40. Match the following titles of school personnel to each description that correctly defines their roles:

a. In charge of fiscal responsibilities of the schools
b. Managing and coordinating activities in all schools within a school district
c. Managing all services within a school building
d. Facilitating skills of daily living and dealing with sensory integration issues
e. Addressing communication and social problems
f. Maintaining students' health records and addressing acute health needs
g. Helping students with college and vocational planning
h. Participating in special education assessments and implementation planning and addressing social problems in social skills groups
i. Assessing students for special education eligibility and developing individual education plans (IEP)
j. Assisting classroom teachers and/or individual students
k. Having received training and being credentialed to provide alternative instruction to students with disabilities
l. Having the most extensive involvement with students and providing direct instructions to students

29. Schoolteachers
30. Special education teachers
31. Teacher aides
32. School psychologists
33. School social workers
34. Guidance counselors
35. School nurses
36. Speech therapists
37. Occupational therapists
38. School principals
39. Superintendents
40. School boards

ANSWERS AND EXPLANATIONS

1. **(a)** Addressing individual students' needs is not a focus of a systems consultation model, but is the focus of a case consultation model. Using the principles of organizational psychology, the systems consultation model may also focus on building school connectedness among students and parents, enhancing teacher and staff morale, and planning for crisis situations. *(Ref. 1, p. 958)*
2. **(c)** Increased risky behavior in youth between the 1960s and 1980s due to the dramatic changes in social mores led to increased school involvement in providing preventative mental health services in schools. *(Ref. 1, pp. 957–958)*
3. **(c)** Enhanced generalization and maintenance of treatment effects is one of the advantages of mental health services being delivered in school settings among the others listed. *(Ref. 1, pp. 958–959)*
4. **(d)** High expectations for academic achievement and self-regulation is one of the key components that can promote a positive school climate among others. In addition to those listed: fair/effective discipline and welcoming/supportive atmosphere are also such key components. (*Ref. 1, p. 959)*
5. **(e)** School connectedness can predict many positive health outcomes that include (besides those listed) less likely to engage in aggression or being victimized; better overall health; and reduction of depression and deviant behaviors. *(Ref. 1, p. 959)*
6. **(e)** All of the listed are the key components of a functional behavioral assessment. There are two additional key components: to hypothesize function of the identified behavior (attention seeking, anger expression, releasing impulsivity, and an incentive of going home early) and to gather related information (poor academic performance, limited social skills, and dysfunctional family dynamics). *(Ref. 1, p. 964)*
7. **(c)** Manifestation determination review (MRD) should be conducted if the number of consecutive days of suspensions exceeds 10 days in a given school year to determine whether the behavior associated with the suspensions is secondary to the child's disability. If yes, the child cannot be suspended for more than 10 days, and then the IEP and IBP should be reviewed and revised to address this specific behavior problem. If no, the child can be suspended as other students are. However, parents who do not agree with the MRD can appeal. *(Ref. 1, pp. 963–964)*
8. **(e)** Any of the listed situations can trigger the student with disabilities being expelled or transferred to a temporary placement. Another such situation is if the student has inflicted serious bodily injury on another person while at school or at a school function. *(Ref. 1, p. 964)*
9. **(d)** Other health impairment captures both ADHD and sensory processing difficulties. In addition to those listed, other categories include: autism, deaf-blindness, deaf, hearing impairment, orthopedic impairment, speech-language impairment, traumatic brain injury, and visual impairment. *(Ref. 1, p. 965)*
10. **(d)** Completion of post-residency formal psychiatric training is not required. However, PCPs should seek additional education that would improve their skill and confidence, and should also actively seek consultation from and work collaboratively with psychiatrists and other mental health professionals. PCPs are expected to be a part of a multidisciplinary team that provides an integrated approach to mental health care for children. The primary care clinic should be both a medical home and a mental health home for youth, where services involving a variety of mental health and medical specialties can be coordinated. *(Ref. 1, p. 978)*
11. **(a)** Most primary care clinics do not employ their own mental health professionals to provide direct mental health services. Instead, they establish local or regional connections with mental health professionals who can play roles as team members in the patient's care. *(Ref. 1, pp. 982–983)*
12. **(c)** In this case, it is considered "shared care." As acuity and severity of the cases increase the levels of care will increase on the continuum in the following sequence: primarily primary care, primarily primary care with consultation, shared care, shared care and higher levels of care, and primarily mental health care. *(Ref. 1, pp. 980–981)*
13. **(d)** The Strength and Difficulty Questionnaire (SDQ) is used for the 5–12 years age group, as well as PSC and the Vanderbilt Behavioral Evaluation Tool. The instruments listed in answers (a) through (c) can be used for younger children ages 0–4 years. For adolescents, PSC, the Patient Health Questionnaire-Adolescent Version (PHQ-A), and the Vanderbilt can be used. *(Ref. 1, p. 983)*
14. **(c)** Research has found that youth under the age of 15 years have significantly less understanding and appreciation of the significance of the Miranda warning. They have difficulty understanding an adversarial nature of the interrogation. They are more likely to waive their rights. *(Ref. 1, p. 988)*
15. **(d)** To cooperate with counsel children must be able to communicate effectively with their attorney and to able to evaluate the advice provided by the attorney. Younger children, in general, are less capable of doing that. *(Ref. 1, pp. 988–989)*
16. **(a)** The Supreme Court recognized the developmental differences between adults and adolescents being significant and made juvenile offenders ineligible for execution during the ruling in *Roper v. Simmons* in March 2005. *(Ref. 1, p. 989)*
17. **(c)** The *most* prevalent condition among juvenile detainees is substance abuse (51% for males and 47% for females), followed by disruptive disorders (ODD and CD), based on the Northwestern Juvenile Project (L.A. Teplin et al. 2002). The majority (93%) of the respondents reported at least one trauma, 11% of them met criteria for PTSD, 31% of respondents met criteria for an anxiety disorder, and 22% of females and 13% of males met criteria for major depressive disorder. *(Ref. 1, p. 990)*
18. **(c)** During the concrete operational stage, children's capacity for linking cause and effect increases. However, their thinking and reason are concrete and education should be provided to them to dispel their belief that they have brought about their own illness through their behaviors or thoughts. *(Ref. 3, pp. 913–914)*

19. **(e)** All listed are common areas of learning that can be affected by cancer treatment to the CNS. In addition, organizing or sequencing of tasks can be affected. *(Ref. 3, pp. 930–931)*

20. **(d)** Most transplant services do not view occasional experimentation with alcohol by adolescents as an absolute contraindication for a future liver transplant. In adults, a liver transplantation program requires at least six months to one year of sobriety before liver transplantation can be considered because alcohol or addictive drug use is usually a contraindication to liver transplant. Lecturing to youth about the serious negative consequence of alcohol use is less productive than having developmentally appropriate discussions with them about alcohol use. *(Ref. 3, pp. 941–942)*

21. **(b)** Hypoglycemia can induce seizure. Other common causes of seizure include: systemic infection-induced high fever, cerebral palsy, phenylketonuria, encephalitis, intracranial bleed, lesions, and neoplasm, electrolyte disturbance, carbon monoxide poisoning, lead toxicity, cocaine, certain medications, lupus, and multiple sclerosis. *(Ref. 3, p. 959)*

22. **(a)** Absence seizure (petit mal) often manifests as staring spells and multiple brief episodes of behavioral arrests in younger children. In older children, it may also present with myoclonic jerks along with staring spells. Absence seizure should be considered in the differential diagnosis of ADHD. Mouth twitching, drooling, and nocturnal predisposition are clinical features of Rolandic epilepsy. Temporal lobe epilepsy may present with gastric aura, automatisms, and tonic posturing. Frontal lobe epilepsy manifests as hypermotor activity (e.g., repetitive motor activities) with a change in behavior. Parietal/occipital lobe epilepsy may induce somatosensory/visual phenomena. JME may present with brief myoclonic jerks, which can be repetitive and lead to generalized seizure. *(Ref. 3, p. 962)*

23. **(b)** Direct examination refers to the initial questioning of a witness by the party that called the witness to testify in a trial or other court proceeding to elicit evidence to support a claim or defense. Cross-examination refers to the questioning and interrogation of a witness called by the opponent's party to discredit the witness, which occurs after the direct examination. Redirect examination occurs after the cross-examination, which gives a chance for the witness to explain, but the scope is usually limited to the areas brought out on the cross-examination. *(Ref. 3, p. 1000)*

24. **(e)** Voir dire refers to the process of determining the qualification of a witness and questioning of prospective jurors to determine whether they are biased or not. Functioning either as an expert witness or a fact witness, a child psychiatrist can be questioned about his or her credentials, training, and experiences during a court procedure. In this case, the process is also called Voir dire. *(Ref. 3, pp. 1000–1001)*

25. **(d)** The child psychiatrist does not have to answer each question asked. The psychiatrist should let the attorney or judge know if a question is posed in a way that it cannot be answered or is misleading. The psychiatrist should be allowed to ask for repeating or rephrasing the questions or inform the court that he or she simply does not know the answer. *(Ref. 3, pp. 1001–1002)*

26. **(d)** It is unethical for a child psychiatrist/expert witness to negotiate a contingency fee based on the potential outcome or settlement of a trial because this could potentially undermine the objective position expressed by the witness. *(Ref. 3, pp. 1002–1004)*

27. **(e)** Some studies show that boys are more vulnerable than girls in both short-term and long-term consequences. However, the data on the effects of gender differences regarding the outcomes of divorce is not very clear. The most important predictors of a child's adjustment to divorce are inter-parental conflicts, psychological health of the parents, and the quality of the parent-child relationships. *(Ref. 3, pp. 1006–1007)*

28. **(b)** Deception of treatment is not one of the 4Ds. To substantiate a malpractice case, the plaintiff has to establish that the clinician had a Duty of reasonable care to the patient; presence of a Dereliction of that duty that was judged by the standard of the average, prudent practitioner; Damage (a compensable injury or harm) was sustained by the patient; and the damage was a Direct result of the clinician's failure to exercise a reasonable standard of care. *(Ref. 3, p. 1018)*

Matching

29. **(l); 30. (k); 31. (j); 32. (i); 33. (h); 34. (g); 35. (f); 36. (e); 37. (d); 38. (c); 39. (b); 40. (a)** School teachers are involved with students most extensively, providing instruction many hours a day to a relatively large group of students. Special education teachers are specially trained and credentialed to provide alternative instruction to smaller group of students with disabilities. Requiring no advanced education or training, teacher aides assist teachers and/or individual students in the classroom. The primary role of school psychologists is to assess students for special education eligibility and develop the IEP. They play a role in consulting with teachers regarding classroom management strategies and providing individual and/or group therapy to students. School social workers are a part of special education assessments and program planning, and may also provide limited therapies to students and their families. Guidance counselors primarily assist students in college preparation and vocational planning, and also occasionally provide therapy to students. School nurses are responsible for addressing acute health needs of students and maintaining their health records. Speech therapists are responsible for assessing and addressing speech, language, and communication difficulties as well as social problems. Occupational therapists help with daily living skills training and address sensory integration problems. School principals are fully responsible for managing all services within their schools. Superintendents manage and coordinate activities in all schools within the same school district. School boards are in charge of fiscal responsibilities and exert tremendous influence over the allocation of funds and resources for external consultants and programs. School administrators report to a school board, and may have competing agendas with special education administrators (who are responsible for determining the special education needs of students) because of the concerns about finding resources to meet special education needs. *(Ref. 1, p. 960)*

16

RESEARCH DESIGN, STATISTICS, AND TECHNOLOGIES

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QUESTIONS

Directions: Select the best response for each of the questions 1–25.

