

## CHAPTER 2: BIOLOGICAL BEGINNINGS

### Multiple Choice Questions

1. Red-feathered and blue feathered birds occupy the same environment. The birds with the red feathers are better able to survive and avoid predators. This means that the population of red-feathered birds should increase in future generations. This illustrates the process of \_\_\_\_.

- a. genetic selection
- b. natural adaptation
- c. natural selection
- d. genetic survival

Answer: c

Difficulty Level: Hard

Blooms: Apply

Page(s): 52

2. \_\_\_\_ introduced the theory of evolution by natural selection in 1859.

- a. Sigmund Freud
- b. Charles Darwin
- c. Stephen Hawking
- d. Wilhelm Wundt

Answer: b

Difficulty Level: Easy

Blooms: Remember

Page(s): 52

3. If a baboon learns to eat many different kinds of fruit instead of relying on only one kind for its nutritive needs, we would argue that this behavior promotes its survival.

Thus, the behavior is \_\_\_\_.

- a. adaptive
- b. aggressive
- c. dominant
- d. submissive

Answer: a

Difficulty Level: Hard

Blooms: Apply

Page(s): 53

4. Evolution takes place:

- a. over the course of many generations.
- b. almost immediately.
- c. when the species is ready for it.
- d. due to active attempts at change on the part of the species.

Answer: a

Difficulty Level: Easy

Blooms: Remember

Page(s): 53

5. Psychology's newest approach, \_\_\_\_\_, emphasizes the importance of adaptation, reproduction, and "survival of the fittest" in shaping behavior.

- a. behavioral psychology
- b. humanistic psychology
- c. cognitive psychology
- d. evolutionary psychology

Answer: d

Difficulty Level: Easy

Blooms: Remember

Page(s): 53

6. According to evolutionary developmental psychologists, many evolved psychological mechanisms are \_\_\_\_\_. That is, the mechanisms apply only to a specific aspect of a person's makeup.

- a. domain-specific
- b. maladjusted
- c. non-operational
- d. general purpose devices

Answer: a

Difficulty Level: Easy

Blooms: Remember

Page(s): 53

7. Which of the following statements is true about evolutionary developmental psychology?

- a. Many evolved psychological mechanisms apply only to a specific aspect of a person's makeup.
- b. The mind is a general-purpose device that can be applied equally to a vast array of problems.
- c. All behaviors that were adaptive for our prehistoric ancestors serve us well today.
- d. Evolution has not impacted human development.

Answer: a

Difficulty Level: Medium

Blooms: Understand

Page(s): 53

8. The food-scarce environment of our ancestors likely led to humans' propensity to gorge when food is available and to crave high-caloric foods—a trait that might lead to an epidemic of obesity when food is plentiful. This illustrates how:

- a. socialization influences the development of behavior and cognitive skills in human beings.
- b. evolved mechanisms are not always adaptive in contemporary society.

- c. organisms pass on characteristics they had acquired during their lifetime to their offspring.
- d. the benefits of evolutionary selection decrease with age.

Answer: b

Difficulty Level: Hard

Blooms: Understand

Page(s): 54

9. According to Paul Baltes, the benefits conferred with evolutionary selection \_\_\_\_\_ with age.

- a. increase
- b. stay the same
- c. decrease
- d. fluctuate

Answer: c

Difficulty Level: Easy

Blooms: Remember

Page(s): 54

10. According to life-span developmentalist Paul Baltes, the benefits conferred by evolutionary selection decrease with age. Natural selection has not weeded out many harmful conditions and nonadaptive characteristics that appear among older adults. Why?

- a. Degeneration aids in the transmission of desirable traits to future generations.
- b. Natural selection operates primarily on characteristics that are tied to reproductive fitness.
- c. Human evolution had no effect on previous generations.
- d. Evolved mechanisms are always adaptive in contemporary society.

Answer: b

Difficulty Level: Medium

Blooms: Understand

Page(s): 54

11. Baltes says that natural selection among humans operates mainly during the \_\_\_\_\_ of life.

- a. second half
- b. last years
- c. first half
- d. first year

Answer: c

Difficulty Level: Easy

Blooms: Remember

Page(s): 54

12. As the benefits of evolutionary selection decrease with age, Baltes argues, the need for all of the following increases, EXCEPT:

- a. social support.

- b. medical technology.
- c. job training.
- d. culture.

Answer: c

Difficulty Level: Medium

Blooms: Remember

Page(s): 54

13. As an alternative to “\_\_\_\_\_ evolutionism” presented in evolutionary psychology, Albert Bandura proposed a \_\_\_\_\_ view.

- a. bidirectional; unidirectional
- b. one-sided; bidirectional
- c. dynamic; linear
- d. balanced; biased

Answer: b

Difficulty Level: Medium

Blooms: Understand

Page(s): 54

14. A fertilized human egg cannot grow into a crocodile, duck or fish specifically because of:

- a. socialization.
- b. environmental influence.
- c. adaptive behavior.
- d. genetic code.

Answer: d

Difficulty Level: Easy

Blooms: Remember

Page(s): 55

15. \_\_\_\_\_ is a complex molecule with a double helix shape, like a spiral staircase, and contains genetic information.

- a. RNA
- b. Chromosome
- c. DNA
- d. Ribosome

Answer: c

Difficulty Level: Easy

Blooms: Remember

Page(s): 55

16. \_\_\_\_\_, the units of hereditary information, are short segments of DNA. They direct cells to reproduce themselves and to assemble proteins.

- a. Genes
- b. Chromosomes
- c. RNA

d. Ribosomes

Answer: a

Difficulty Level: Easy

Blooms: Remember

Page(s): 55

17. The nucleus of each human cell contains \_\_\_\_\_, which are threadlike structures made up of deoxyribonucleic acid (DNA).

a. mitochondria

b. ribosomes

c. chromosomes

d. mesosomes

Answer: c

Difficulty Level: Easy

Blooms: Remember

Page(s): 55

18. \_\_\_\_\_ are the building blocks of cells as well as the regulators that direct the body's processes.

a. Genes

b. Proteins

c. Ribosomes

d. DNA

Answer: b

Difficulty Level: Easy

Blooms: Remember

Page(s): 55

19. Scientists had thought that humans had as many as 100,000 or more genes, but recent research indicates a figure of approximately:

a. 250.

b. 1,500.

c. 20,500.

d. 1, 000,000.

