

CHAPTER 2  
GENETIC AND ENVIRONMENTAL FOUNDATIONS

**MULTIPLE CHOICE**

1. Christine is 5'7" tall and has blue eyes. Such directly observable characteristics are called \_\_\_\_\_.
- A) alleles
  - B) phenotypes
  - C) chromosomes
  - D) genotypes

Answer: B

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*Skill Level: Apply*

*Objective: 2.1 Explain what genes are and how they are transmitted from one generation to the next.*

*Topic: Genetic Foundations*

*Difficulty Level: Easy*

2. A person's lifelong history of experiences would affect her or his \_\_\_\_\_.
- A) genotype
  - B) cytoplasm
  - C) phenotype
  - D) gametes

Answer: C

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*Skill Level: Remember*

*Objective: 2.1 Explain what genes are and how they are transmitted from one generation to the next.*

*Topic: Genetic Foundations*

*Difficulty Level: Moderate*

3. Our \_\_\_\_\_ determine(s) our species and influence(s) all our unique characteristics.
- A) genotype
  - B) phenotypes
  - C) regulator genes
  - D) karyotype

Answer: A

*Page Ref: 40*

*Skill Level: Remember*

*Objective: 2.1 Explain what genes are and how they are transmitted from one generation to the next.*

*Topic: Genetic Foundations*

*Difficulty Level: Easy*

4. The \_\_\_\_\_ is the control center within each of the trillions of cells (except red blood cells) in the human body.

- A) genotype
- B) gamete
- C) autosome
- D) nucleus

Answer: D

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*Skill Level: Remember*

*Objective: 2.1 Explain what genes are and how they are transmitted from one generation to the next.*

*Topic: Genetic Foundations*

*Difficulty Level: Easy*

5. Chromosomes look like \_\_\_\_\_.

- A) spheres
- B) cones
- C) rods
- D) cubes

Answer: C

*Page Ref: 40*

*Skill Level: Remember*

*Objective: 2.1 Explain what genes are and how they are transmitted from one generation to the next.*

*Topic: Genetic Foundations*

*Difficulty Level: Moderate*

6. Which statement about human chromosomes is true?

- A) They come in 46 matching pairs.
- B) They store and transmit genetic information.
- C) In females, each chromosome is inherited from the mother.
- D) Each member of a chromosome pair has a different size, shape, and genetic function.

Answer: B

*Page Ref: 40*

*Skill Level: Understand*

*Objective: 2.1 Explain what genes are and how they are transmitted from one generation to the next.*

*Topic: Genetic Foundations*

*Difficulty Level: Moderate*

7. A molecule of deoxyribonucleic acid (DNA) looks like a \_\_\_\_\_.

- A) long cylinder
- B) small sphere
- C) twisted ladder
- D) bundle of rods

Answer: C

*Page Ref: 41 (Figure 2.2)*

*Skill Level: Remember*

*Objective: 2.1 Explain what genes are and how they are transmitted from one generation to the next.*

*Topic: Genetic Foundations*

*Difficulty Level: Easy*

8. A \_\_\_\_\_ is a segment of DNA along the length of the chromosome.

- A) phenotype
- B) genotype
- C) gene
- D) gamete

Answer: C

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*Skill Level: Remember*

*Objective: 2.1 Explain what genes are and how they are transmitted from one generation to the next.*

*Topic: Genetic Foundations*

*Difficulty Level: Easy*

9. Protein-coding genes \_\_\_\_\_.

- A) directly affect our body's characteristics
- B) modify instructions given by regulator genes
- C) come in 23 matching pairs
- D) are formed through meiosis

Answer: A

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*Skill Level: Understand*

*Objective: 2.1 Explain what genes are and how they are transmitted from one generation to the next.*

*Topic: Genetic Foundations*

*Difficulty Level: Moderate*

10. The area surrounding the cell nucleus is called the \_\_\_\_\_.

- A) zygote
- B) cytoplasm
- C) gamete
- D) gene

Answer: B

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*Skill Level: Remember*

*Objective: 2.1 Explain what genes are and how they are transmitted from one generation to the next.*

*Topic: Genetic Foundations*

*Difficulty Level: Moderate*

11. \_\_\_\_\_, which trigger chemical reactions throughout the body, are the biological foundation on which our characteristics are built.