1. All of the following statements regarding reliability and validity are accurate *except:*

a. The validity of an instrument refers to the extent to which it measures what it was intended to measure.
b. Reliability refers to the extent to which results obtained with an instrument can be reproduced.
c. Validity ensures reliability.
d. Test-retest reliability is a strenuous test of interrater reliability.
e. Validity includes predictive validity, factorial validity, and construct validity.

2. Randomized experimental research designs are usually preferred over quasi-experimental designs because they:

a. Are easier to execute
b. Eliminate bias
c. Are less expensive to carry out
d. Have one active independent variable
e. Require little training to perform

3. Variable refers to a characteristic of the participants or situations that has different values in the study. The predictors, antecedents, or presumed causes under investigation in the study should be considered as which of the following variables?

a. Dependent variable
b. Demographic variable
c. Extraneous variable
d. Independent variable
e. Operational variable

4. On a normal curve measuring the IQs of a large group of youth, how many of them will fall within the one standard deviation range from either side of the mean?

a. 68%
b. 78%
c. 88%
d. 95%
e. 99%

5. All of the following are broad types of evidence that support validity *except:*

a. Content
b. Responses
c. External structure
d. Relations to other variables
e. The consequence of testing

6. Effect size can be measured by the strength of the relationship in applied behavioral sciences, using the r value. Which of the following r values implies an acceptable level of support?

a. $r \geq 0.1$
b. $r \geq 0.2$
c. $r \geq 0.3$
d. $r \geq 0.5$
e. $r \geq 0.8$

7. In the *ex post facto* research method there are usually a few levels or categories for the independent variable, and between-group comparisons are made. Which of the research approaches does this method belong to?

a. Associational research approach
b. Comparative research approach
c. Description research approach
d. Quasi-experimental research approach
e. Randomized experimental research approach

8. Which of the following statements regarding associational research designs and data analysis is *incorrect?*

a. They are designed to examine the relationship between two continuous variables.
b. Variables are both independent and dependent.
c. Coefficient r expresses the Pearson product moment correlation.
d. A strong positive relationship is found if $r > 0.5$.
e. The r can be expressed with degrees of freedom and significance level.

9. Which of the following is used to measure statistical significance?

a. The *p* value
b. The *r* value
c. The κ value
d. The *d* score
e. The x^2 value

10. All of the following statements regarding logistic regression analysis and discriminant analysis are correct *except:*

a. Logistic regression requires fewer assumptions than discriminant analysis, and performs better.
b. Logistic regression estimates the probability an event will occur.
c. The coefficient is expressed as an odds score in logistic regression.
d. An odds ratio (the ratio of two odds, OR) is essential to logistic regression.
e. OR = 0 means random association.

11. Which of the following neuroimaging techniques is *best* suited to study developmental brain abnormalities in children?

a. Computed tomography (CT)
b. Magnetic resonance imaging (MRI)
c. Positron emission tomography (PET)
d. Magnetoencephalography (MEG)
e. Single-photon emission computed tomography (SPECT)

12. Magnetic resonance spectroscopy (MRS) can be used to measure all of the following *except:*

a. Energy metabolism
b. Amino acids
c. Cell membrane stability
d. Cerebral blood flow
e. Neurotransmitters

13. All of the following statements regarding SPECT are accurate *except:*

a. It is capable of monitoring brain activity.
b. It provides clear spatial resolution of white matter changes.
c. It is capable of measuring neurotransmitter activity.
d. It is relatively inexpensive compared to PET.
e. Radiation exposure is a potential limitation.

14. Which of the following statements regarding the type II error is correct?

a. Null hypothesis is not rejected when it is true.
b. Null hypothesis is rejected when it is false.
c. Null hypothesis is not rejected when it is false.
d. Null hypothesis is rejected when it is true.
e. The alternative hypothesis is rejected when it is false.

15. Which of the following statements regarding sensitivity and specificity is *incorrect?*

a. Sensitivity is the percentage of negative results among individuals who do not have the disease for which they are being tested.
b. Sensitivity is important when trying to identify as many cases as possible.
c. Sensitivity is the percentage of positive results among individuals who have the disease for which they are being tested.
d. Specificity is the percentage of negative test results in patients who actually do not have the disease.
e. Specificity is important in trying to include only true cases.

16. All of the following statements regarding functional magnetic resonance imaging (fMRI) are accurate *except:*

a. It identifies brain activity while the subject performs a cognitive task.
b. The image intensity changes result from the variable oxygenation levels in the regions of interest.
c. Its spatial and temporal resolutions are superior to that of conventional PET and SPECT.
d. Its temporal resolution is superior to that of electroencephalography (EEG).
e. It is relatively safe in children.

17. All of the following statements regarding diffusion tensor imaging (DTI) are correct *except:*

a. It is an application of MRI technology.
b. It has a unique strength in providing information about the orientation and integrity of gray matter tracts.
c. It is based on T1 and T2 relaxation times to produce the images.
d. Initially it was used to diagnose stroke.
e. There are potential uses for studying brain connectivity.

18. All of the following are essential elements of information that should be transmitted to research subjects during the informed consent process *except:*

a. Purpose and duration of the research
b. Foreseeable risks and benefits
c. Confidentiality of records
d. Contact information in case of questions
e. Specifying loss of benefits because of refusal to participate

19. Which of the following is *most* essential to be obtained from child subjects before they participate in clinical research?

a. Assent
b. Permission
c. Consent
d. Authorization
e. Acceptance

20. Which of the following EEG waves represents a deeper stage of sleep?

a. Alpha
b. Beta
c. Delta
d. Gamma
e. Theta

21. Intoxication or withdrawal from which of the following substances appears to have the *least* effect on EEG?

a. Alcohol
b. Caffeine
c. LSD
d. Marijuana
e. Tobacco

22. Which of the following statements regarding magnetoencephalography (MEG) is *most* accurate?

a. It detects signals representing a direct index of neuronal activity.
b. It is relatively simple and inexpensive.

c. The clinical yield in child psychiatry has been impressive.
d. It has been widely utilized in studying adults.
e. It measures not only cerebral blood flow but also blood oxygenation.

23. Which of the following medications should be definitely avoided during electroconvulsive therapy (ECT)?

a. Aripiprazole
b. Haloperidol
c. Lithium
d. Nortriptyline
e. Venlafaxine

24. Which of the following tools or devices applies magnetic stimulation to the brain?

a. ECT
b. Implanted cortical stimulation
c. Transcranial direct current stimulation (tDCS)
d. Transcranial magnetic stimulation (TMS)
e. Vagus nerve stimulation

25. Which type of the following study designs can obtain data regarding incidence rates and incidence rate ratios?

a. Case-control study
b. Cohort study
c. Cross-sectional study
d. Ecological study
e. None of the above

ANSWERS AND EXPLANATIONS

1. **(c)** Validity does not guarantee reliability, just as reliability cannot ensure validity. Validity may include predictive validity, factorial validity, and construct validity, whereas reliability may include test-retest reliability and interrater reliability. Inter-item consistency is also used to estimate reliability. *(Ref. 3, pp. 107–108)*

2. **(b)** In contrast to the quasi experimental studies, subjects in randomized studies are assigned randomly to groups (experimental or control), with an advantage of eliminating bias. Single and double blinding further reduces the possibility of bias. This leads to more convincing evidence that the independent variable rather than the dependent or control variable caused the difference. Both and experimental designs require an active variable. *(G.A. Morgan, J.A. Gliner, and R.J. Harmon: Randomized Experimental Designs.* JAACAP, *39: 1062–1063, 2000)*

3. **(d)** The independent variable can be defined broadly including any predictors, antecedents, or presumed causes or influence under investigation in the study, which can be subtyped into: active independent variables (interventions or therapies that are prescribed to the experimental group, but not to the control group) and attributed to independent variables (gender, age, or ethnic group—cannot be manipulated). *(Ref. 3, p. 105)*

4. **(a)** If the variable is normally distributed, 68% of the youth who participate in the IQ testing will fall within one standard deviation from either side of the mean (100). Ninety-five percent of them will fall within two standard deviations, and 99% will fall within three standard deviations. One standard deviation equals 15. Thus, 68% of the youth will have an IQ between 85 and 115. Only 5% of them will have IQ either lower than 70 or higher than 130. *(Ref. 3, p. 106)*

5. **(c)** Internal structure (not external) is one of five broad types of evidence that can support the validity of a test or measure. They cannot be used alone, and the validation should integrate all the pertinent information gathered from these five types of evidence. *(Ref. 3, p. 108)*

6. **(c)** In applied behavioral sciences r ≥0.3 represents an acceptable level of support for measurement validation. An r ≥0.5 represents strong support, whereas r ≥0.1 represents weak support even if it is statistically significant. *(Ref. 3, p. 108)*

7. **(b)** The comparative research approach is also called causal-comparative or *ex post facto* (generally a nonexperimental approach). It compares independent variable differences between groups. Among all these approaches, the randomized experimental approach provides the best evidence about cause and effect. The descriptive approach is distinguishable from the other four approaches because only one variable is used and only descriptive statistics are provided, without determination of comparisons or associations. *(Ref. 3, pp. 108–109)*

8. **(b)** In associational research designs, the two variables are either independent or dependent. The Pearson product moment correlation is used to estimate the strength of association between the two variables and expresses as coefficient *r,* ranging from –1 to +1, with value > 0.5, indicating a strong positive association. *(J.A. Gliner, G.A. Morgan, and R.J. Harmon: Basic Associational Designs: Analysis and Interpretation.* JAACAP, *41: 1256–1258, 2002)*

9. **(a)** The *p* value represents the strength of the correlation between two variables, indicating the probability an outcome could occur if the null hypothesis were true. Statistical significance should not be interpreted as clinical significance or approval of the null hypothesis. The κ value represents the correlation coefficient of reliability. The x^2 represents the chi-square value. The *r* family, *d* family, and the measures of risk potency are proposed measures of sample size. *(H.C. Kraemer, et al: Measures of clinical significance.* JAACAP, *42:1524–1529, 2003)*

10. **(e)** An OR = 1 (not = 0) or odds = 0 indicates a random association. Discriminant analysis requires more assumptions than logistic regression analysis does to make an optimal prediction. The odds are used to express the probability an event will occur in logistic regression, and the odds ratio increases with an increase of a positive association and decreases with a negative association. *(G.A. Morgan, J.J. Vaske, J.A. Gliner, and R.J. Harmon: Logistic Regression and Discriminant Analysis: Use and Interpretation.* JAACAP, *42: 994–997, 2003)*

11. **(b)** Both MRI and MEG are ideally suited to study structural, physiologic, and developmental brain abnormalities in children and to perform repeated measures because they involve no ionizing radiation or radioactive isotopes and have been shown to have an absence of biologic hazards at currently used field strengths. However, MRI is more extensively developed and studied than MEG is. The use of CT exposes the child to x-rays, and PET exposes the child to radiation. Although SPECT provides for functional neuroimaging, it involves small amounts of radioisotopes. *(Ref. 3, pp. 216–228)*

12. **(d)** The MRS technique has been used to measure amino acids, neurotransmitters, metabolites related to energy production, and metabolism of lipids and carbohydrates. It has not been used to measure cerebral blood flow that can be measured by fMRI. *(Ref. 3, pp. 221–223, 225–227)*