Answer: c

Difficulty Level: Hard

Blooms: Remember

Page(s): 56

20. Which of the following statements about the activity of genes is true?

a. Genes are not collaborative.

b. A single gene codes for a single, specific protein.

c. Genetic expression is unaffected by environmental factors.

d. Events inside of the cell can excite or inhibit genetic expression.

Answer: d

Difficulty Level: Medium

Blooms: Understand

Page(s): 56

21. What are gametes?

- a. Zygotes
- b. Embryos
- c. Fertilized eggs
- d. Eggs and sperm

Answer: d

Difficulty Level: Easy

Blooms: Remember

Page(s): 57

22. \_\_\_\_\_ is a stage in reproduction whereby an egg and a sperm fuse to create a single cell.

- a. Fertilization
- b. Osmosis
- c. Meiosis
- d. Mitosis

Answer: a

Difficulty Level: Easy

Blooms: Remember

Page(s): 57

23. During the process of \_\_\_\_\_, the cell's nucleus—including the chromosomes—duplicates itself and the cell divides resulting in the formation of two cells.

- a. meiosis
- b. osmosis
- c. fertilization
- d. mitosis

Answer: d

Difficulty Level: Easy

Blooms: Remember

Page(s): 57

24. A cell which contains 46 chromosomes arranged in 23 pairs undergoes the process of \_\_\_\_\_ to produce two new cells, each containing the same DNA as the original cell, arranged in the same 23 pairs of chromosomes.

- a. mitosis
- b. osmosis
- c. meiosis
- d. fertilization

Answer: a

Difficulty Level: Medium

Blooms: Understand

Page(s): 57

25. Which of the following is true of mitosis?

- a. Mitosis is the cellular reproduction occurs in the sperm and egg cells.
- b. Mitosis results in the formation of four new cells.
- c. Mitosis results in the formation of new cells with 23 pairs of chromosomes.
- d. Mitosis results in the formation of three new cells.

Answer: c

Difficulty Level: Medium

Blooms: Understand

Page(s): 57

26. A cell which contains 12 pairs of chromosomes, divides by mitosis to form two new cells. How many pairs of chromosomes does each new cell contain?

- a. 12
- b. 23
- c. 6
- d. 48

Answer: b

Difficulty Level: Easy

Blooms: Remember

Page(s): 57

27. Except for the sperm and the egg, all cells in the human body have \_\_\_\_\_ chromosomes.

- a. 10
- b. 32
- c. 23
- d. 46

Answer: d

Difficulty Level: Easy

Blooms: Remember

Page(s): 57

28. During \_\_\_\_\_, a cell of the testes in men or ovaries in women duplicates its chromosomes and then divides twice, thus forming four cells, each of which has only half the genetic material of the parent cell.

- a. meiosis
- b. mitosis
- c. osmosis
- d. fertilization

Answer: a

Difficulty Level: Easy

Blooms: Remember

Page(s): 57

29. In human beings, by the end of meiosis, each egg or sperm has \_\_\_\_\_ chromosomes.

- a. 46 paired
- b. 23 unpaired
- c. 23 paired
- d. 46 unpaired

Answer: b

Difficulty Level: Easy

Blooms: Remember

Page(s): 57

30. During fertilization, an egg and a sperm fuse to create a single cell called a \_\_\_\_\_.

- a. blastocyst
- b. fetus
- c. gamete
- d. zygote

Answer: d

Difficulty Level: Easy

Blooms: Remember

Page(s): 57

31. Sasha's 23rd chromosome pair contains two X chromosomes. This indicates that Sasha:

- a. has Down syndrome.
- b. has fragile X syndrome.
- c. is female.
- d. is male.

Answer: c

Difficulty Level: Medium

Blooms: Understand

Page(s): 57

32. Jules' 23<sup>rd</sup> chromosome pair consists of an X chromosome and a Y chromosome. This indicates that Ashley:

- a. has Down syndrome.
- b. has XYY syndrome.
- c. is female.
- d. is male.

Answer: d

Difficulty Level: Medium

Blooms: Understand

Page(s): 57

33. Combining the genes of two parents in offspring increases \_\_\_\_\_ in the population, which is valuable for a species because it provides more characteristics for natural selection to operate on.

- a. the number of males
- b. the number of females



- c. genetic variability
- d. genetic uniformity

Answer: c

Difficulty Level: Medium

Blooms: Understand

Page(s): 58

34. \_\_\_\_\_ develop from a single zygote that splits into two genetically identical replicas, each of which becomes a person.

- a. Triplets
- b. Identical twins
- c. Fraternal twins
- d. Quadruplets

Answer: b

Difficulty Level: Easy

Blooms: Remember

Page(s): 58

35. Melody and Harmony are identical twins. This means that they developed from:

- a. a single egg that was fertilized by a single sperm.
- b. a single egg that was fertilized by two different sperm.
- c. two eggs that were fertilized by a single sperm.
- d. two eggs that were fertilized by two different sperm.

Answer: a

Difficulty Level: Medium

Blooms: Understand

Page(s): 58

36. Jerome and Tyrone are fraternal twins. This means that they developed from:

- a. a single egg that was fertilized by a single sperm.
- b. a single egg that was fertilized by two different sperm.
- c. two eggs that were fertilized by a single sperm.
- d. two eggs that were fertilized by two different sperm.

Answer: d

Difficulty Level: Medium

Blooms: Understand

Page(s): 58

37. A mistake by the cellular machinery, or damage from an environmental agent such as radiation, may produce a \_\_\_\_\_, which is a permanently altered segment of DNA.

- a. susceptibility gene
- b. vulnerability gene
- c. longevity gene
- d. mutated gene

Answer: d

Difficulty Level: Easy

Blooms: Remember

Page(s): 58

38. \_\_\_\_\_ genes are those that make the individual more vulnerable to specific diseases or acceleration of aging.

- a. Susceptibility
- b. Longevity
- c. Vulnerability
- d. Mutated

Answer: a

Difficulty Level: Easy

Blooms: Remember

Page(s): 58

39. Ethel is 50-years-old but appears much more aged in appearance. Most of Ethel's relatives don't live past the age of 60. Which of the following genes are responsible for the accelerated aging that is observed in Ethel and her family members?