- A) Phenotypes
- B) Proteins
- C) Carbohydrates
- D) Autosomes

Answer: B

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*Skill Level: Remember*

*Objective: 2.1 Explain what genes are and how they are transmitted from one generation to the next.*

*Topic: Genetic Foundations*

*Difficulty Level: Moderate*

12. Lynn, a Tahitian, and Sasha, a Russian, are about \_\_\_\_\_ percent genetically identical.
- A) 46
  - B) 79.6
  - C) 95
  - D) 99.6

Answer: D

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*Skill Level: Apply*

*Objective: 2.1 Explain what genes are and how they are transmitted from one generation to the next.*

*Topic: Genetic Foundations*

*Difficulty Level: Easy*

13. Which of the following statements about human genetic makeup is true?
- A) We do not share any of our DNA with other mammals.
  - B) It takes changes in multiple DNA base pairs to influence human traits.
  - C) The species-specific genetic material responsible for human attributes is extensive.
  - D) Gene expression within human cells cannot be modified by environmental factors.

Answer: C

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*Skill Level: Understand*

*Objective: 2.1 Explain what genes are and how they are transmitted from one generation to the next.*

*Topic: Genetic Foundations*

*Difficulty Level: Difficult*

14. The sperm and the ovum are otherwise known as \_\_\_\_\_.
- A) autosomes
  - B) gametes
  - C) zygotes
  - D) phenotypes

Answer: B

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*Skill Level: Remember*

*Objective: 2.1 Explain what genes are and how they are transmitted from one generation to the next.*

*Topic: Genetic Foundations*

*Difficulty Level: Easy*

15. A human gamete \_\_\_\_\_.
- A) contains 46 chromosomes
  - B) is formed through mitosis
  - C) contains 23 chromosomes
  - D) is formed when the chromosomes copy themselves

Answer: C

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*Skill Level: Understand*

*Objective: 2.1 Explain what genes are and how they are transmitted from one generation to the next.*

*Topic: Genetic Foundations*

*Difficulty Level: Moderate*

16. \_\_\_\_\_ is the process that halves the number of chromosomes normally present in body cells.
- A) Mutation
  - B) Genomic imprinting
  - C) Cytoplasm
  - D) Meiosis

Answer: D

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*Skill Level: Understand*

*Objective: 2.1 Explain what genes are and how they are transmitted from one generation to the next.*

*Topic: Genetic Foundations*

*Difficulty Level: Moderate*

17. When sperm and ovum unite at conception, a(n) \_\_\_\_\_ results.
- A) autosome
  - B) gamete
  - C) zygote
  - D) allele

Answer: C

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*Skill Level: Remember*

*Objective: 2.1 Explain what genes are and how they are transmitted from one generation to the next.*

*Topic: Genetic Foundations*

*Difficulty Level: Easy*

18. The exchange of chromosome segments during meiosis results in \_\_\_\_\_.
- A) severe mutations

- B) an extremely low likelihood that nontwin siblings will be genetically identical
- C) higher rates of fraternal twins
- D) higher numbers of female zygotes than male zygotes

Answer: B

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*Skill Level: Understand*

*Objective: 2.1 Explain what genes are and how they are transmitted from one generation to the next.*

*Topic: Genetic Foundations*

*Difficulty Level: Moderate*

19. A healthy man can father a child \_\_\_\_\_.

- A) at any age after sexual maturity
- B) until about age 30
- C) until about age 50
- D) until about age 70

Answer: A

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*Skill Level: Understand*

*Objective: 2.1 Explain what genes are and how they are transmitted from one generation to the next.*