13. **(b)** The SPECT technique provides a three-dimensional image of brain function. It measures cerebral blood flow and metabolic activity with minimal radiation exposure. Using long-lived isotopes, SPECT is cheaper than PET. The major disadvantages are the limited clinical experience with it and its inferior spatial resolution compared to that of PET. *(Ref. 3, pp. 217–219)*

14. **(c)** A type II error refers to incorrectly deciding no difference exists when there really is a difference (the null hypothesis is not rejected when is false). A type I error refers to deciding a difference exists when there is really no difference (null hypothesis is rejected when it is true). *(J.A. Gliner, G.A. Morgan, and R.J. Harmon: Instruction to Inferential Statistics and Hypothesis Testing.* JAACAP, *39: 1568–1570, 2000)*

15. **(a)** Sensitivity is the proportion of true cases that the test selects. Specificity is the proportion of subjects who do not have the disease in the group that the test identifies as negative. *(Ref. 1, p. 82)*

16. **(d)** Compared to fMRI, EEG has a much better temporal resolution than fMRI. However, fMRI has better resolution than PET and SPECT. fMRI can test subjects undertaking cognitive tasks by identifying changes in oxygenation levels of identified regions of interest. *(Ref. 3, pp. 221–223)*

17. **(b)** DTI specifically focuses on the white matter and evaluates the orientation and integrity of the white matter tracts. DTI images are based on T1 and T2 relaxation times, providing information regarding neuronal connectivity. Clinically, it was first used to diagnose stroke, and then to show the white matter loss in multiple sclerosis, schizophrenia, dyslexia, and preterm birth. *(Ref. 3, pp. 223–225; Ref. 5, pp. 258–260)*

18. **(e)** According to federal regulations, certain key elements of information must be transmitted to the research subjects during the informed consent process. Participation is on a voluntary basis, and no loss of benefits should result from refusal to participate in research. *(Ref. 3, pp. 141–142)*

19. **(a)** "Assent" is the term that describes children's agreement to participate in a research project. Informed consent is usually given by parents or legal guardians who have ultimate rights to authorize or refuse participation. Permission refers to the collective decision and judgment of the family in deciding to allow the child to participate. *(Ref. 3, p. 144)*

20. **(c)** Delta waves are not seen in individuals who are awake. The frequency is ≤ 3.5 Hz, and it represents a deeper stage of sleep. Alpha activity is seen in awake individuals with their eyes closed, and the high rhythmic waves have a frequency between 8–13 Hz. Faster than alpha waves, beta waves (>13 Hz) are commonly seen in normal adult awake EEGs, especially over frontal regions. Gamma waves have very high frequency (>30 Hz) and reflect the mechanism of cortical integration, and are also being investigated in neurobehavioral disorders. Theta waves, with a frequency of 4.0 Hz to 7.5 Hz, are present in small amounts, in a sporadic, arrhythmic, and isolated fashion in normal awake EEGs. However, excessive theta waves may indicate a focal pathological process. *(Ref. 5, p. 222)*

21. **(c)** Hallucinogens such as LSD and mescaline do not appear to have any major effects on the visualized EEG and do not produce any clinically relevant EEG changes. However, use of or withdrawal from all other listed substances, including others (e.g., barbiturates, cocaine, and inhalants), may produce significant noticeable changes in the EEG. *(Ref. 5, pp. 226–227)*

22. **(a)** Magnetoencephalography (MEG) is a technique combining both magnetic field and EEG techniques, detecting signals that represent direct index of neuronal activities. In contrast, most other neuroimaging methods (for example, fMRI) detect indirect indices of neuronal activities by measuring cerebral blood flow and oxygenation. *(Ref. 3, p. 229; Ref. 5, pp. 439–440)*

23. **(c)** The combination of lithium and ECT can cause prolonged and/or focal seizures, and can also lead to confusion and serotonin syndrome. Haloperidol and fluphenazine have little effect on seizures induced by ECT, but reserpine should not be combined with ECT. Second-generation antipsychotics are generally considered safe combined with ECT. Antidepressants (except for MAOIs) are commonly used along with ECT. TCAs seem to be safe in patients without significant cardiac comorbidities. Both venlafaxine and nortiptyline are found to increase the response to ECT. *(Ref. 5, pp. 3297–3298)*

24. **(d)** Among all the listed devices or tools only transcranial magnetic stimulation (TMS) applies a rapidly changing magnetic field to the superficial layers of the cerebral cortex, and induces small electric currents locally. Normally, it does not induce a seizure, in contrast to ECT. Repetitive transcranial magnetic stimulation (rTMS) may induce a seizure, and that is one of the potential severe side effects of the treatment. All other listed devices or tools use electrical currents. *(Ref. 5, pp. 3306–3315)*

25. **(b)** The cohort study uses a longitudinal prospective or retrospective design to collect data to compare the group that was or will be exposed to a particular agent(s) or risk factor(s) to the group without such an exposure(s). The incidence rates and incidence rate ratios can be calculated. The cohort study is also called an incidence study. *(Ref. 3, pp. 152–153)*

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PART II

CLINICAL CASES

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17

CASE HISTORIES, CLINICAL ASSESSMENT, DIFFERENTIAL DIAGNOSIS, FORMULATION, AND TREATMENT PLANNING

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QUESTIONS

Case 1

Sam, a 4.5-year-old boy, is brought in by his mother to see a child psychiatrist with concerns about Sam's social difficulties at day-care, where Sam has limited social interactions with other children and only seems to play by himself or to parallel play with other children. His mother reports that Sam does not like to interact with his 6-year-old sister at home; often he lines up his toys and stares at the ceiling fan. He gets frustrated easily, which often can lead to body rocking, hand flapping, and at times temper tantrums. His mother reports her first son (current age 14 years) was previously diagnosed with autism spectrum disorder at age 4.

Questions 1–12. Based on the information given in Case 1, answer the following questions.

1. Which of the following differential diagnoses should *not* be considered?

a. Autism spectrum disorder
b. Communication disorder
c. Intellectual disability
d. Stereotypic movement disorder
e. None of the above

2. Which of the following is the *most* likely diagnosis based on the case description?

a. Autism spectrum disorder
b. Communication disorder
c. Intellectual disability
d. Stereotypic movement disorder
e. Other specified neurodevelopmental disorder

3. Which of the following areas of deficits does *not* need to be present for a formal diagnosis of autism spectrum disorder?

a. Deficits in social-emotional reciprocity
b. Deficits in nonverbal communication during social interaction
c. Deficits in intellectual functioning
d. Deficits in developing, maintaining, and understanding relationships
e. Restricted, repetitive patterns of behavior, interests, or activities

4. Which of the following further evaluations or tests is *least* diagnostically and clinically relevant at this point?

a. Appropriate genetic testing and counseling
b. Brain MRI
c. Hearing test
d. Neurological consultation and evaluation
e. Speech and language evaluation

5. If a genetic test confirms that Sam has Fragile X syndrome and he also meets the full criteria for autism spectrum disorder, which of the following is the *best* way to document the diagnosis based on DSM-5?

a. Diagnose him with Fragile X syndrome
b. Diagnose him with pervasive developmental disorder, NOS (PDD NOS)
c. Diagnose him with autism spectrum disorder, associated with another neurodevelopmental, mental, or behavioral disorder
d. Diagnose him with autism spectrum disorder, associated with a known medical or genetic condition or environmental factor
e. Diagnose him with other specified neurodevelopmental disorder

6. If, during a neurological consultation and evaluation, Sam is found to have café-au-lait spots throughout his body, which of the following conditions does Sam *most* likely have?

a. Down syndrome
b. Fragile X syndrome
c. Landau-Kleffner syndrome
d. Neurofibromatosis
e. Tuberos sclerosis

7. Say your history reveals that Sam has a fairly normal early developmental history and he was able to speak normally prior to his age of 4 years and it was only after his fourth birthday that he gradually lost the language skills he previously acquired, leading to impaired social skills. In addition, his recent EEG indicates severe paroxysmal discharges over both hemispheres, which worsen during his non-REM sleep. Now, which of the following conditions does Sam *most* likely have?

a. Down syndrome
b. Fragile X syndrome
c. Landau-Kleffner syndrome
d. Neurofibromatosis
e. Tuberos sclerosis

8. After thorough assessments and evaluation procedures, Sam is confirmed to have a diagnosis of autism spectrum disorder. All of the following statements regarding assessing him for a possible intellectual disability (ID) are correct *except:*

a. Abilities in reasoning, problem solving, planning, and abstract thinking should be assessed.
b. Adaptive functioning should be assessed.
c. Onset of intellectual and adaptive deficits should be clarified.
d. Severity should be assessed and determined including mild, moderate, severe, and profound.
e. Level of severity depends primarily on IQ scores.

9. Sam is verbal, but he is not interested in carrying on reciprocal conversations with his peers. He presents with low frustration tolerance, irritability, and occasional aggression. He continues to experience high sensitivity to certain sounds and tags on his shirts. He is described by his mother as a picky eater. Which of the following interventions is *least* applicable to him?

a. Applied Behavior Analysis (ABA)
b. Floor time
c. Picture Exchange Communication System (PECS)
d. Sensory Integration Therapy
e. Social, Communication, Emotional Regulation, and Transactional Support Treatment (SCERTS)

10. Which of the following medications is FDA approved for treatment of his irritability?

a. Aripiprazole
b. Clozapine
c. Olanzapine
d. Quetiapine
e. Ziprasidone

11. Which of the following is the *least* important prognostic factor for Sam?

a. Cognitive ability
b. Functional play skills
c. Joint attention
d. Neuroimaging findings based on MRI
e. Severity of the autistic symptoms

12. Sam's mother brings him back to see the child psychiatrist when he is 6 years old. His mother reports that Sam's teacher has complained that he has not been able to sit still or focus on his schoolwork. He is extremely distracted. He clearly presents with significant symptoms that are consistent with an ADHD, combined presentation. His ADHD symptoms seem to exceed what is typically seen in individuals of comparable mental age. He also continues to demonstrate a spectrum of symptoms of autism spectrum disorder. Which of the following diagnosis/diagnoses should be given to Sam at this time?

a. ADHD, combined presentation
b. Autism spectrum disorder
c. ADHD, combined presentation + autism spectrum disorder
d. Other specified ADHD + autism spectrum disorder
e. Unspecified ADHD + autism spectrum disorder

Case 2

Eric is a 7-year-old African American male. He is brought by his foster mother (FM) to your office for evaluation of his behavioral problems both at home and at school. Reportedly, his schoolteacher has noticed that he has been having difficulties with academic performance, getting along with his classmates, and concentrating on his schoolwork. He is reportedly very hyperactive, distracted, unable to follow through with instructions, and very disruptive in class. He is noted to have trouble relating to his peers, and often plays by himself during recess. He was reportedly removed from his biological parents when he was 5 years old because of parental involvement with illegal substances, neglect, and physical abuse.

Questions 13–26. Based on the information given in Case 2, answer the following questions.

13. Which of the following conditions can be excluded from the differential diagnoses?

a. ADHD
b. Anxiety disorder
c. Autism spectrum disorder
d. Major depressive disorder
e. None of the above

14. During the interview, FM tells you that the information she gathered from the child protective service agency social worker indicates Eric has a fairly normal developmental history. He is a relatively physically healthy child. He is affectionate, caring, very social, and always wants to be the center of attention. He has very good language skills, and he enjoys playing soccer with similar-aged neighbor boys. Which of the following diagnoses is *least* likely?

a. ADHD
b. Autism spectrum disorder
c. Depression
d. PTSD
e. Specific learning disorder

15. Based on a psychoeducational assessment, over the past whole school year, Eric has had a pattern of mathematic difficulties, specifically in accurate math reasoning. In addition, he has had significant difficulties reading words accurately. Which of the following is the *most* appropriate way to describe his diagnosis?

a. Specific learning disorder with impairment in reading
b. Specific learning disorder with impairment in mathematics
c. Dyslexia, difficulties with word reading accuracy and math reasoning
d. Dyscalculia, difficulties with math reasoning and word reading accuracy
e. Either c or d.