- a. Susceptibility genes
- b. Longevity genes
- c. Vulnerability genes
- d. Mutated genes

Answer: a

Difficulty Level: Hard

Blooms: Apply

Page(s): 58

40. \_\_\_\_\_ genes are those that make the individual less vulnerable to certain diseases and be more likely to live to an older age.

- a. Susceptibility
- b. Longevity
- c. Vulnerability
- d. Mutated

Answer: b

Difficulty Level: Easy

Blooms: Remember

Page(s): 58

41. Erin is 90 years old. She has relatively good health, and is fully mobile. Most of Erin's blood relatives live to a ripe, old age. Which of the following genes might be responsible for this?

- a. Susceptibility genes
- b. Longevity genes
- c. Vulnerability genes
- d. Mutated genes

Answer: b

Difficulty Level: Medium

Blooms: Apply

Page(s): 58

42. Emma and Anna are identical twins who were adopted by different families a few weeks after birth. Although genetically identical, they grew up with different physical and psychological characteristics. For example, though both inherited a tendency to grow large, Anna was slim and athletic due to the active lifestyle practiced in her adoptive family. This variability can be explained by how:

- a. each zygote is unique.
- b. longevity genes can make an individual less vulnerable to certain diseases.
- c. for each genotype, a range of phenotypes can be expressed .
- d. mutated genes can be a source of genetic variability.

Answer: c

Difficulty Level: Hard

Blooms: Apply

Page(s): 58

43. Vanda's genetic make-up is composed of thousands of genes; some are expressed and directly observable and some are not. When we talk about all of her genetic material we are talking about her \_\_\_\_\_.

- a. phenotype
- b. RNA
- c. genotype
- d. ribosomes

Answer: c

Difficulty Level: Medium

Blooms: Apply

Page(s): 58

44. A genotype is \_\_\_\_\_ percent of a person's genetic material.

- a. 100
- b. 50
- c. 25
- d. 5

Answer: a

Difficulty Level: Hard

Blooms: Understand

Page(s): 58

45. \_\_\_\_\_ is the way an individual's genotype is expressed in observable and measurable characteristics.

- a. RNA
- b. DNA
- c. Phenotype
- d. Stereotype

Answer: c

Difficulty Level: Medium

Blooms: Understand

Page(s): 58

46. Marly describes her friend, Gina, as having blonde hair, green eyes, and fair skin with freckles. Marly has described Gina's \_\_\_\_\_.

- a. genotype
- b. genetic imprint
- c. phenotype
- d. X-linked inheritance

Answer: c

Difficulty Level: Medium

Blooms: Apply

Page (s): 58

47. A phenotype can consist of \_\_\_\_\_ as well as \_\_\_\_\_ characteristics.

- a. physical; environmental
- b. conscious; subconscious
- c. biological; ecological
- d. physical; psychological

Answer: d

Difficulty Level: Hard

Blooms: Understand

Page(s): 58

48. For each genotype, a range of \_\_\_\_\_ can be expressed, thus providing a source of variability.

- a. genetic imprints
- b. phenotypes
- c. karyotypes
- d. mesotypes

Answer: b

Difficulty Level: Medium

Blooms: Understand

Page(s): 58

40. In some cases, one gene of a pair always exerts its effects, overriding the potential influence of the other gene. This is the \_\_\_\_\_ principle.

- a. sex-linked genes
- b. dominant-recessive genes
- c. genetic imprinting
- d. polygenic inheritance

Answer: b

Difficulty Level: Easy

Blooms: Remember

Page(s): 58

50. Clark's genotype contains a dominant gene for brown eye color and recessive gene for blue eye color. According to the dominant-recessive gene principle, which of the following phenotypes is most likely to be observed in Clark?

- a. black eyes
- b. blue eyes
- c. grey eyes
- d. brown eyes

Answer: d

Difficulty Level: Medium

Blooms: Apply

Page(s): 58

51. Mary's mother has blonde hair and her father has brown hair. Mary has a gene for brown hair and a gene for blonde hair. She has brown hair. This indicates that the gene for brown hair is a(n) \_\_\_\_\_.

- a. dominant gene
- b. recessive gene
- c. susceptible gene
- d. longevity gene

Answer: a

Difficulty Level: Medium

Blooms: Apply

Page(s): 58

52. Carrie's parents both have brown hair. However, Carrie gets genes for blond hair from both parents, and as result she has blonde hair. This indicates that the gene for blonde hair is a(n):

- a. recessive gene.
- b. dominant gene.
- c. susceptibility gene.
- d. longevity gene.

Answer: a

Difficulty Level: Hard

Blooms: Apply

Page(s): 58

53. A \_\_\_\_\_ gene overrides the potential influence of a recessive gene.

- a. longevity
- b. dominant
- c. susceptible
- d. aggressive

Answer: b

Difficulty Level: Easy

Blooms: Remember

Page(s): 58

54. A recessive gene exerts its influence only if:
- a. both genes in a pair are recessive.
  - b. it is the stronger gene.
  - c. the environment is right.
  - d. the dominant gene is also present in the pair.

Answer: a

Difficulty Level: Medium

Blooms: Understand

Page(s): 58

55. Females who have one abnormal copy of a mutated gene on the X chromosome are known as \_\_\_\_\_.

- a. “inhibitors”
- b. “patients”
- c. “carriers”
- d. “promoters”

Answer: c

Difficulty Level: Easy

Blooms: Remember

Page(s): 59

56. Most individuals who have X-linked diseases are \_\_\_\_\_.

- a. males
- b. females
- c. intersex
- d. hemophiliacs

Answer: a

Difficulty Level: Medium

Blooms: Understand

Page(s): 59

57. Victor has an X-linked inheritance disease. which of the following conditions is Victor most likely to have?

- a. Beckwith-Wiedemann syndrome
- b. Hemophilia
- c. Wilms tumor
- d. Diabetes

Answer: b

Difficulty Level: Medium

Blooms: Apply

Page(s): 59

58. \_\_\_\_\_ occurs when the expression of a gene has different effects depending on whether the mother or the father passed on the gene.

- a. Polygenic inheritance

- b. X-linked inheritance
- c. Genetic imprinting
- d. Y-linked inheritance

Answer: c

Difficulty Level: Hard

Blooms: Understand

Page(s): 59

59. Vivanta has been diagnosed with Beckwith-Wiedemann syndrome, a growth disorder, which the doctor has indicated could be a result of \_\_\_\_\_ going awry.