*Topic: Genetic Foundations*

*Difficulty Level: Easy*

20. Autosomes are chromosomes that are \_\_\_\_\_.

- A) sex cells
- B) zygotes
- C) not matching
- D) not sex chromosomes

Answer: D

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*Skill Level: Understand*

*Objective: 2.1 Explain what genes are and how they are transmitted from one generation to the next.*

*Topic: Genetic Foundations*

*Difficulty Level: Moderate*

21. In females, the twenty-third pair of chromosomes is called \_\_\_\_\_.

- A) an autosome
- B) dizygotic
- C) XX
- D) XY

Answer: C

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*Skill Level: Understand*

*Objective: 2.1 Explain what genes are and how they are transmitted from one generation to the next.*

*Topic: Genetic Foundations*

*Difficulty Level: Easy*

22. Taylor's twenty-third pair of chromosomes is XY. Taylor is \_\_\_\_\_.

- A) genetically male
- B) a fraternal twin
- C) genetically female
- D) an identical twin

Answer: A

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Skill Level: Apply

*Objective: 2.1 Explain what genes are and how they are transmitted from one generation to the next.*

*Topic: Genetic Foundations*

*Difficulty Level: Moderate*

23. Patsy and Terry are fraternal twins. This type of twinning results from \_\_\_\_\_.

- A) a zygote that duplicates and separates into two clusters of cells
- B) the fertilization of one ovum by two Y-bearing sperm
- C) the release and fertilization of two ova
- D) the fertilization of one ovum by two X-bearing sperm

Answer: C

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Skill Level: Apply

*Objective: 2.1 Explain what genes are and how they are transmitted from one generation to the next.*

*Topic: Genetic Foundations*

*Difficulty Level: Moderate*

24. Fraternal twins are \_\_\_\_\_.

- A) genetically identical
- B) genetically no more alike than ordinary siblings
- C) less common than other types of multiple offspring
- D) less likely with each additional birth

Answer: B

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Skill Level: Understand

*Objective: 2.1 Explain what genes are and how they are transmitted from one generation to the next.*

*Topic: Genetic Foundations*

*Difficulty Level: Moderate*

25. Industrialized nations have seen a dramatic rise in multiple births in recent decades, in part as a result of \_\_\_\_\_.

- A) genetic influences

- B) poor nutrition among childbearing women
- C) slimmer average body builds
- D) the use of fertility drugs

Answer: D

*Page Ref: 42*

*Skill Level: Remember*

*Objective: 2.1 Explain what genes are and how they are transmitted from one generation to the next.*

*Topic: Genetic Foundations*

*Difficulty Level: Moderate*

26. A zygote that separates into two clusters of cells instead of just one produces \_\_\_\_\_.

- A) identical twins
- B) dizygotic twins
- C) triplets
- D) homozygous offspring

Answer: A

*Page Ref: 42*

*Skill Level: Understand*

*Objective: 2.1 Explain what genes are and how they are transmitted from one generation to the next.*

*Topic: Genetic Foundations*

*Difficulty Level: Moderate*

27. Animal research shows that a variety of environmental influences prompt monozygotic twinning, including \_\_\_\_\_.

- A) early fertilization of the ovum
- B) young maternal age
- C) variation in oxygen levels
- D) poor diet

Answer: C

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*Skill Level: Understand*

*Objective: 2.1 Explain what genes are and how they are transmitted from one generation to the next.*

*Topic: Genetic Foundations*

*Difficulty Level: Moderate*

28. During their early years, children of single births often \_\_\_\_\_ than twins.

- A) develop more slowly
- B) are healthier
- C) have more shrill cries
- D) are more sickly

Answer: B

*Page Ref: 42*



*Skill Level: Understand*

*Objective: 2.1 Explain what genes are and how they are transmitted from one generation to the next.*