16. Which of the following categories would he *most* likely be qualified in for special education?

a. Emotional disturbance (ED)
b. Hearing impairment
c. Intellectual disability (ID)
d. Other health impairment (OHI)
e. Specific learning disability (SLD)

17. Which of the following rating scales is *least* useful for assessing him for possible ADHD?

a. BASC-2
b. CBCL
c. Children's Global Assessment Scale (CGAS)
d. Conners'
e. Eyberg Child Behavior Inventory (ECBI) and Sutter-Eyberg Student Behavior Inventory-Revised (SESBI-R)

18. Both FM and Eric report that when he was 5.5 years old, within a few months after he was removed from his biological parents, while staying with his foster family, he often experienced recurrent and intrusive distressing memories of his past physical abuse by his father. He avoided activities, conversations, or places that aroused his recollection of the trauma. He also demonstrated a lot of anger outbursts that often led to physical aggression. FM reports that after receiving counseling and therapies for the past few years, Eric has not experienced any significant occurrence of these symptoms and he has developed good relationships with his current caregivers. Which of the following needs to be added for him to meet the full criteria of PTSD in the past based on DSM-5?

a. Diminished interest in activities, such as constriction of play
b. Dissociative reactions
c. Hypervigilance
d. Intense psychological physiological reactions to reminders of the trauma
e. Recurrent distressing dreams related to his past trauma

19. At age 6.5 years, Eric was seen by the psychiatrist who had diagnosed him with PTSD, and he prescribed sertraline. Which of the following would be the *least* concern regarding his taking the medication?

a. Risk of switching
b. Risk of increasing suicidal ideations or behaviors
c. Lack of empirical support for benefit
d. Risk of cardiovascular complications
e. Risk of activation/agitation

20. Which of the following interventions for Eric's PTSD symptoms has the *strongest* supporting published evidence?

a. Behavioral therapy
b. Cognitive behavior therapy (CBT)
c. Interpersonal psychotherapy (IPT)
d Psychodynamic psychotherapy
e. Trauma-focused cognitive behavior therapy (TF-CBT)

21. According to his birth history, Eric was exposed to alcohol during the entire pregnancy. He was previously diagnosed with fetal alcohol syndrome (FAS) and his head size is small. Which of the following is found to be associated with microcephaly?

a. Enhanced GABergic receptor
b. Inhibited GABergic receptor
c. Enhanced NMDA receptor
d. Inhibited NMDA receptor
e. None of the above

22. All the collateral information and clinical evaluation/observations support an ADHD diagnosis for Eric. As his current child psychiatrist you consider all of the following as being routinely needed while you consider treating him with stimulant medications *except:*

a. Gathering Eric's medical history
b. Gathering Eric's family history
c. Ensuring that Eric's physical examination indicates no significant medical conditions contraindicating stimulant medications
d. Screening EKG
e. All of the above

23. Which of the following compounds does lisdexamfetamine dimesylate (Vyvanse) release in a rate-limiting enzymatic hydrolysis process to become the active compound d-amphetamine?

a. Cysteine
b. Histidine
c. Lysine
d. Methionine
e. Tyrosine

24. Which of the following medications would you *least* likely consider as pharmacologic choices for his ADHD symptoms?

a. Aripiprazole
b. Atomoxetine
c. Intuniv
d. Kapvay
e. Methylphenidate

25. If one day Eric's teacher calls you and asks you the detailed information about his psychotropic medication treatment, which of the following is your *most* appropriate next step?

a. Sharing only names of the medication(s) with the teacher without providing more detailed information
b. Refusing to directly communicate with his teacher
c. Telling the teacher that you have to write her a formal letter rather than talking to her on the phone
d. Obtaining consent for releasing or sharing Eric's medical information first
e. Inviting his teacher to come to your office to discuss in person

26. Which of the following should *not* be an aspect of discussion in regards to the informed consent for Eric's psychotropic medication treatment?

a. The nature of the condition that requires the treatment

b. The nature, benefits, and goals of the proposed treatment
c. The risks, side effects, and negative consequence of the proposed treatment
d. Alternatives to the proposed treatment
e. The way to guarantee a success of the proposed treatment

Case 3

Lisa is a 13-year-old Caucasian girl who is brought to see child psychiatrist Dr. Lee. Lisa presents with weight loss of 19 pounds over an eight-month period from her previous weight of 95 pounds. Her height is 63 inches. Her mother reports that Lisa has been increasingly withdrawn, spending much of her time alone in her room. She has been skipping breakfast and eating little of her school lunch. Her mother describes her daughter as an otherwise perfect child. She is an A student, spends her time studying hard, plays flute, and devotes more than two hours a day to exercise. Her menarche occurred right before her thirteenth birthday, and she has been having irregular menstrual periods since her weight loss. She also has a recent history of engaging in episodic binge eating and self-induced vomiting.

Questions 27–38. Based on the information given in Case 3, answer the following questions.

27. Which of the following conditions is the *least* likely diagnosis for Lisa?
a. Anorexia nervosa (AN)
b. Avoidant/restrictive food intake disorder
c. Binge-eating disorder
d. Bulimia nervosa (BN)
e. None of the above

28. In Dr. Lee's office, Lisa reveals that she has significant concerns about being "too fat" and not "attractive." Her mother further reports that Lisa likes to measure her waist size many times a day, which often disappoints Lisa because of her perceived large waist size. Which of the following criteria *must* be present to formally diagnose Lisa with AN based on DSM-5?
a. Amenorrhea
b. Denial of having any problems
c. Galactorrhea
d. Intense fear of gaining weight
e. Using laxatives

29. Based on DSM-5, which of the following should be used to determine whether Lisa has a "significant low body weight" to qualify for the diagnosis of AN?
a. Less than minimal normal weight
b. BMI-for-age percentile < fifth percentile
c. BMI between 16 and 16.99
d. BMI between 15 and 15.99
e. BMI < 15

30. What is the *minimal* length of time that Lisa must have engaged in recurrent episodes of binge eating or purging behavior to meet criteria for AN, binge-eating/purging type?
a. One month
b. Three months
c. Six months
d. Nine months
e. Twelve months

31. During the course of Lisa's illness, she continues to lose weight (down to 73 pounds) over time while receiving outpatient psychotherapy. She is hospitalized on a pediatric unit with a plan that a longer hospitalization on a psychiatric unit may be needed. Lisa is *least* likely to show which of the following physical signs?
a. Bradycardia
b. Emaciation
c. Hypertension
d. Lanugo
e. Peripheral edema

32. Lisa is *least* likely to have which of the following laboratory findings in the hospital?
a. Elevated blood urea nitrogen level
b. Hypocholesterolemia
c. Leukopenia
d. Lymphocytosis
e. Osteoporosis

33. Lisa's mother asks Dr. Lee what the potential risk of mortality is for Lisa. Which of the following numbers reflecting the crude mortality rate for AN per decade should Dr. Lee use to inform her?
a. Approximately 1%
b. Approximately 2%
c. Approximately 5%
d. Approximately 10%
e. Approximately 15%

34. During the hospitalization on the pediatric unit, Lisa voices strong suicidal ideation, which results in her being transferred to a psychiatric unit because of safety concerns. Based on the epidemiologic data, what is the reported suicide rate in patients with AN?
a. 1/100,000 per year
b. 12/100,000 per year
c. 23/100,000 per year
d. 46/100,000 per year
e. 53/100,000 per year

35. Based on a recent study, "A Prospective Examination of Weight Gain in Hospitalized Adolescents With Anorexia Nervosa on a Recommended Refeeding Protocol" (A. K. Garber et al. 2012),

the patients' percent median body mass index (%MBMI) did not increase significantly until which day after initiation of the feeding protocol?

a. Three days
b. Six days
c. Eight days
d. Twelve days
e. Eighteen days

36. Based on a recent study, "A Prospective Examination of Weight Gain in Hospitalized Adolescents With Anorexia Nervosa on a Recommended Refeeding Protocol" (A. K. Garber et al. 2012), all of the following statements regarding the refeeding protocol used in the study are accurate *except:*

a. Three meals and three snacks are served at the bedside, starting around 1,200 calories and increasing 200 calories every other day.
b. High-energy liquid supplement drinks are used as substitutes if meals or snacks are refused.
c. Sitters are assigned to observe patients during all meals and snack times and for 45 minutes afterward.
d. Nasogastric tubes are used for noncompliant patients.
e. Vitamin and mineral supplements are used, but phosphate supplements are not routinely given.

37. Dr. Lee is called by the hospital treatment team, requesting recommendations for treating Lisa with psychotropic medications for her sleeping problems and anxiety around eating. Which of the following medications has case reports/open label trials data to support its potential usefulness for Lisa?

a. Aripiprazole
b. Clozapine
c. Olanzapine
d. Quetiapine
e. Ziprasidone

38. After some weight gain and being medically and psychiatrically stabilized, Lisa has no more suicidal ideation, and does not meet criteria for inpatient care anymore. She is subsequently discharged back to her home with her family. She is still overall underweight. Per Dr. Lee's recommendation, family-based treatment is initiated. Which of the following is a phase(s) of such treatment?

a. Restoration of Lisa's weight
b. Handing control over eating back to Lisa
c. Discussion of Lisa's developmental issues
d. b and c.
e. All of the above

Case 4

Sophia is a 16-year-old girl who identifies herself as bisexual. Her mother took Sophia to the emergency room (ER) after finding her daughter in the bathroom with cuts on her forearms. In the ER, Sophia was found to have multiple superficial lacerations on her left forearm with no need for suturing. Sophia reported to the ER doctor that her girlfriend broke up with her the day before, which made her very angry, and she stated "I just want to feel it" and denied any intent to die.

Questions 39–52. Based on the information given in Case 4, answer the following questions.