- a. genetic imprinting
- b. polygenic inheritance
- c. sex-linked genes
- d. chromosomes

Answer: a

Difficulty Level: Hard

Blooms: Apply

Page(s): 59

60. Most characteristics are:

- a. determined by a single gene.
- b. determined by a pair of genes.
- c. not determined by genes.
- d. polygenically determined.

Answer: d

Difficulty Level: Easy

Blooms: Remember

Page(s): 59

61. Which of the following is an example of chromosomal abnormality that occurs when whole chromosomes do not separate properly during meiosis?

- a. Down syndrome
- b. Hemophilia
- c. Huntington's disease
- d. Sickle-cell anemia

Answer: a

Difficulty Level: Medium

Blooms: Understand

Page(s): 59

62. Jason was born with \_\_\_\_\_. The doctor tells his parents that this genetic disorder occurred because he has an extra copy of chromosome 21.

- a. fragile X syndrome
- b. Klinefelter disease
- c. Down syndrome
- d. Tay Sachs's disease

Answer: c

Difficulty Level: Medium

Blooms: Apply

Page(s): 59

63. Which of the following is true of Down syndrome?

- a. It primarily occurs in African American children.
- b. It occurs when genetic imprinting goes awry.
- c. Its symptoms include retardation of motor and mental abilities.
- d. It is caused by the presence of an extra copy of chromosome Y.

Answer: c

Difficulty Level: Medium

Blooms: Understand

Page(s): 59

64. Which of the following women has the highest probability of giving birth to a child with Down syndrome?

- a. Sarah, a 21-year-old Asian woman
- b. Jane, a 41-year-old Euro-American woman
- c. Ella, a 27-year-old African American woman
- d. Destiny, a 38-year-old African American woman

Answer: b

Difficulty Level: Hard

Blooms: Apply

Page(s): 59

65. Human embryos must possess \_\_\_\_\_ to be viable.

- a. at least one X chromosome
- b. two Y chromosomes
- c. at least one Y chromosome
- d. three Y chromosomes

Answer: a

Difficulty Level: Easy

Blooms: Remember

Page(s): 59

66. Klinefelter syndrome affects:

- a. only males.
- b. only females.
- c. both males and females equally.
- d. more females than males.

Answer: a

Difficulty Level: Easy

Blooms: Remember

Page(s): 60



67. Tom is a tall man with undeveloped testes and enlarged breasts. His doctor has determined that he has an extra X chromosome leading to a diagnosis of:

- a. Down syndrome.
- b. fragile X syndrome.
- c. Klinefelter syndrome.
- d. Turner syndrome.

Answer: c

Difficulty Level: Medium

Blooms: Apply

Page(s): 60

68. Klinefelter syndrome occurs in approximately \_\_\_\_\_ live male births.

- a. 1 in 100
- b. 1 in 600
- c. 1 in 10,000
- d. 1 in 100,000

Answer: b

Difficulty Level: Hard

Blooms: Remember

Page(s): 60

69. Tristan has a genetic disorder that results from an abnormality in the X chromosome, which becomes constricted and often breaks. His doctor told Tristan's mother that he has:

- a. Fragile X syndrome.
- b. XYY syndrome.
- c. Turner syndrome.
- d. Tay-Sach's disease.

Answer: a

Difficulty Level: Medium

Blooms: Apply

Page(s): 60

70. Fragile X syndrome occurs:

- a. more often in males than in females.
- b. only in females.
- c. in both sexes equally.
- d. only in males.

Answer: a

Difficulty Level: Easy

Blooms: Remember

Page(s): 60

71. Harry has been suffering from mental retardation and a learning disability since infancy. Subsequent tests revealed an abnormality in his X chromosome, which becomes constricted and often breaks. Identify the syndrome that Harry suffers from.

- a. Turner syndrome

- b. Fragile X syndrome
- c. XYY syndrome
- d. Klinefelter syndrome

Answer: b

Difficulty Level: Medium

Blooms: Apply

Page(s): 60

72. Angelique has a chromosomal disorder characterized by a missing X chromosome making her XO instead of XX. Angelique's doctors have diagnosed her with \_\_\_\_\_.

- a. Fragile X syndrome
- b. The XYY syndrome
- c. Klinefelter syndrome
- d. Turner syndrome

Answer: d

Difficulty Level: Medium

Blooms: Apply

Page(s): 60

73. Turner syndrome occurs in approximately \_\_\_\_\_ live female births.

- a. 1 in 100
- b. 1 in 2,500
- c. 1 in 22,500
- d. 1 in 40,000

Answer: b

Difficulty Level: Hard

Blooms: Remember

Page(s): 60

74. Sandra excels in reading and spelling but struggles with mathematics. She is shorter than her peers and has a webbed neck. Her doctor has determined that she has one X chromosome missing. Sandra most likely has:

- a. XYY syndrome.
- b. Fragile X syndrome.
- c. Turner syndrome.
- d. XXO syndrome.

Answer: c

Difficulty Level: Hard

Blooms: Apply

Page(s): 60

75. Turner syndrome occurs exclusively in:

- a. females.
- b. males.
- c. people of Middle Eastern descent.
- d. people of Jewish descent.

Answer: a

Difficulty Level: Medium

Blooms: Understand

Page(s): 60

76. Early interest in the XYY syndrome focused on the belief that the extra Y chromosome found in some males contributed to \_\_\_\_\_. However, subsequent research has proved this to be \_\_\_\_\_.

- a. aggression and violence; false
- b. aggression and violence; true
- c. impotence; false
- d. impotence; true

Answer: a

Difficulty Level: Medium

Blooms: Understand

Page(s): 60

77. Phenylketonuria (PKU) is a genetic disorder in which the individual cannot properly metabolize phenylalanine, which is a(n) \_\_\_\_\_.

- a. vitamin
- b. amino acid
- c. mineral
- d. carbohydrate

Answer: b

Difficulty Level: Easy

Blooms: Remember

Page(s): 60

78. Phenylketonuria (PKU) occurs in approximately \_\_\_\_\_ live births.

- a. 1 in 100 to 200
- b. 1 in 1,000 to 2,000
- c. 1 in 10,000 to 20,000
- d. 1 in 100,000 to 150,000

Answer: c

Difficulty Level: Hard

Blooms: Remember

Page(s): 60

79. Which of the following is true of phenylketonuria?

- a. It results from a recessive gene.
- b. It is a chromosomal disorder.
- c. It results in death by 5 years of age.
- d. It is caused by an accumulation of lipids in the nervous system.