*Topic: Genetic Foundations*

*Difficulty Level: Moderate*

29. In dominant–recessive inheritance, the one allele that affects the child’s characteristics is called \_\_\_\_\_.

- A) dominant–recessive
- B) dominant
- C) recessive
- D) a carrier

Answer: B

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*Skill Level: Remember*

*Objective: 2.2 Describe various patterns of gene–gene interaction.*

*Topic: Genetic Foundations*

*Difficulty Level: Easy*

30. Phil has blond hair. This means that Phil inherited a \_\_\_\_\_ pair of \_\_\_\_\_ alleles for hair color.

- A) homozygous; recessive
- B) heterozygous; dominant
- C) homozygous; dominant
- D) heterozygous; recessive

Answer: A

*Page Ref: 43*

*Skill Level: Apply*

*Objective: 2.2 Describe various patterns of gene–gene interaction.*

*Topic: Genetic Foundations*

*Difficulty Level: Difficult*

31. One well-known recessive disorder is \_\_\_\_\_, which affects the way the body breaks down proteins contained in many foods.

- A) sickle cell anemia
- B) Huntington disease
- C) Tay-Sachs disease
- D) phenylketonuria (PKU)

Answer: D

*Page Ref: 43*

*Skill Level: Remember*

*Objective: 2.2 Describe various patterns of gene–gene interaction.*

*Topic: Genetic Foundations*

*Difficulty Level: Easy*

32. Which statement is supported by research on dominant and recessive diseases?
- A) Children who inherit a dominant allele for a disorder are protected from developing it.
  - B) Males are more likely than females to inherit recessive disorders carried on the autosomes.
  - C) Only rarely are serious diseases due to dominant alleles.
  - D) Recessive alleles have no effect on individuals' characteristics.

Answer: C

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Skill Level: Understand

Objective: 2.2 Describe various patterns of gene–gene interaction.

Topic: Genetic Foundations

Difficulty Level: Moderate

33. Carriers of the sickle cell allele \_\_\_\_\_.
- A) often do not display symptoms until after they have passed the trait on to their children
  - B) can be treated during infancy if placed on a diet that is low in phenylalanine
  - C) are more resistant to malaria than are individuals with two alleles for normal red blood cells
  - D) develop sickle-shaped white blood cells that attack the brain

Answer: C

Page Ref: 43

Skill Level: Understand

Objective: 2.2 Describe various patterns of gene–gene interaction.

Topic: Genetic Foundations

Difficulty Level: Moderate

34. Eric is more likely than his sister to be negatively affected by X-linked disorders because \_\_\_\_\_.
- A) males are more likely than females to inherit harmful recessive alleles
  - B) the Y chromosome is much longer than the X chromosome
  - C) the Y chromosome lacks many corresponding genes to override those on the X chromosome
  - D) his sex chromosomes match

Answer: C

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Skill Level: Apply

Objective: 2.2 Describe various patterns of gene–gene interaction.

Topic: Genetic Foundations

Difficulty Level: Difficult

35. The majority of individuals with fragile X syndrome suffer from \_\_\_\_\_.
- A) a high incidence of childhood cancer
  - B) attention deficits and high anxiety
  - C) numerous health problems linked to severe obesity
  - D) a high incidence of diabetes

Answer: B

*Page Ref: 44*

*Skill Level: Remember*

*Objective: 2.2 Describe various patterns of gene–gene interaction.*

*Topic: Genetic Foundations*

*Difficulty Level: Moderate*

36. Which of the following is true about sex differences among offspring?
- A) Rates of miscarriage and birth defects are higher for girls.
  - B) Rates of learning disabilities and behavior disorders are higher for girls.
  - C) Boys are less likely than girls are to inherit hemophilia.
  - D) Worldwide, a greater number of boys are conceived and born than girls.