39. Which of the following is the *least* appropriate first step that the ER doctor should consider for Sophia?

a. Inquiring about previous suicidal ideations and suicide attempts
b. Inquiring about the intent of prior suicide acts
c. Assessing environmental and family factors
d. Asking the availability of transportation for her to go back home with her mother
e. Assessing accessibility of suicide methods

40. Which of the following would put Sophia at a lower suicide risk?

a. High impulse control
b. Low level of hopelessness and helplessness
c. Future-orientated mindset
d. Communicating openly about her thoughts of suicide
e. All of the above

41. In the ER, when interviewed by Dr. Smith (the ER doctor), Sophia revealed that her father has been sexually molesting her repetitively when she visits him on weekends. Sophia told Dr. Smith she never told this to anyone else. Reportedly, Sophia's parents divorced when she was 14 years old, and she lives with her mother primarily and visits her father on some weekends. The molestation consisted of genital fondling and has not involved penetration. Dr. Smith has a strong suspicion of child sexual abuse. Which of the following actions is *most* appropriate for Dr. Smith to be involved in next?

a. Filing a report to appropriate authorities immediately
b. Notifying Sophia's father that the suspected child abuse will be reported to authorities
c. Instructing the ER social worker to see Sophia and then to decide whether a formal report should be filed
d. Allowing Sophia to return home with her father before further evaluation or investigation
e. Continuing the ER risk assessment without notifying the authorities because penetration did not occur

42. According to the ER medical records, this was one of many ER visits Sophia had in the past year, which are usually due to self-injurious behaviors (such as cutting, overdosing on drugs, using shoelaces to suffocate herself, etc.). They were usually triggered by depression, child-parent relational conflicts, and breakups with different boyfriends or girlfriends after short-term intimate relationships. Her urine toxicological screen was positive for cannabis, which she admitted was her drug of choice. She also reported recurrent episodes of

drinking alcohol excessively and being extremely drunk to the point that she passed out. She further reported recurrent episodes of self-induced vomiting followed by binge-eating episodes. Sophia's mother reported that Sophia has been very moody, and at times her mood changed quickly from intense dysphoria, irritability, and anxiety to being intrusive, giggly, with milder euphoric within a few hours. She was reportedly impulsive and tended to act before thinking. She occasionally maintained sexual relationships with a few teenagers simultaneously. Which of the following personality disorders *most* fits Sophia's presentation and history?

a. Antisocial personality disorder
b. Avoidant personality disorder
c. Borderline personality disorder
d. Histrionic personality disorder
e. Narcissistic personality disorder

43. Even though Sophia is only 16 years old, her outpatient treating psychiatrist has considered borderline personality disorder as one of the working diagnoses. Based on follow-up studies, in 10 years, how likely is it that Sophia will still meet full criteria for borderline personality disorder (BPD)?

a. 10%
b. 30%
c. 50%
d. 70%
e. 90%

44. Based on epidemiologic studies, all of the following conditions are likely to occur at higher rates in the first-degree relatives of Sophia if her diagnosis of BPD is confirmed *except:*

a. Depression
b. Other mood disorders
c. Substance abuse
d. Schizophrenia spectrum disorder
e. None of the above

45. Based on structural neuroimaging studies, which of the following is the *least* likely finding from individuals with BPD?

a. Increased serotonergic neurotransmission in cortical inhibitory areas
b. Bilateral increased activation of the amygdala to affective stimuli
c. Increased left amygdala activation to facial emotional expression
d. Reduced amygdala size
e. Reduced hippocampal size

46. Among all of the following treatment modalities, based on empirical support, which one is *most* useful for not only addressing Sophia's problems related to her repeated suicidal ideation and self-injurious behaviors, but also for helping her depression, anxiety, and social/interpersonal functioning?

a. Dialectical-behavioral therapy (DBT)
b. Interpersonal psychotherapy
c. Mentalization-based treatment (MBT)
d. Brief psychodynamic psychotherapy
e. None of the above

47. Which of the following is the *least* appropriate antidepressant to be considered for Sophia?

a. Bupropion
b. Citalopram
c. Escitalopram
d. Sertraline
e. Venlafaxine

48. After thorough evaluation, Sophia was determined to meet the full criteria for major depressive disorder (MDD). Which of the following antidepressants is FDA approved for treating youth (under age 18 years) with MDD?

a. Bupropion
b. Citalopram
c. Escitalopram
d. Sertraline
e. Venlafaxine

49. During the course of her outpatient treatment (a few months after the discharge from the hospital ER), she suddenly developed symptoms that were consistent with a hypomanic episode when she had not been on any antidepressant and had been sober and clean for approximately two months. Which of the following is the *most* appropriate diagnosis that should be given to her at this time?

a. Bipolar I disorder
b. Bipolar II disorder
c. Cyclothymic disorder
d. Disruptive mood dysregulation disorder
e. Substance/medication-induced bipolar and related disorder

50. Given the new symptom manifestation by Sophia, which of the following medications should be avoided as a monotherapy agent?

a. Fluoxetine
b. Lamotrigine
c. Lithium
d. Seroquel
e. Ziprasidone

51. Sophia's outpatient psychiatrist learned that Sophia is a patient of Chinese ancestry. Before considering treating her with carbamazepine, which of the following specific tests should be completed before initiation of the medication?

a. TSH
b. Kidney functioning test
c. Urine analysis

d. Test for HLA-B*1502
e. CYP 2D6 polymorphism

52. The drug levels of which of the following medications is the *least* likely to be increased if administrated together with carbamazepine?
a. Aripiprazole
b. Lamotrigine
c. Lithium
d. Phenobarbital
e. Oral contraceptives

Case 5

Tommy, a 7-year-old boy with a history of ADHD, presented with intense eye blinking for the past three weeks. His mother brought him to see his child psychiatrist Dr. Jackson for an evaluation and additional intervention because the symptoms were not only noticeable to others, but also interfered with his school functioning. Reportedly, he could not maintain visual attention in the classroom, and peers started making fun of him. He had been on methylphenidate for the past six to seven months, which had been helpful for his ADHD symptoms. His mother recalled that Tommy has experienced recurrent eye blinking episodes since he was 5 years old, and the severity of the symptoms wax and wane. Reportedly, he was seen by a neurologist before he started taking methylphenidate and the tic symptoms were determined not to be attributable to the physiological effects of any substance or another medical condition.

Questions 53–65. Based on the information given in Case 5, answer the following questions.

53. Based on DSM-5 Tommy meets criteria for which of the following tic disorders?
a. Persistent (chronic) motor or vocal tic disorder, with motor tics only
b. Persistent (chronic) motor or vocal tic disorder, with vocal tics only
c. Provisional tic disorder
d. Tourette's disorder
e. Transient tic disorder

54. Dr. Jackson discontinued Tommy's methylphenidate (because of the concerns about a possible tic exacerbation effect from methylphenidate). Tommy was put on atomoxetine instead. For the next two to three weeks, his tics become shorter in duration. However, his eye blinking episodes are sometimes followed by shoulder shrugging (which was not seen in the past). Which of the following terms describes his tics accurately?
a. Complex motor tics
b. Complex vocal tics
c. Simple motor tics
d. Simple vocal tics
e. None of the above

55. Tommy's ADHD symptoms improved a few weeks after titration of atomoxetine to the therapeutic dose range. However, his tics seemed to have become worse. His eye blinking episodes lasted longer, which at times, occurred simultaneously with making a throat clearing noise and repeating his own words. Which of the following terms describes the phenomenon of repeating his own words?
a. Coprolalia
b. Copropraxia
c. Echolalia
d. Echopraxia
e. Palilalia

56. At this time, Tommy presented to Dr. Jackson's office again. Which of the following tic disorder diagnoses is *most* appropriate for Tommy?
a. Persistent (chronic) motor or vocal tic disorder, with motor tics only
b. Persistent (chronic) motor or vocal tic disorder, with vocal tics only
c. Provisional tic disorder
d. Tourette's disorder
e. Transient tic disorder

57. Besides ADHD symptoms, Tommy may experience symptoms of other comorbid psychiatric conditions related to his tic disorder. Dr. Jackson is *most* likely to find Tommy experiencing the symptoms associated with which of the following potential comorbid conditions?
a. Generalized anxiety disorder (GAD)
b. Major depressive disorder (MDD)
c. Obsessive-compulsive disorder (OCD)
d. Schizophrenia
e. None of the above

58. Tommy's Tourette's disorder appeared to be quite severe. He also developed some OCD-like symptoms. Tommy's mother asked Dr. Jackson about the genetic risks of Tourette's disorder in regards to her future grandchildren. Based on genetic studies, Dr. Jackson should tell Tommy's mother which of the following numbers *correctly* reflect the approximate chance that Tommy's children will have Tourette's disorder?
a. 2–5%
b. 5–10%
c. 10–15%
d. 15–25%
e. > 25%

59. Which of the following is the *most* important treatment aspect of Tommy's tic disorder that Dr. Jackson should consider during the initial treatment phase?
a. CBT
b. DBT
c. Educational interventions

d. Neurosurgical intervention
e. Pharmacological interventions

60. Dr. Jackson prescribed habit reversal training (HRT) to Tommy for his Tourette's disorder. Dr. Jackson explained to Tommy and his mother that HRT includes two main aspects: (1) awareness training; and (2) competing response practice. The goal of awareness training is to enhance Tommy's awareness of his own tics. Which of the following should *not* be a component of such training?

a. Response description
b. Response detection
c. Early warning procedure
d. Situational awareness training
e. None of the above

61. Tommy's mother asked Dr. Jackson about the course and prognosis of Tommy's tic disorder. Dr. Jackson should inform her of all of the following *except:*

a. Peak severity usually occurs in mid adolescence.
b. Tic symptoms may diminish in adulthood.
c. Tic symptoms may be persistently severe or even worse in adulthood.
d. The tic severity tends to wax and wane.
e. When children get older they are more likely to report premonitory urge.

62. During a follow-up visit with Dr. Jackson, Tommy's mother brought a Conners rating scale from Tommy's schoolteacher. The Conners rating showed significant hyperactivity and impulsivity, along with some residual inattention problems. Which of the following medications should Dr. Jackson consider based on the new information?

a. An amphetamine agent
b. Guanfacine
c. Desipramine
d. Methylphenidate
e. Venlafaxine

63. Adding a $\alpha 2$ agonist to atomoxetine that Dr. Jackson was continuously prescribing did help Tommy's ADHD symptoms, but not his tic symptoms, which became more severe and impairing to him. Dr. Jackson considered adding an antipsychotic. Which of the following medications is FDA approved for the treatment of Tourette's disorder in youth?

a. Aripiprazole
b. Haloperidol
c. Olanzapine
d. Quetiapine
e. Ziprasidone

64. Dr. Jackson was also prescribing an SSRI for Tommy's OCD symptoms. Which of the following is a *better* augmenting agent to enhance the SSRI's anti-OCD effect if OCD symptoms are refractory?

a. An antipsychotic
b. Another SSRI
c. Clonidine
d. Lithium
e. Valproate acid

65. Many studies have been conducted on the effectiveness of neurosurgical interventions for severe and intractable tics in adults. Which of the following techniques could be a promising alternative to the neurosurgical interventions?

a. Deep brain stimulation (DBS)
b. Electroconvulsive therapy (ECT)
c. Magnetic seizure therapy (MST)
d. Transcranial magnetic stimulation (TMS)
e. Vagus nerve stimulation (VNS)

Case 6

April was a 9-year-old girl when she was initially brought to see a child psychiatrist (Dr. Schmitt) to evaluate her experience of acute hallucinations and delusions. April's mother reported that April was born full term, and the pregnancy was complicated by a maternal viral illness. The delivery was prolonged, which led to a caesarian section. Early infancy and childhood development was unremarkable, but the mother of the child (MOC) could not remember clearly the timelines of April's developmental milestones. April's teachers noted she was shy when she was in daycare and subsequently in kindergarten. During her first two years in a public school, she had some difficulty learning and retaining information, and her teachers noted that she had only a limited number of peers with whom she interacted. A few weeks prior to this visit to the child psychiatrist for evaluation, April seemed increasingly withdrawn and was observed talking to herself. In Dr. Schmitt's office, April reported that she had been hearing things (mostly single words) for the past three weeks, but she could not describe them well. She also reported she believed that she would be kidnapped, with a significant fear of being killed. She had not been able to go to school and had locked herself in her bedroom with intense fears for the past 10 days.

Questions 66–80. Based on the information given in Case 6, answer the following questions.