Answer: a

Difficulty Level: Medium

Blooms: Understand

Page(s): 60

80. Mateo is on a special diet because his parents are aware that he cannot metabolize phenylalanine, an amino acid. Buildup of this amino acid in his system could result in mental retardation. Mateo has:

- a. Down syndrome.
- b. phenylketonuria (PKU).
- c. sickle-cell anemia.
- d. Huntington's disease.

Answer: b

Difficulty Level: Medium

Blooms: Apply

Page(s): 60

81. Which of the following is a gene-linked abnormality?

- a. Down syndrome.
- b. Phenylketonuria (PKU).
- c. Turner syndrome
- d. Klinefelter syndrome

Answer: b

Difficulty Level: Medium

Blooms: Understand

Page(s): 60

82. Tamera has a genetic disorder where her red blood cells take on a hook shape instead of the normal disk shape. The doctors tell Tamera's parents that she has \_\_\_\_\_, and that this condition also provides her with a resistance to malaria.

- a. Tay-Sach's disease
- b. sickle-cell anemia
- c. leukemia
- d. Huntington's disease

Answer: b

Difficulty Level: Medium

Blooms: Apply

Page(s): 61

83. Approximately \_\_\_\_\_ African Americans is a carrier for sickle-cell anemia.

- a. 1 in 50
- b. 1 in 100
- c. 1 in 10
- d. 1 in 200

Answer: c

Difficulty Level: Hard

Blooms: Remember

Page(s): 61

84. Patrick suffers from \_\_\_\_\_, a genetic abnormality in which delayed blood clotting causes internal and external bleeding.

- a. hemophilia
- b. PKU
- c. sickle-cell anemia
- d. Tay-Sachs disease

Answer: a

Difficulty Level: Medium

Blooms: Apply

Page(s): 61

85. Paul suffers from hemophilia. Suggest an appropriate treatment option for Paul's condition.

- a. Insulin
- b. Blood transfusions/injections
- c. Physical therapy
- d. Corrective surgery at birth

Answer: b

Difficulty Level: Medium

Blooms: Apply

Page(s): 64

86. Samantha has been diagnosed with \_\_\_\_\_, which is a glandular dysfunction that interferes with mucus production.

- a. cystic fibrosis
- b. Huntington's disease
- c. PKU
- d. Tay-Sachs disease

Answer: a

Difficulty Level: Medium

Blooms: Apply

Page(s): 61

87. \_\_\_\_\_ is a gene-linked abnormality in which the central nervous system deteriorates, producing problems in muscle coordination and mental deterioration.

- a. Cystic fibrosis
- b. Phenylketonuria
- c. Huntington's disease
- d. Tay-Sachs disease

Answer: c

Difficulty Level: Easy

Blooms: Remember

Page(s): 61

88. Penny has been diagnosed with cystic fibrosis. Which of the following would be an appropriate course of treatment for her?

- a. Medication for pain, antibiotics, blood transfusions, and hydroxyurea
- b. Corrective surgery at birth
- c. Blood transfusions/injections
- d. Physical and oxygen therapy, synthetic enzymes, and antibiotics

Answer: d

Difficulty Level: Medium

Blooms: Apply

Page(s): 61

89. Mary and Jim are expecting a child and prenatal diagnostic procedures have confirmed that the fetus has \_\_\_\_\_, a neural tube disorder that causes brain and spine abnormalities. Their physician has explained that this gene-linked abnormality could be treated with corrective surgery at birth, orthopedic devices, and physical or medical therapy.

- a. spina bifida
- b. Tay-Sachs disease
- c. PKU
- d. Huntington's disease

Answer: a

Difficulty Level: Medium

Blooms: Apply

Page(s): 61

90. Lindsay's body does not produce enough insulin, causing an abnormal metabolism of sugar. She is receiving insulin treatment. Lindsay has:

- a. spina bifida.
- b. hemophilia.
- c. PKU.
- d. diabetes.

Answer: d

Difficulty Level: Medium

Blooms: Apply

Page(s): 61

91. Joshua, 2, has been diagnosed with \_\_\_\_\_, a blood disorder that limits the body's oxygen supply and can cause joint swelling and heart and kidney failure. This genetic disorder can be treated through penicillin, pain medication, antibiotics and blood transfusions, and his doctor has indicated that a study named Baby HUG may offer a better drug in the future.

- a. spina bifida
- b. Tay-Sachs disease
- c. sickle-cell anemia
- d. Huntington's disease

Answer: c

Difficulty Level: Medium

Blooms: Apply

Page(s): 61

92. Benny has been diagnosed with a gene-linked abnormality characterized by deceleration of mental and physical development caused by an accumulation of lipids in the nervous system. He has been put on medication and a special diet, but his family has been told that he will probably not live beyond the age of five. Benny is suffering from:

- a. spina bifida.
- b. Tay-Sachs disease.
- c. phenylketonuria.
- d. Huntington's disease.

Answer: b

Difficulty Level: Medium

Blooms: Apply

Page (s): 61

93. Gwendolyn is having a prenatal test where her doctor uses high-frequency sound waves directed into her abdomen to check on her fetus. She is most likely having a(n) \_\_\_\_\_.

- a. chorionic villus sampling
- b. triple screen
- c. amniocentesis
- d. ultrasound sonography

Answer: d

Difficulty Level: Medium

Blooms: Apply

Page(s): 63

94. \_\_\_\_\_ refers to a form of mental retardation involving an abnormally small brain.

- a. Spina bifida
- b. Klinefelter syndrome
- c. Hemophilia
- d. Microencephaly

Answer: d

Difficulty Level: Easy

Blooms: Remember

Page(s): 63

95. \_\_\_\_\_ uses a powerful magnet and radio images to generate detailed images of the body's organs and structures.

- a. Triple screen
- b. MRI
- c. Ultrasound sonography
- d. Amniocentesis

Answer: b

Difficulty Level: Easy

Blooms: Remember

Page(s): 63

96. Esperanza is having a prenatal test to remove a small sample of the placenta for genetic testing. Identify the test that her doctor is performing.