Answer: D

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*Skill Level: Understand*

*Objective: 2.2 Describe various patterns of gene–gene interaction.*

*Topic: Genetic Foundations*

*Difficulty Level: Moderate*

37. In \_\_\_\_\_, alleles are chemically marked, within the ovum or sperm, in such a way that one pair member is silenced, leaving the other to be expressed regardless of its makeup.
- A) genomic imprinting
  - B) X-linked inheritance
  - C) somatic mutation
  - D) incomplete dominance

Answer: A

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*Skill Level: Understand*

*Objective: 2.2 Describe various patterns of gene–gene interaction.*

*Topic: Genetic Foundations*

*Difficulty Level: Difficult*

38. Children are more likely to develop diabetes if their father, rather than their mother, suffers from the illness. This pattern of inheritance is best explained by \_\_\_\_\_.
- A) incomplete dominance
  - B) X-linked inheritance
  - C) genomic imprinting
  - D) genetic mutation

Answer: C

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*Skill Level: Understand*

*Objective: 2.2 Describe various patterns of gene–gene interaction.*

*Topic: Genetic Foundations*

*Difficulty Level: Moderate*

39. Which statement about mutation is true?

- A) Some mutations occur spontaneously, simply by chance.
- B) Mutations cannot be caused by environmental agents.
- C) The process of mutation depends on the interaction of many genes.
- D) Germline mutations show us that each of us has a single, permanent genotype.

Answer: A

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Skill Level: Understand

Objective: 2.2 Describe various patterns of gene–gene interaction.

Topic: Genetic Foundations

Difficulty Level: Moderate

40. In \_\_\_\_\_, normal body cells mutate, an event that can occur at any time of life.

- A) somatic mutation
- B) germline mutation
- C) polygenic inheritance
- D) genomic imprinting

Answer: A

Page Ref: 45

Skill Level: Remember

Objective: 2.2 Describe various patterns of gene–gene interaction.

Topic: Genetic Foundations

Difficulty Level: Easy

41. Terrence is 6'2" tall and weighs 165 pounds. His brother Jayquan is 5'9" tall and weighs 210 pounds. These traits are due to \_\_\_\_\_.

- A) dominant–recessive inheritance
- B) polygenic inheritance
- C) somatic mutation
- D) germline mutation

Answer: B

Page Ref: 45

Skill Level: Apply

Objective: 2.2 Describe various patterns of gene–gene interaction.

Topic: Genetic Foundations

Difficulty Level: Moderate

42. Most chromosomal defects result from \_\_\_\_\_.

- A) X-linked disorders
- B) somatic mutation
- C) mistakes during meiosis
- D) recessive disorders

Answer: C

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Skill Level: Understand

Objective: 2.3 Describe major chromosomal abnormalities, and explain how they occur.

Topic: Genetic Foundations

Difficulty Level: Moderate

43. As a result of a failure of the twenty-first pair of chromosomes to separate during meiosis, Aziz received three of these chromosomes rather than the normal two. Aziz has \_\_\_\_\_ syndrome.

- A) XYY
- B) Klinefelter
- C) Turner
- D) Down

Answer: D

Page Ref: 46

Skill Level: Apply

Objective: 2.3 Describe major chromosomal abnormalities, and explain how they occur.

Topic: Genetic Foundations

Difficulty Level: Difficult

44. About 70 percent of individuals with Down syndrome who live past age 40 show symptoms of \_\_\_\_\_ disease.

- A) Prader-Willi
- B) Huntington
- C) Alzheimer's
- D) kidney

Answer: C

Page Ref: 46

Skill Level: Remember

Objective: 2.3 Describe major chromosomal abnormalities, and explain how they occur.

Topic: Genetic Foundations

Difficulty Level: Easy

45. Which woman is at the greatest risk of bearing a baby with Down syndrome?

- A) Gemma, age 15
- B) Melina, age 24
- C) Ursula, age 28
- D) Kay, age 44

Answer: D

Page Ref: 46

Skill Level: Apply

Objective: 2.3 Describe major chromosomal abnormalities, and explain how they occur.

*Topic: Genetic Foundations*

*Difficulty Level: Difficult*

46. Manny inherited an extra X chromosome. If he is like many boys with Klinefelter syndrome, Manny will have difficulty \_\_\_\_\_.