66. At this time, which of the following differential diagnoses can Dr. Schmitt rule out?

a. Autism spectrum disorder
b. Major depressive disorder
c. Generalized anxiety disorder or PTSD
d. Psychosis, which can potentially lead to childhood onset schizophrenia (COS)
e. None of the above

67. Dr. Schmitt further learned that even though April was shy as a child she always wanted to play with similar-age children and peers. She had fair relationships with her two older siblings and her parents. There was no history of trauma or any

abuse. She never demonstrated any restricted, repetitive patterns of behavior, interests, or activities that were consistent with autism spectrum disorders. According to MOC, April's recent medical evaluations with her pediatrician failed to reveal a specific medical explanation for her presentations. In the office, Dr. Schmitt did not elicit any significant symptoms that were consistent with major mood disorders or anxiety disorders, signs of PTSD, or substance influences. April's anxiety and withdrawn behavior seemed to be the result of her perceptual disturbances. On a mental status examination, April was noticed to have a blunt affect, with loose association and marked tangential thinking. She also reported seeing monsters and ghost-like images. April appeared to respond to internal stimuli as well. According to MOC, April's father and paternal grandmother were previously diagnosed with schizophrenia. Family psychiatric history was also positive for depression on the maternal side of the family. April's 16-year-old brother was previously psychiatrically hospitalized for psychosis and self-injurious behaviors. Which of the following diagnoses is *most* appropriate based on the new information?

a. Brief psychotic disorder
b. Delusion disorder
c. Schizophreniform disorder
d. Separation anxiety disorder
e. Schizophrenia (COS)

68. Dr. Schmitt initiated a low dose of risperidone for April. April only had a partial response. Dr. Schmitt also ordered psychological testing. The Rorschach inkblot test for April revealed marked thought problems along with a pattern of odd, bizarre interpretations of the inkblots, which indicated psychotic processes. Her recent brain MRI showed no lesions or tumors. Two months after taking low-dose risperidone, April was psychiatrically hospitalized because of her increasingly disorganized speech and grossly disorganized behaviors along with the ongoing hallucinations. The voices became clearer to her and started making comments about her and instructing her to kill herself. Which of the following diagnoses is *most* appropriate based on the new information?

a. Brief psychotic disorder
b. Delusion disorder
c. Schizophreniform disorder
d. Separation anxiety disorder
e. Schizophrenia (COS)

69. April's risperidone dose was titrated up during the hospital stay, and her response to the treatment improved during the next six months. However, April continued to experience significant residual hallucinations. She was not able to go back to her regular school. She had to do homeschooling, her academic performance deteriorated over time, and she had significant difficulties catching up. She still believed that she might be kidnapped by someone on the street, and was unable to leave her house if not accompanied by her parents. Which of the following diagnoses is *most* appropriate based on the new information?

a. Brief psychotic disorder
b. Delusion disorder
c. Schizophreniform disorder
d. Separation anxiety disorder
e. Schizophrenia (COS)

70. Which of the following is the *least* likely finding on April's neuropsychological functioning test report?

a. Poor performance on tasks involving attention
b. Poor performance on tasks involving fine motor coordination
c. Poor performance on tasks involving rote language skills and simple perceptual processing
d. Poor performance on tasks involving the short-term memory
e. Poor performance on tasks involving the working memory

71. Based on recent neuroimaging studies, which of the following is *most* likely a finding of follow-up brain MRI scans for April over the next 5–10 years?

a. Decreased ventricular volume
b. Increased total cortical gray matter
c. Increased frontal gray matter
d. Increased medial temporal gray matter
e. Pattern of back to front gray matter loss

72. Investigating possible genetic causes of April's presentation, which of the following cytogenetic abnormalities is the *most* likely responsible one if her presentation is truly influenced by a genetic syndrome?

a. A deletion of a large segment of chromosome 7
b. A deletion on 15q11-q13
c. A deletion on 22q11
d. Mutations on MeCP2 gene
e. Numerous CGG repeats in FMR-1 gene

73. April's cytogenetic tests were negative and she continued to take risperidone until she came back to see Dr. Schmitt for one of her follow-up visits at the age of 11 years. According to April and MOC, April had been gaining a lot of weight, and also complained of tenderness, enlargement, and engorgement of her breasts. She also showed signs of hirsutism and galactorrhea. Dr. Schmitt believed April was experiencing significant side effects from risperidone. Which of the follow laboratory tests is *most* likely to clarify the cause of these symptoms?

a. Liver function tests
b. Lipid profile tests
c. Hemoglobin A1C
d. Prolactin level
e. Complete blood cell counts

74. Which of the following neurotransmission mechanisms can *best* explain April's side effects from the risperidone?

a. Alpha adrenergic blockade ($\alpha 2$ blockade)

b. Dopaminergic blockade (D_2 blockade)
c. Histamine blockade (H_1 blockade)
d. Muscarinic blockade (M_1 blockade)
e. Serotonergic agonist (5-HT_{2A} agonist)

75. To avoid prolactin-related side effects, which of the following antipsychotics is the *best* alternative to risperidone for treating April's psychosis?

a. Aripiprazole
b. Haloperidol
c. Olanzapine
d. Quetiapine
e. Ziprasidone

76. Dr. Schmitt continued to see April for the following six years as an outpatient, during which time April was psychiatrically hospitalized twice during major depressive episodes with severe suicidal ideation and intent to die. Different antidepressants were tried in addition to antipsychotic therapy. Based on April's medical records and treatment history, Dr. Schmitt believed that April overall experienced a much longer duration of active depressive symptoms with many recurrent major depressive episodes than psychotic symptoms. April's psychotic symptoms fluctuated over time, and for the most part April seemed able to deal with them well. She was also free of any psychosis during a few major depressive episodes. However, her hallucinations could also continue to be present for more than a few weeks at a time even when her depressive symptoms were minimal. Overall, April had been physically healthy, and was not involved with alcohol or any illicit drugs. Which of the following diagnoses is *most* appropriate based on the new information?

a. Brief psychotic disorder
b. Delusion disorder
c. Schizophreniform disorder
d. Schizoaffective disorder
e. Schizophrenia

77. April's mother was wondering about April's lifetime risk of suicide. Which of the following *accurately* reflects such a rate that Dr. Schmitt should share with MOC?

a. 1%
b. 5%
c. 10%
d. 15%
e. 20%

78. Discussing with MOC the prevalence, development/course, and risk factors from schizoaffective disorder (SAD), all of the following are accurate for Dr. Schmitt to share with MOC *except:*

a. Schizoaffective disorder is only one-third as common as schizophrenia with lifetime prevalence of approximately 0.3%.
b. The incidence of SAD is higher in males than in females.
c. There is an increased incidence of the depressive type among females.
d. People with a family history of schizophrenia, SAD, or bipolar disorder in their first-degree relatives may have an increased risk for SAD.
e. African American and Hispanic populations are more likely to be overdiagnosed with schizophrenia compared with SAD.

79. April's mother continued worrying about April's current weight-related issues (at the age of 17 years) after so many years of taking different psychotropic medications. Which of the following is *not* a criterion to define whether she had a metabolic syndrome?

a. Adjusted fasting glucose ≥ 100 mg/dL (fasting glucose ≥ 110 mg/dL)
b. Blood pressure ≥ 90th percentile for age and sex
c. Fasting HDL < 40mg.dL
d. Fasting triglyceride ≥ 110 mg/dL
e. Waist circumference > 35 inches (88 cm)

80. To qualify for metabolic syndrome, April had to meet how many out of the five criteria?

a. 1
b. 2
c. 3
d. 4
e. 5

ANSWERS AND EXPLANATIONS

Case 1

1. **(e)** Based on the case description, all of the listed differential diagnoses should be considered because any of them could be the primary diagnosis without knowing additional information. *(Ref. 4, pp. 33–86)*
2. **(a)** Sam does seem to present with a spectrum of symptoms that are commonly seen in children with autism spectrum disorder. However, if Sam does not meet criteria for autism spectrum disorder other conditions should be considered and evaluated especially because children with social (pragmatic) communication disorder can present with a similar picture. The lack of abnormal nonverbal communications and the absence of restricted, repetitive patterns of behavior, interests, or activities can help distinguish language disorders or social communication disorder from autism spectrum disorder. *(Ref. 4, pp. 50–59)*
3. **(c)** Intellectual impairment is not required to diagnose autism spectrum disorder based on DSM-5. In DSM-5, autism spectrum disorder can be specified "with or without accompanying intellectual impairment." Additional specifiers can be used to describe the severity level as the following: Level 1—requiring support; Level 2—requiring substantial support; and Level 3—requiring very substantial support. *(Ref. 4, pp. 51–53)*
4. **(b)** A brain MRI is not a current routine diagnostic tool for autism spectrum disorder even though it has been applied in clinical research for neurodevelopmental disorders. However, appropriate medical and neurological consultation and evaluation can help to rule out other medical conditions that can manifest as autism spectrum disorder or are comorbid with autism spectrum disorder, such as tuberos sclerosis, neurofibromatosis, epilepsy (especially because Sam has staring spells—could be an absence seizure). Other listed evaluations or tests are important in the clinical evaluation of Sam. In addition, gathering historical information about early development, medical and family history, assessment of developmental, psychosocial and adaptive functioning, and psychiatric evaluation are applicable to this case. *(Ref. 3, pp. 388–392)*
5. **(d)** The correct way to document his diagnosis is with "autism spectrum disorder, associated with a known medical or genetic condition or environmental factor." This is so with the diagnosis of Fragile X syndrome, Down syndrome, Rett syndrome (mostly applicable for girls), or the patient is confirmed to have a known medical condition, such as epilepsy, or a history of environmental exposure, such as fetal alcohol syndrome, very low birth weight, and valproate, etc. PDD NOS is no longer a diagnosis in DSM-5. *(Ref. 4, pp. 50–53)*
6. **(d)** Neurofibromatosis, an autosomal dominant disease, often presents with café-au-lait spots throughout the body along with neural-derived tumors, and appropriately 50% of affected individuals have intellectual disabilities. The associated gene, NF1, has several different mutations and was recently identified. *(Ref. 3, p. 202)*
7. **(c)** Landau-Kleffner syndrome is associated with loss of previously acquired language skills, abnormal EEG, and epilepsy. Language regression may affect social skills. The presentation can be confused with autism spectrum disorder. *(Ref. 1, p. 178)*
8. **(e)** Level of severity depends primarily on adaptive functioning, not on IQ score. Both individualized, standardized intellectual testing and clinical assessment are needed to assess deficits in intellectual functions. Adaptive functioning determines the level of support the individual with ID needs, and IQ measures are less valid, especially at the lower end of the IQ ranges. Assessment of ID in individuals with autism spectrum disorder is more of a challenge because of poorer social communication and behavior deficits, which often interfere with understanding or complying with the testing procedures. In addition, IQ scores are less stable, especially in early childhood, for children with autism spectrum disorder. Thus, reassessment over time may be needed. *(Ref. 4, pp. 33–40)*
9. **(c)** Modified from ABA, the Picture Exchange Communication System (PECS) is specifically used for children with an autism spectrum disorder who are nonverbal to help them learn symbolic communication. *(Ref. 1, pp. 184–186)*
10. **(a)** Both aripiprazole and risperidone are FDA approved for the treatment of irritability associated with autism spectrum disorder in children (ages: 6–17 years for aripiprazole; 5–17 years for risperidone). (*Ref. 1, pp. 949–961; please visit The U.S. Food and Drug Administration/FDA Web site at www.fda.gov for updated drug labeling information of each medication)*
11. **(d)** Research studies have shown neurostructural changes associated with autism spectrum disorder, but the significance of these for prognosis is not yet known. Lack of joint attention by age 4 years, lack of functional speech by age 5 years, intellectual disability, seizure, and comorbid medical or psychiatric conditions are all predictors for a poor prognosis. Early intervention, successful inclusion in regular education and community settings, and a higher level of cognitive adaptive functioning predict better outcomes. *(C. P. Johnson and S. M. Myers: Identification and Evaluation of Children with Autism Spectrum Disorders.* Pediatrics, *120: 1183–1215, 2007)*
12. **(c)** Based on the case description, Sam does meet criteria for both ADHD, combined presentation and autism spectrum disorder. Thus, both diagnoses should be given. In DSM-IV ADHD and autism spectrum disorder are exclusive to each other. In DSM-5 the two diagnoses are allowed to be given together when ADHD symptoms exceed that typically seen in individuals of comparable age. *(Ref. 4, p. 58)*