- a. Chorionic villus sampling
- b. Amniocentesis
- c. NIPD
- d. Triple screen

Answer: a

Difficulty Level: Medium

Blooms: Apply

Page(s): 64

97. Which of the following is the vascular organ that links the fetus to the mother's uterus?

- a. Fallopian tube
- b. Ovary
- c. Placenta
- d. Cervix

Answer: c

Difficulty Level: Easy

Blooms: Remember

Page(s): 64

98. Identify a risk related to the use of chorionic villus sampling (CVS) as a prenatal diagnostic test.

- a. Limb deformity
- b. Spina bifida
- c. Down syndrome
- d. Mental retardation

Answer: a

Difficulty Level: Easy

Blooms: Remember

Page(s): 64

99. Amniocentesis brings a small risk of:

- a. mental retardation.
- b. limb deformity.
- c. miscarriage.
- d. Down syndrome.

Answer: c

Difficulty Level: Easy

Blooms: Remember

Page(s): 64



100. Which of the following statements regarding chorionic villus sampling (CVS) and amniocentesis is true?

- a. Both CVS and amniocentesis provide valuable information about the presence of birth defects.
- b. Both CVS and amniocentesis increase the risk of miscarriage.
- c. Both CVS and amniocentesis increase the risk of limb deformities in the fetus.
- d. Amniocentesis allows a decision on abortion to be made sooner than chorionic villus sampling.

Answer: a

Difficulty Level: Hard

Blooms: Understand

Page(s): 64

101. The current maternal blood-screening test is called the triple screen because:

- a. it is performed three times.
- b. it diagnoses three diseases.
- c. it measures three substances in the mother's blood.
- d. it is the third prenatal diagnostic test performed in a pregnancy.

Answer: c

Difficulty Level: Easy

Blooms: Remember

Page(s): 64

102. \_\_\_\_\_ mainly focuses on the isolation and examination of fetal cells circulating in the mother's blood and analysis of cell-free fetal DNA in maternal plasma.

- a. Amniocentesis
- b. Chorionic villus sampling (CVS)
- c. Noninvasive prenatal diagnosis (NIPD)
- d. Triple screen

Answer: c

Difficulty Level: Easy

Blooms: Remember

Page(s): 64

103. Don and Ellie are trying to conceive a baby. How long should they wait before they suspect infertility?

- a. 3 months
- b. 12 months
- c. 18 months
- d. 24 months

Answer: b

Difficulty Level: Easy

Blooms: Apply

Page(s): 65

104. Which of the following is NOT a possible explanation for infertility in a woman?

- a. Abnormal ova
- b. Blocked fallopian tubes
- c. Eggs lack motility
- d. Disease of the uterus

Answer: c

Difficulty Level: Medium

Blooms: Understand

Page(s): 65

105. By far the most common high-tech assisted reproduction technique used is \_\_\_\_\_.

- a. artificial insemination
- b. in vitro fertilization
- c. spermatogenesis
- d. in vivo fertilization

Answer: b

Difficulty Level: Easy

Blooms: Remember

Page(s): 65

106. David and Kelly are seeking help for infertility. Under their physician's guidance, they decide to undergo a procedure in which Kelly's eggs are combined in a laboratory dish with her husband's sperms. What is this procedure called?

- a. Gamete transfer
- b. Intracytoplasmic sperm injection
- c. Zygote intrafallopian transfer
- d. In vitro fertilization

Answer: d

Difficulty Level: Hard

Blooms: Apply

Page(s): 65

107. Summer and Clark are considering undergoing fertility treatments. What is one of the main risk factors that the couple must be aware of while weighing their options?

- a. High birth weight in babies conceived through such treatments.
- b. An increase in the possibility of multiple births when such treatments are used.
- c. Negative psychological impact on children conceived through such treatments.
- d. Significant differences in developmental outcomes for children conceived through such treatments.

Answer: b

Difficulty Level: Medium

Blooms: Apply

Page(s): 65

108. \_\_\_\_\_ is the social and legal process by which a parent-child relationship is established between persons unrelated at birth.

- a. Kinship care

- b. Rebirthing
- c. Guardianship
- d. Adoption

Answer: d

Difficulty Level: Easy

Blooms: Remember

Page(s): 65

109. Shakena is a 38-year-old single woman who works as a pharmaceutical representative. She would like to adopt a child. Recent changes in adoption requirements would mean that:

- a. she would not be considered as a candidate for adopting a child because she is in a same-sex relationship.
- b. she would not be considered as a candidate for adopting a child because she is of African-American descent.
- c. she would be able to adopt a child after she got married,
- d. she would be considered as a candidate for adopting a child.

Answer: d

Difficulty Level: Hard

Blooms: Apply

Page(s): 66

110. Which of the following statements is true regarding the differences between outcomes for adopted and nonadopted children?

- a. Nonadopted children are likely to experience more school-related problems than adopted children.
- b. Children who are adopted very early in their lives are more likely to have positive outcomes than children adopted later in life.
- c. Adoptees were no more likely to be using mental health services than their nonadopted counterparts.
- d. Adopted adolescents were more likely to be withdrawn.

Answer: b

Difficulty Level: Medium

Blooms: Understand

Page(s): 67

111. \_\_\_\_\_ is the field that seeks to discover the influence of heredity and environment on individual differences in human traits and development.

- a. Behavior influence
- b. Behavior therapy
- c. Behavior genetics
- d. Behavior development

Answer: c

Difficulty Level: Easy

Blooms: Remember

Page(s): 68

112. Rachel loves to read books and also encourages her daughter to read by regularly taking her to the local library and buying her lots of books. Rachel's daughter is now an avid reader. This reflects a \_\_\_\_\_ correlation.

- a. passive genotype-environment
- b. evocative genotype-environment
- c. influential genotype-environment
- d. active (niche-picking) genotype-environment

Answer: a

Difficulty Level: Medium

Blooms: Apply

Page(s): 69

113. Tracy's parents are avid sports fans. Since she was a child, they took her to numerous baseball and football games, and Tracy regularly watched the sports channel with her dad. When she was old enough, her parents made her join the little league team at her school and she performed well. This is an example of a(n):

- a. evocative genotype-environment correlation.
- b. active (niche-picking) genotype-environment correlation.
- c. passive genotype-environment correlation.
- d. gene-gene correlation.