- A) with reading and vocabulary
- B) drawing pictures
- C) following travel directions
- D) managing aggression

Answer: A

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*Skill Level: Apply*

*Objective: 2.3 Describe major chromosomal abnormalities, and explain how they occur.*

*Topic: Genetic Foundations*

*Difficulty Level: Difficult*

47. Research on sex chromosome disorders shows that \_\_\_\_\_.

- A) males with XYY syndrome are more aggressive and antisocial than XY males
- B) verbal difficulties are common among females who are missing an X chromosome
- C) girls who are missing an X chromosome have trouble with spatial relationships
- D) most children with these disorders suffer from intellectual disability

Answer: C

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*Skill Level: Understand*

*Objective: 2.3 Describe major chromosomal abnormalities, and explain how they occur.*

*Topic: Genetic Foundations*

*Difficulty Level: Moderate*

48. Which of the following is true about genetic counseling?

- A) It involves medical procedures that permit detection of developmental problems before birth.
- B) It helps couples assess their chances of giving birth to a baby with a hereditary disorder.
- C) It is not useful for individuals who know that genetic problems exist in their families.
- D) Genetic markers for autism are found in a majority of affected people.

Answer: B

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*Skill Level: Understand*

*Objective: 2.4 Discuss counseling, medical procedures, and reproductive options that can assist prospective parents in having healthy children.*

*Topic: Reproductive Choices*

*Difficulty Level: Moderate*

49. If a family history of intellectual disabilities, psychological disorders, physical defects, or inherited diseases exists, a genetic counselor prepares a \_\_\_\_\_, which identifies affected relatives in a couple's family tree.

- A) pedigree
- B) genetic marker
- C) maternal blood analysis
- D) preimplantation genetic diagnosis

Answer: A

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Skill Level: Remember

Objective: 2.4 Discuss counseling, medical procedures, and reproductive options that can assist prospective parents in having healthy children.

Topic: Reproductive Choices

Difficulty Level: Easy

50. Which statement about donor insemination is true?

- A) It is commonly used to overcome female reproductive difficulties.
- B) It involves giving a woman hormones that stimulate the ripening of several ova.
- C) It permits women without a male partner to become pregnant.
- D) It is used to treat women whose fallopian tubes are permanently damaged.

Answer: C

Page Ref: 48–49 Box: SOCIAL ISSUES: The Pros and Cons of Reproductive Technologies

Skill Level: Understand

Objective: 2.4 Discuss counseling, medical procedures, and reproductive options that can assist prospective parents in having healthy children.

Topic: Reproductive Choices

Difficulty Level: Moderate

51. Usually, in vitro fertilization \_\_\_\_\_.

- A) is increasingly successful with age.
- B) poses less risk to infant survival than natural conception
- C) is used to treat women whose fallopian tubes are permanently damaged
- D) involves the wealthy as contractors for infants

Answer: C

Page Ref: 48–49 Box: SOCIAL ISSUES: The Pros and Cons of Reproductive Technologies

Skill Level: Understand

Objective: 2.4 Discuss counseling, medical procedures, and reproductive options that can assist prospective parents in having healthy children.

Topic: Reproductive Choices

Difficulty Level: Difficult

52. Which statement about children conceived through reproductive technologies is true?

- A) The limited studies completed thus far show that children born through a surrogate arrangement are generally poorly adjusted.
- B) Compared with their naturally conceived counterparts, caregiving is somewhat warmer for young children conceived through donor insemination or in vitro fertilization.
- C) The majority of in vitro procedures result in the birth of twins.
- D) Adolescents conceived through donor insemination tend to be less well-adjusted than their naturally conceived counterparts.