Case 2

13. **(e)** The case description does not provide enough specific information to exclude any of the listed conditions as a

potential differential diagnosis, which should be broad at this time. *(Ref. 1, pp. 207–208; Ref. 4, pp. 59–66)*

14. **(b)** Based on developmental history and current social and communication skills, autism spectrum disorder is unlikely. However, all other conditions are still possible. *(Ref. 1, pp. 173–187; Ref. 3, pp. 385–399)*

15. **(e)** Both answers (c) and (d) capture specific learning disorder with impairment in reading and specific learning disorder with impairment in mathematics, which Eric has. When either the term "dyslexia" or "dyscalculia" is used, DSM-5 requests that the specific difficulties that are present be specified. *(Ref. 4, pp. 66–70)*

16. **(e)** Under IDEA, he will most likely be qualified for special education based on the category of SLD. *(Ref. 3, p. 997)*

17. **(c)** The Children's Global Assessment Scale (CGAS) is one of the scales used for assessment of functional impairment and adaptive function. *(Ref. 1, pp. 91–108)*

18. **(c)** All the symptoms listed can be supportive of the diagnosis of PTSD. However, based on DSM-5, to diagnose PTSD in children 6 years and younger, there must be two (or more) symptoms existing to support the Criterion D "alternations in arousal and reactivity associated with the traumatic event(s)" including: irritable behavior and anger outbursts, hypervigilance, exaggerated startle response, problems with concentration, and sleep disturbance. *(Ref. 4, pp. 272–273)*

19. **(d)** Among all the listed concerns, cardiac risk is least concerning. There is no strong empirical support for using SSRIs in children with PTSD. Studies also do not demonstrate greater benefit when sertraline is added to trauma-focused CBT. The FDA has a black box warning for suicidal ideation when using antidepressants in youth up to age 24 years. *(Ref. 1, pp. 711–712)*

20. **(e)** Among all the listed interventions, trauma-focused cognitive behavior (TF-CBT) has the strongest evidence for support from multiple published randomized controlled trials. *(Ref. 1, pp. 343–347)*

21. **(d)** Microcephaly associated with FAS is found to be directly related to the inhibition of NMDA receptor activity, which leads to widespread apoptosis in the immature/developing cortex. *(Ref. 5, p. 83)*

22. **(d)** Routine EKG screening or other specific cardiologic evaluation prior to the initiation of stimulant medications treatment in otherwise healthy youth is not required. However, if the child has a history of a cardiovascular disease or significant cardiac symptoms (e.g., severe palpitation, fainting, and exercise intolerance), a strong family history of sudden death, unexplained chest pain, and family history of arrhythmia and syncope, etc., a cardiologic consultation and evaluation is recommended. *(Ref. 1, pp. 213, 683–685)*

23. **(c)** D-amphetamine is released from l-lysine via a rate-limiting enzymatic hydrolysis process to become an active stimulant compound. *(Ref. 1, p. 688)*

24. **(a)** Antipsychotics such as aripiprazole are not indicated in the treatment of ADHD except in severely ill children who are not responding to other choices. They may be needed for youth with ADHD who also have comorbid symptoms such as mood lability and aggression. Stimulants are still considered as the first-line drug of choice for ADHD in general. Atomoxetine and newly formulated alpha 2 agonists such as intuniv and kapvay can be considered. *(Ref. 1, pp. 682–695; Ref. 3, pp. 443–449)*

25. **(d)** Gathering information from and consulting with other providers, primary care physicians, and schoolteachers/counselor/speech therapist/psychologist are important parts of collaboration. However, the Health Insurance Portability and Accountability Act (HIPAA) restricts unauthorized disclosure of medical information to certain parties, such as school, daycare, social welfare departments, and insurance companies. The patient or legal guardian must give consent before such disclosure occurs, otherwise it can be counted as breach of confidentiality and a HIPPA violation. In Eric's case, because he is living in a foster home, he is likely under state jurisdiction (a dependent of the court). If his parents have lost legal rights to give the consent, only his "legal guardian" or "legal representative" can give such consent. It can be similar to his psychotropic medication informed consent process; his "legal guardian" has such authority to give consent, and he may give assent (as a child). Different states may have different laws or regulations regarding who can be considered a "legal guardian" when parents have lost their legal rights to consent. In certain states, such as in California, it is usually the court that grants the approval for psychotropic medications for children who are court dependent. Minors can consent to treatment on their own behalf in some situations (e.g., to seek treatment for venereal disease in all states, and to seek treatment for substance abuse in most states). *(Ref. 3, pp. 1024–1025)*

26. **(e)** The way to guarantee success of the proposed treatment is not a part of the discussion. In fact, clinicians are generally not able to guarantee treatment success for a specific treatment proposal. The potential benefits and possible successful rate of the proposed treatment should be included in the discussion. Potential outcomes with and without the proposed treatment should be discussed as well. *(Ref. 3, p. 1025)*

Case 3

27. **(c)** Binge-eating disorder is characterized by recurrent eating of unusually large amounts food in discrete periods, with a sense of lack of control over the eating behavior. The binge eating cannot be associated with inappropriate compensatory behaviors such as self-induced vomiting, as seen in AN and BN. It does not usually cause weight loss. Instead, it can lead to weight gain and obesity. *(Ref. 4, pp. 350–351)*

28. **(d)** Based on DSM-5, three criteria have to be present to formally diagnose AN: restricted food intake leading to a significant weight loss (A); intense fear of gaining weight or becoming fat (B); and disturbance in the way one's body weight or shape is experienced (C). Amenorrhea is one of the common physical signs of AN. However, it is no longer a necessary diagnostic criterion for AN in DSM-5. *(Ref. 4, pp. 338–339)*

29. **(b)** Based on DSM-5 the "significant low weight" is defined as weight that is less than that minimally expected (not

"minimally normal") for children and adolescents. CDC BMI-for-age percentile is often used in youth rather than simple numerical BMI guidelines as used in adults. In general, the CDC-BMI-for-age below the fifth percentile is used to suggest underweight for children and adolescents. However, children with a BMI percentile above this line can be sometimes considered underweight in light of failure to maintain their expected growth trajectory. In DSM-5 the severity of AN in adults is specified by BMI (mild-BMI: ≥ 17; moderate-BMI: 16–16.99; severe-BMI: 15–15.99; extreme-BMI <15). *(Ref. 4, pp. 338–339)*

30. **(b)** Lisa has to engage in recurrent episodes of binge eating or purging behavior during the past three months to meet criteria for AN, binge-eating/purging type. *(Ref. 4, p. 339)*

31. **(c)** Hypotension (not hypertension) is one of the common physical signs of an emaciated patient with AN. Other physical signs may include hypothermia, hypercarotenemia, hypertrophy of the salivary glands, dental enamel erosion, and scars or calluses on the dorsal surface of the hand (some of these signs are due to self-induced vomiting). *(Ref. 4, p. 343)*

32. **(b)** Hypercholesterolemia is one of the common serum chemistry findings in patients with AN. Other serum chemistry changes may include elevated liver enzymes, hypomagnesemia, hypozincemia, hypophosphatemia, and hyperamylasemia. Metabolic alkalosis, hypochloremia, and hypokalemia can be seen because of self-induced vomiting. Mild metabolic acidosis may occur because of laxative abuse. Loss of all cell types (leukopenia) can be seen in the CBC test, but lymphocytosis is also common. *(Ref. 4, pp. 342–343)*

33. **(c)** Even though most patients with AN remit within five years, the crude mortality rate (CMR) is still high, approximately 5%, which is most commonly due to medical complications and/or suicide. *(Ref. 4, p. 342)*

34. **(b)** 12/100,000 per year is the estimated suicide risk for patients with AN. Thus, it is important to assess suicide risk in patients with AN along with common comorbid conditions such as mood disorders, anxiety disorders, OCD, substance use, etc. *(Ref. 4, pp. 343–345)*

35. **(c)** The mean %MBMI did not increase significantly until day eight, with overall weight gain of 2.1 kg. *(A. K. Garber et al.: A Prospective Examination of Weight Gain in Hospitalized Adolescents With Anorexia Nervosa on a Recommended Refeeding Protocol.* Journal of Adolescent Health, *50: 24–29, 2012)*

36. **(d)** Nasogastric tubes were not used in this study. Serum phosphorus is closely monitored and phosphate supplement is used if serum phosphorus level is <3.0 mg/dl. During the study, calcium carbonate and zinc sulfate/zinc acetate are routinely prescribed in addition to oral multivitamins. The study concludes that higher-calorie diets instituted at admission predicts faster weight restoration and shorter hospitalization. *(A. K. Garber et a.l: A Prospective Examination of Weight Gain in Hospitalized Adolescents With Anorexia Nervosa on a Recommended Refeeding Protocol.* Journal of Adolescent Health, *50: 24–29, 2012)*

37. **(c)** Low-dose use of olanzapine in patients with AN has been studied via several open-label trials and there are some case reports as well that indicate benefits of decreasing anxiety around eating, decreasing rumination about food and body concerns, and improving sleeping, although sedation is a common side effect. *(Ref. 1, p. 409)*

38. **(e)** Three phases of family-based treatment of AN include: restoration of patient's weight; handing control over eating back to the patient; and discussion of the patient's developmental issues. *(Ref. 1, pp. 408–409)*

Case 4

39. **(d)** It is inappropriate to consider discharging the client without an appropriate risk assessment that should involve a comprehensive evaluation, which includes interviewing the adolescent patient and the parent(s) to identify the presence of environmental and family risk factors, current and past suicidal behaviors, intent, methodology, and accessibility to lethal means (such as knives, guns, etc.). Possible patient and parental underlying psychopathologies, substance involvement, cognitive distortions, inadequate coping strategies, and mood/anxiety/possible psychotic symptoms also should be assessed. The most important aspect of the risk assessment is to determine the degree of immediate danger and whether there is a need for psychiatric hospitalization. *(Ref. 3, p. 534)*

40. **(e)** All of the listed factors indicate a lower suicide risk for youth who engage in suicidal behaviors. Other factors are: having good judgment and capacity to communicate honestly and openly about their emotions, feelings, worries, etc. A consistent and stable environment, low degree of violence, absence of family psychopathology, and availability of the family to provide sufficient support are positive social factors that may decrease youth suicide risk. *(Ref. 3, p. 534)*

41. **(a)** All physicians are mandatory reporters in all states. Failure to make an appropriate report for suspected child abuse or neglect can be a basis for malpractice. Filing a formal report with appropriate authorities immediately is the most appropriate thing to do next. Because Dr. Smith already has a strong suspicion of a child sexual abuse, it is not appropriate to rely on the ER social worker or another staff member to decide whether a formal report is necessary. If the social worker was present when Dr. Smith learned about the suspected abuse from Sophia, either Dr. Smith or the social worker making one report on both their behalves would be sufficient (not necessary to duplicate reporting). It will be up to the authorities to determine whether she is safe to go back to her parents upon discharge. *(Ref. 1, p. 491; Ref. 3, pp. 1023–1024)*