Answer: c

Difficulty Level: Medium

Blooms: Apply

Page(s): 69

114. \_\_\_\_\_ correlations occur because a child's genetically influenced characteristics elicit certain types of environments.

- a. Passive genotype-environment
- b. Evocative genotype-environment
- c. Influential genotype-environment
- d. Active (niche-picking) genotype-environment

Answer: b

Difficulty Level: Easy

Blooms: Remember

Page(s): 69

115. Charlie is a cooperative, attentive child and is a favorite at home and school and receives positive, instructive responses from adults. This is indicative of a(n):

- a. passive genotype-environment correlation.
- b. evocative genotype-environment correlation.
- c. influential genotype-environment correlation.
- d. active (niche-picking) genotype-environment correlation.

Answer: b

Difficulty Level: Medium

Blooms: Apply

Page(s): 69

116. Timothy is a quiet 6-year-old who is usually withdrawn in class. As a result, he does not receive much attention from his peers and mostly plays by himself. According to Sandra Scarr, this is an example of a(n) \_\_\_\_\_.

- a. passive genotype–environment correlation
- b. active (niche-picking) genotype–environment correlation
- c. gene x environment interaction
- d. evocative genotype-environment correlation

Answer: d

Difficulty Level: Medium

Blooms: Apply

Page(s): 69

117. Brad is an athletic boy who is on every sport team in school. Stephen loves math and is part of his school's math club. These instances reflect \_\_\_\_\_ correlations that occur when children seek out environments that they find compatible and stimulating.

- a. passive genotype–environment
- b. evocative genotype–environment
- c. active (niche-picking) genotype-environment
- d. influential genotype–environment

Answer: c

Difficulty Level: Medium

Blooms: Apply

Page(s): 69

118. According to Sandra Scarr, passive genotype-environment correlations are relatively more common in the lives of:

- a. infants and young children.
- b. older children.
- c. adolescents.
- d. adults.

Answer: a

Difficulty Level: Easy

Blooms: Remember

Page(s): 70

119. Which of the following is an example of a passive genotype-environment correlation?

- a. Uncooperative, distractible children receive more unpleasant and disciplinary action from parents and teachers.
- b. Outgoing children tend to seek out social contexts in which to interact with people.
- c. Parents who have a genetic predisposition to be musically inclined encourage their children to learn how to play a music instrument.
- d. Infants who smile more receive more attention from individuals in their social environment.

Answer: c

Difficulty Level: Medium

Blooms: Understand

Page(s): 70

120. Parents' personalities or intellectual orientation, the family's socioeconomic status, and the neighborhood in which they live are all instances of the \_\_\_\_\_ of siblings.

- a. nonshared environmental experiences
- b. shared genetic traits
- c. shared environmental experiences
- d. nonshared genetic traits

Answer: c

Difficulty Level: Easy

Blooms: Remember

Page(s): 70

121. Parents often interact differently with each sibling, and siblings interact differently with parents. Even these experiences occurring within the family can be part of the \_\_\_\_\_ of siblings.

- a. shared environment
- b. nonshared environment
- c. shared genes
- d. nonshared genes

Answer: b

Difficulty Level: Easy

Blooms: Remember

Page(s): 70

122. Behavior geneticist Robert Plomin has found that shared environment:

- a. is independent of heredity influences.
- b. accounts for most of the variation in children's personality or interests.
- c. is responsible for higher incidence of rivalry and aggression between siblings.
- d. accounts for little of the variation in children's personality or interests.

Answer: d

Difficulty Level: Medium

Blooms: Understand

Page(s): 70

123. Leila and Alexander are siblings. Every Saturday morning, Leila and her grandmother cook breakfast together and then do some errands and shopping together. During that time, Alexander and his grandfather spend some quality "male bonding" time. They like to play miniature golf or do yard work. The interactions that each child has with the grandparent would be known as what type of environmental experience?

- a. Shared environmental experiences
- b. Evocative genotype-environment correlations
- c. Nonshared environmental experiences

d. Shared experiences with peers

Answer: c

Difficulty Level: Hard

Blooms: Apply

Page(s): 70

124. The \_\_\_\_\_ view states that development is the result of an ongoing, bidirectional interchange between heredity and the environment.

a. epigenetic

b. biosocial

c. sociogenetic

d. congenital

Answer: a

Difficulty Level: Easy

Blooms: Remember

Page(s): 70-71

125. \_\_\_\_\_ is the interaction of a specific measured variation in the DNA and a specific measured aspect of the environment.

a. Heredity-environment correlation

b. Evocative genotype-environment correlation

c. Gene  $\times$  environment ( $G \times E$ ) interaction

d. Passive genotype-environment interaction

Answer: c

Difficulty Level: Easy

Blooms: Remember

Page(s): 71

### Identification Questions

126. The theorist who published “On the Origin of Species” in 1859 that outlined his/her theory of natural selection.

Answer: Charles Darwin

Difficulty Level: Easy

Blooms: Remember

Page(s): 52

127. Behavior that promotes an organism’s survival in the natural habitat.

Answer: Adaptive behavior

Difficulty Level: Easy

Blooms: Remember

Page(s): 53

128. A psychological perspective that emphasizes the importance of adaptation, reproduction, and “survival of the fittest” in shaping human behavior.

Answer: Evolutionary psychology

Difficulty Level: Medium

Blooms: Understand

Page(s): 53

129. A complex molecule, with a double helix shape, that contains genetic information.

Answer: DNA (deoxyribonucleic acid)

Difficulty Level: Easy

Blooms: Remember

Page(s): 55

130. Short segments of DNA which are located on the chromosomes. These are considered to be the basic units of hereditary information.

Answer: Genes

Difficulty Level: Easy

Blooms: Remember

Page(s): 55

131. Cell division in the eggs and sperms. A cell duplicates its chromosomes and divides twice. This leads to the formation of four cells that contain only half of the genetic material of the parent cell.

Answer: Meiosis

Difficulty Level: Easy

Blooms: Remember

Page(s): 57

132. Palomar is pregnant. During the early stages of her pregnancy, the single zygote splits into two genetically identical replicas. Her doctor tells her she is going to have \_\_\_\_\_ twins.

Answer: identical twins (monozygotic twins)

Difficulty Level: Medium

Blooms: Apply

Page(s): 58

133. Xiomarra is tall with dark curly hair and brown eyes. She is outgoing and friendly. Name these observable characteristics of her genetic makeup.