Answer: B

*Page Ref: 48–49 Box: SOCIAL ISSUES: The Pros and Cons of Reproductive Technologies*

*Skill Level: Understand*

*Objective: 2.4 Discuss counseling, medical procedures, and reproductive options that can assist prospective parents in having healthy children.*

*Topic: Reproductive Choices*

*Difficulty Level: Moderate*

53. Which statement is accurate regarding emerging issues in the use of reproductive technologies?
- A) Ample longitudinal evidence shows that children conceived by reproductive technologies are mentally and physically healthier than their naturally conceived counterparts.
  - B) Most countries have adopted a “hands-off” policy toward regulating reproductive technologies.
  - C) A clear pattern of birth defects resulting from surrogate motherhood has led to a ban on that practice in Ireland and Sweden.
  - D) Many ethical questions concerning techniques such as surrogate motherhood and in vitro fertilization continue to be debated.

Answer: D

*Page Ref: 48–49 Box: SOCIAL ISSUES: The Pros and Cons of Reproductive Technologies*

*Skill Level: Understand*

*Objective: 2.4 Discuss counseling, medical procedures, and reproductive options that can assist prospective parents in having healthy children.*

*Topic: Reproductive Choices*

*Difficulty Level: Difficult*

54. To detect developmental problems before birth, doctors use \_\_\_\_\_.
- A) prenatal diagnostic methods
  - B) genomic imprinting
  - C) gene therapy
  - D) genomewide testing methods

Answer: A

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*Skill Level: Remember*

*Objective: 2.4 Discuss counseling, medical procedures, and reproductive options that can assist prospective parents in having healthy children.*

*Topic: Reproductive Choices*

*Difficulty Level: Easy*



55. Except for \_\_\_\_\_, prenatal diagnosis should not be used routinely because of injury risks to the developing organism.

- A) amniocentesis
- B) fetoscopy
- C) chorionic villus sampling
- D) maternal blood analysis

Answer: D

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Skill Level: Understand

Objective: 2.4 Discuss counseling, medical procedures, and reproductive options that can assist prospective parents in having healthy children.

Topic: Reproductive Choices

Difficulty Level: Moderate

56. \_\_\_\_\_ is the most widely used prenatal diagnostic method.

- A) Amniocentesis
- B) Chorionic villus sampling
- C) Ultrafast magnetic resonance imaging
- D) Fetoscopy

Answer: A

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Skill Level: Remember

Objective: 2.4 Discuss counseling, medical procedures, and reproductive options that can assist prospective parents in having healthy children.

Topic: Reproductive Choices

Difficulty Level: Easy

57. Which prenatal diagnostic method is used after in vitro fertilization but before implantation?

- A) chorionic villus sampling
- B) ultrafast magnetic resonance imaging
- C) fetoscopy
- D) preimplantation genetic diagnosis

Answer: D

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Skill Level: Understand

Objective: 2.4 Discuss counseling, medical procedures, and reproductive options that can assist prospective parents in having healthy children.

Topic: Reproductive Choices

Difficulty Level: Difficult

58. The modification of gene-specified proteins involved in biological aging and disease is known as \_\_\_\_\_.

- A) fetoscopy
- B) amniocentesis
- C) proteomics
- D) gene therapy

Answer: C

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*Skill Level: Understand*

*Objective: 2.4 Discuss counseling, medical procedures, and reproductive options that can assist prospective parents in having healthy children.*

*Topic: Reproductive Choices*

*Difficulty Level: Moderate*

59. Adopted children and adolescents tend to \_\_\_\_\_.

- A) almost immediately develop feelings of trust and affection toward their adoptive parents
- B) fare better if they are adopted in their birth country after infancy and toddlerhood
- C) develop less favorably than institutionalized agemates who remain in their birth country
- D) have more learning and emotional difficulties than other children

Answer: D

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*Skill Level: Understand*

*Objective: 2.4 Discuss counseling, medical procedures, and reproductive options that can assist prospective parents in having healthy children.*

*Topic: Reproductive Choices*

*Difficulty Level: Moderate*

60. Most adopted children \_\_\_\_\_.

- A) fare well, despite the risks associated with adoption
- B) have persistent social problems
- C) are less intelligent than their biological relatives
- D) have persistent cognitive problems

Answer: A

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*Skill Level: Understand*

*Objective: 2.4 Discuss counseling, medical procedures, and reproductive options that can assist prospective parents in having healthy children.*

*Topic: Reproductive Choices*

*Difficulty Level: Moderate*

61. When Brooke is cooperative, her parents are likely to be warm and gentle in the future. This is an example of a(n) \_\_\_\_\_ influence between parents and their children.