42. **(c)** Borderline personality disorder is characterized by a pervasive pattern of instability of interpersonal relationships, self-image, poor impulse control, and poor affect regulation. *(Ref. 4, p. 663)*

43. **(c)** Follow-up studies show that about half of the patients no longer meet full criteria for borderline personality disorder 10 years after they were identified through an outpatient mental health clinic. *(Ref. 4, p. 665)*

44. **(d)** Studies did not indicate a higher occurrence of schizophrenia spectrum disorder in the first-degree relatives of patients with BPD. *(Ref. 3, p. 683)*

45. **(a)** Decreased serotonergic neurotransmission in cortical inhibitory areas is found in patients with BPD. *(Ref. 3, p. 683)*

46. **(c)** Mentalization-based treatment (MBT) was developed by Bateman and Fonagy. Similar to DBT, it can decrease hospitalization, medication use, and suicidal ideation and suicidal behaviors. In addition, it can also help reduce anxiety and depression and improve social and interpersonal relationships, aspects where DBT has not been shown to be effective. *(Ref. 3, p. 688)*

47. **(a)** Bupropion can induce seizures, especially in patients with chronic alcohol abuse and bulimia. Sophia had a history of consuming large amounts of alcohol and engaged in binge-eating/purging episodes, which increases the risk of seizure, especially if she takes bupropion. *(Ref. 1, pp. 691–692)*

48. **(c)** Escitalopram is an FDA-approved medication for treating adolescents (ages: 12–17) with MDD. The other FDA-approved medication is fluoxetine (ages: 8–18). (*Please visit The U.S. Food and Drug Administration/FDA Web site at www.fda.gov for updated drug labeling information of each medication.)*

49. **(b)** Bipolar II disorder requires at least one past or current hypomanic episode and at least one past or current major depressive episode, and episodes cannot be attributable to the physiological effects of a substance of abuse, a medication, or other treatment. Intoxication or withdrawal from a substance of abuse or use of a medication has to be within one month preceding the episode to meet criteria for substance/mediation-induced bipolar and related disorder. Bipolar I disorder requires at least one manic episode regardless of whether a major depressive episode has ever been present. A new diagnosis appeared in DSM-5, disruptive mood dysregulation disorder, which is categorized under depressive disorders, but not under bipolar and related disorders. *(Ref. 4, pp. 132–133)*

50. **(a)** Monotherapy with antidepressant for bipolar depression can increase risk of switching. Thus, among the listed medications fluoxetine is the most appropriate one to avoid. *(Ref. 1, p. 293)*

51. **(d)** Tests for HLA-B*1502 should be completed prior to starting carbamazepine for any patients of Chinese ancestry because HLA-B*1502 is associated with the risk of developing Steven Johnson syndrome and toxic epidermal necrolysis (TEN). A positive test is considered a contraindication for carbamazepine. *(Ref. 1, p. 731)*

52. **(a)** Serum levels of atypical antipsychotics can be decreased when being co-administered with carbamazepine. Drug-drug interactions of carbamazepine can be extensive; it can also increase drug levels of TCAs. Some medications such as erythromycin, cimetidine, fluoxetine, verapamil, and valproate can also increase the carbamazepine level. *(Ref. 1, p. 732)*

Case 5

53. **(a)** He has single motor tics that have a waxing and waning pattern for more than one year since the first tic onset. Tourette's disorder must have both multiple motor and one or more vocal tics to be present together at some time during the illness. Provisional tic disorder refers to a single or multiple motor and/or vocal tics that have been present for less than one year since first tic onset. Diagnosis of transient tic disorder was eliminated from DSM-5. *(Ref. 4, p. 81)*

54. **(c)** Tommy's tics are considered as simple motor tics even though he has both eye blinking and shoulder shrugging because they do not occur simultaneously. If occurring simultaneously, they would be considered as complex motor tics. *(Ref. 4, p. 82)*

55. **(e)** Palilaia refers to vocal tics that involve repeating one's own sounds or words. Coprolalia refers to vocal tics that involve uttering socially unacceptable words (e.g., cuss words and/or racial/religious slurs, etc.). Copropraxia refers to motor tics that involve seemingly purposeful sexual or obscene gestures. Echolalia refers to repeating the last-heard words or phrases (not one's own), whereas echoproxia refers to mimicking someone else's movements. *(Ref. 4, p. 82)*

56. **(d)** Tourette's disorder is the most appropriate diagnosis for Tommy at this time because he presented with motor and vocal tics simultaneously. *(Ref. 4, p. 81)*

57. **(c)** ADHD and obsessive-compulsive disorder are the most common coexisting conditions with Tourette's disorder. *(Ref. 3, pp. 572–573)*

58. **(c)** Approximately 10–15% of the offspring of a patient with Tourette's disorder will also develop Tourette's disorder; 20–29% will develop a tic disorder; and 12–32% will develop OCD. *(Ref. 3, p. 573)*

59. **(c)** Providing accurate information to patients and parents via educational activities is the most important aspect of interventions for Tourette's disorder, especially during the initial phase. This helps ensure that patients and parents comprehend the problems, reduce fears, decrease blaming, and enhance cohesiveness in the family. *(Ref. 1, p. 423; Ref. 3, p. 578)*

60. **(e)** Habit reversal training (HRT) is a behavioral intervention that has shown significant effectiveness in reducing tic symptoms in adults with Tourette's disorder. It also shows similar results in children through unblended studies. Thus, more rigorous studies in youth are needed. All of the listed are the four components of awareness training of HRT. *(Ref. 1, p. 424; Ref. 3, 579)*

61. **(a)** Peak severity usually occurs in pre-pubertal ages (between 10 and 12 years), and the severity tends to decline during adolescence, with a further reduction in adulthood (with occasional exceptions). Premonitory urge refers to a somatic sensation that precedes the tic, which seems more likely to be associated with tics experienced by children when they get older. *(Ref. 4, p. 83)*

62. **(b)** Given ongoing significant ADHD symptoms, especially hyperactivity and impulsivity along with a tic disorder, guanfacine or clonidine should be the first choices. Adding another stimulant is more likely to worsen the tic symptoms although this is still controversial. Desipramine is a TCA with a higher cardiac risk and should be considered as a less suitable choice. Bupropion and venlafaxine can be potentially considered as alternatives. *(Ref. 3, pp. 444–445, 579–580)*

63. **(b)** Only haloperidol and pimozide (Orap) are approved by the FDA for the treatment of Tourette's disorder in youth. Clinical trials using risperidone, ziprasidone, and olanzapine treating

youth with Tourette's show some promising data. However, none of them is FDA approved. *(Ref. 3, pp. 579–580)*

64. (a) Antipsychotics (either conventional or atypical) can be potentially considered as augmenting agents to SSRIs to reduce commonly difficult to treat or refractory OCD symptoms in patients with Tourette's disorder. *(Ref. 3, p. 580)*

65. (a) Used in patients with other movement disorders, DBS is a relatively reversible, stereotactic technique that can be considered as an alternative to the neurosurgical interventions for intractable and severe tics. However, its usage is still limited to adult patients because youth with tics are likely to get better as they get older. *(Ref. 3, p. 580; Ref. 5, pp. 3318–3319)*

Case 6

66. (e) Given limited background or other specific information the differential diagnoses should be broad. The hallucinations and delusions could also be related to underlying medical conditions and influences from medications or substances. *(Ref. 4, pp. 50–57, 99–105, 161–168, 222–226, 271–280)*

67. (a) April's presentation of core psychotic symptoms occurred within one month. Thus, brief psychotic disorder is the most appropriate diagnosis at this time among all the given options. Delusion disorder requires the presence of one or more delusions for more than one month, and hallucinations, if present, cannot be prominent and should be related to delusional themes. *(Ref. 4, pp. 90–94)*

68. (c) The core symptoms presented are still within the time frame between one month and six months. Thus, the most appropriate diagnosis at this time is schizophreniform disorder out of all the listed options. *(Ref. 4, pp. 96–97)*

69. (e) Given the updated information, April continued to experience residual psychotic symptoms that are most consistent with schizophrenia. Because of her age, the disorder should be considered as childhood onset schizophrenia. *(Ref. 3, pp. 493–495; Ref. 4, pp. 99–105)*

70. (c) Performance on tasks involving rote language skills and simple perceptual processing is not generally impaired in patients with COS. However, other listed impairments can be seen in COS probands. *(Ref. 3, p. 496)*

71. (e) Gray matter (GM) loss has been found in adolescents with COS, with a pattern of back to front tissue loss over time during adolescence, which may reflect an exaggeration of normal maturational pruning during a critical period. Over time, the GM loss seems to eventually resemble a pattern similar to that observed in adults with schizophrenia. The GM loss does not seem to be the result of medications, and seems to be a diagnostically specific trait marker. *(Ref. 3, pp. 497–499)*

72. (c) A deletion on 22q11 can lead to velocardio-facial syndrome (VCFS), which can be manifested as psychiatric conditions including psychosis. An increased number of CGG repeats (usually 200 to 1,000) on the FMR-1 gene leads to the phenotype of Fragile X syndrome. Specific deletions of chromosome 15 (15q11-q13) can cause either Prader-Willi syndrome (PWS) or Angelman syndrome. As a contiguous gene syndrome, Williams syndrome is caused by a deletion on chromosome 7. MeCP2 mutations have been found in more than 80% of patients with Rett syndrome. *(Ref. 3, pp. 201–212, 499–500)*

73. (d) While other tests may be relevant for individuals who are taking antipsychotics, the prolactin level can confirm prolactinemia, which can explain the side effects that April is experiencing. *(Ref. 1, p. 760)*

74. (b) The D_2 blockade of antipsychotics is not only responsible for the antipsychotic efficacy, but also responsible for a series of side effects, such as elevated prolactin level, EPS/akathisia, and sexual reproductive system dysfunction. *(Ref. 1, p. 748)*

75. (a) Being a partial agonist at D_2 receptors, aripiprazole is the best alternative that is least likely to cause prolactinemia. *(Ref. 1, p. 760)*

76. (d) Because she is experiencing major depressive symptoms during the majority of the time with her overall active illness along with hallucinations for more than two weeks in the absence of a major mood episode, April's current diagnosis should be schizoaffective disorder. *(Ref. 4, pp. 105–109)*

77. (b) The lifetime risk of suicide with schizoaffective disorder and schizophrenia is approximately 5%, with a higher risk in North American than in European, South American, and Indian populations. Suicide risk is also associated with the presence of depression. *(Ref. 4, p. 109)*

78. (b) The incidence of SAD is higher in females than in males, which can be due to an increased incidence of the depressive type among females. *(Ref. 4, pp. 107–109)*

79. (e) Waist circumference > 35 inches/88 cm is one of the metabolic syndrome criteria for adult females (for adults males > 40 inches/102 cm). In children and adolescents this criterion is replaced by the waist circumference ≥90th percentile, or BMI ≥95th percentile for sex and age. All listed other criteria are used for determination of metabolic syndrome in children and adolescents. *(Ref. 1, pp. 766–767)*

80. (c) Three out of five criteria (see question 79) are required to diagnose metabolic syndrome in children and adolescents. *(Ref. 1, pp. 766–770)*