Answer: Phenotype

Difficulty Level: Hard

Blooms: Apply

Page(s): 58

134. A chromosomal abnormality that is characterized by an extra copy of chromosome 21. A person with this disorder typically has a round face, a flattened skull, an extra fold of skin over the eyelids, a protruding tongue, short limbs, and retardation of motor and mental abilities.

Answer: Down syndrome

Difficulty Level: Easy



Blooms: Remember

Page(s): 59

135. Violet is undergoing a prenatal test where the Dr. will take a small sample of the placenta and then analyze it to detect genetic defects and chromosomal abnormalities. Name the procedure she is having.

Answer: Chorionic villus sampling (CVS)

Difficulty Level: Hard

Blooms: Apply

Page(s): 64

136. A prenatal medical procedure in which a sample of amniotic fluid is withdrawn by syringe and tested for chromosomal or metabolic disorders.

Answer: Amniocentesis

Difficulty Level: Easy

Blooms: Remember

Page(s): 64

137. Yelena is outgoing so people naturally tend to like her and find her personable. According to Scarr-McCartney, which genotype-environment interaction does this best represent?

Answer: Evocative genotype–environment correlation

Difficulty Level: Medium

Blooms: Apply

Page(s): 69

138. Deshawn believes that development is the result of an ongoing, bidirectional interchange between heredity and the environment. He has most likely adopted which theoretical perspective?

Answer: Epigenetic view

Difficulty Level: Medium

Blooms: Understand

Page(s): 70-71

### Short Answer Questions

139. Define the four genetic principles: dominant-recessive genes principle, sex-linked genes (X-linked inheritance), genetic imprinting, and polygenic inheritance. In your opinion, which do you think is the most serious and why?

Answer: The four genetic principles are: dominant-recessive genes principle, sex-linked genes (X-linked inheritance), genetic imprinting, and polygenic inheritance.

Difficulty Level: Medium

Blooms: Apply

Page(s): 58-59

140. List four sex-linked chromosomal abnormalities.

Answer: Klinefelter syndrome, fragile X syndrome, Turner syndrome, and XYY syndrome are all sex-linked chromosomal abnormalities.

Difficulty Level: Easy

Blooms: Remember

Page(s): 60

141. List five gene-linked abnormalities.

Answer: Cystic fibrosis, diabetes, hemophilia, Huntington's disease, sickle-cell anemia, spina bifida, Tay-Sachs disease, and phenylketonuria (PKU) are all gene-linked abnormalities.

Difficulty Level: Easy

Blooms: Remember

Page(s): 61

142. Name and describe three prenatal diagnostic tests.

Answer: Prenatal diagnostic tests include:

- 1) Ultrasound sonography where high-frequency sound waves are directed into the pregnant woman's abdomen and the echo from the sounds is transformed into a visual representation of the fetus's inner structures.
- 2) Fetal MRI which uses a powerful magnet and radio images to generate detailed images of the body's organs and structures.
- 3) Chorionic villus sampling (CVS) where a small sample of the placenta is removed to test for genetic defects and chromosomal abnormalities.

Difficulty Level: Easy

Blooms: Remember

Page(s): 63-64

143. List three possible causes of infertility in women and in men. What are 2 strategies that can be used to overcome infertility?

Answer: Lack of ovulation, producing abnormal ova, blocked fallopian tubes, and disease preventing implantation of the ova in the uterus, are some of the causes of infertility in women. Sperm lacking motility, low sperm count, and blocked passageways could be causes of infertility in men.

Difficulty Level: Hard

Blooms: Understand

Page(s): 65

144. Identify and describe the two common studies used by behavior geneticists to investigate the influence of heredity on behavior.

Answer: To study the influence of heredity on behavior, behavior geneticists often use either twins or adoption situations. In the most common twin study, the behavioral similarity of identical twins (who are genetically identical) is compared with the behavioral similarity of fraternal twins. In an adoption study, investigators seek to discover whether the behavior and psychological characteristics of adopted children are more like those of their adoptive parents, who have provided a home environment, or

more like those of their biological parents, who have contributed their heredity. Another form of adoption study compares adoptive and biological siblings.

Difficulty Level: Hard

Blooms: Understand

Page(s): 68-69

145. What are the three ways that heredity and environment are correlated as described by behavior geneticist Sandra Scarr.

Answer: Behavior geneticist Sandra Scarr described three ways that heredity and environment are correlated:

- 1) Passive genotype-environment correlations that occur because biological parents, who are genetically related to the child, provide a rearing environment for the child.
- 2) Evocative genotype-environment correlations that occur because a child's characteristics elicit certain types of environments.
- 3) Active (niche-picking) genotype-environment correlations that occur when children seek out environments that they find compatible and stimulating.

Difficulty Level: Medium

Blooms: Remember

Page(s): 69

146. Assume that in the case study of the Jim and Jim twins it is found that their similar development trajectories were a result of similar temperament and interests which caused them to seek out similar environments which were compatible and stimulating to them. Which heredity-environment correlation is reflected in this scenario?

Answer: This would reflect the active (niche-picking) genotype-environment correlation that occurs when children seek out environments that they find compatible and stimulating.

Difficulty Level: Hard

Blooms: Apply

Page(s): 69

147. Define shared and nonshared environmental experience. Provide an example of each and point out how that example exemplifies the concept.

Answer: Shared environmental experiences are siblings' common experiences, such as their parents' personalities or intellectual orientation, the family's socioeconomic status, and the neighborhood in which they live. Nonshared environmental experiences are a child's unique experiences, both within the family and outside the family, that are not shared with a sibling. Different peer groups, different teachers, and different friends are examples.

Difficulty Level: Hard

Blooms: Apply

Page(s): 70

148. Define gene×environment (G×E) interaction. Give an example of a study (either your own or one from the book) that could illustrate the interaction between genes and the environment.

Answer: Gene×environment (G×E) interaction refers to the interaction of a specific measured variation in the DNA and a specific measured aspect of the environment. In a study, adults who experienced parental loss as young children were more likely to have unresolved attachment issues as adults only when they had the short version of the 5-HTTLPR gene (Caspers & others, 2009). The long version of the serotonin transporter gene apparently provided some protection and ability to cope better with parental loss.

Difficulty Level: Hard

Blooms: Apply

Page(s): 71