- A) direct
- B) coparenting
- C) maladaptive

D) indirect

Answer: A

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*Skill Level: Apply*

*Objective: 2.5 Describe family functioning from the perspective of ecological systems theory, along with aspects of the environment that support family well-being and development.*

*Topic: Environmental Contexts for Development*

*Difficulty Level: Moderate*

62. Amelia and Andrew praise and stimulate their children, and they mutually support each other's parenting behaviors. Amelia and Andrew engage in effective \_\_\_\_\_.

- A) induction
- B) permissive parenting
- C) coparenting
- D) niche-picking

Answer: C

*Page Ref: 53*

*Skill Level: Apply*

*Objective: 2.5 Describe family functioning from the perspective of ecological systems theory, along with aspects of the environment that support family well-being and development.*

*Topic: Environmental Contexts for Development*

*Difficulty Level: Moderate*

63. People who work in skilled and semiskilled manual occupations tend to \_\_\_\_\_ than people in professional and technical occupations.

- A) marry later
- B) have more children
- C) talk to their children more
- D) give their children more verbal praise

Answer: B

*Page Ref: 54*

*Skill Level: Understand*

*Objective: 2.5 Describe family functioning from the perspective of ecological systems theory, along with aspects of the environment that support family well-being and development.*

*Topic: Environmental Contexts for Development*

*Difficulty Level: Moderate*

64. When asked about personal qualities they desire for their children, higher-SES parents are more likely to emphasize \_\_\_\_\_.

- A) obedience
- B) politeness
- C) happiness
- D) cleanliness

Answer: C

Page Ref: 54

Skill Level: Understand

Objective: 2.5 Describe family functioning from the perspective of ecological systems theory, along with aspects of the environment that support family well-being and development.

Topic: Environmental Contexts for Development

Difficulty Level: Moderate

65. Throughout childhood and adolescence, children in higher-SES families tend to \_\_\_\_\_ than children in lower-SES families.

- A) receive more criticism from their parents
- B) demonstrate more limited language development
- C) be allowed fewer opportunities to make their own decisions
- D) do better in school

Answer: D

Page Ref: 54

Skill Level: Understand

Objective: 2.5 Describe family functioning from the perspective of ecological systems theory, along with aspects of the environment that support family well-being and development.

Topic: Environmental Contexts for Development

Difficulty Level: Easy

66. Of all Western nations, \_\_\_\_\_ has the highest percentage of extremely poor children.

- A) the United States
- B) Canada
- C) Germany
- D) France

Answer: A

Page Ref: 55

Skill Level: Remember

Objective: 2.5 Describe family functioning from the perspective of ecological systems theory, along with aspects of the environment that support family well-being and development.

Topic: Environmental Contexts for Development

Difficulty Level: Easy

67. Nearly 9 percent of \_\_\_\_\_ children live in deep poverty.

- A) Canadian
- B) U.S.
- C) Norwegian
- D) Swedish

Answer: B

Page Ref: 55

*Skill Level: Remember*

*Objective: 2.5 Describe family functioning from the perspective of ecological systems theory, along with aspects of the environment that support family well-being and development.*

*Topic: Environmental Contexts for Development*

*Difficulty Level: Easy*

68. In several studies, affluent teenagers were \_\_\_\_\_ likely than youths in general to \_\_\_\_\_.
- A) less; engage in alcohol and drug use
  - B) more; report high levels of anxiety and depression
  - C) less; commit delinquent acts
  - D) more; have physically and emotionally available parents

Answer: B

Page Ref: 56

*Skill Level: Understand*

*Objective: 2.5 Describe family functioning from the perspective of ecological systems theory, along with aspects of the environment that support family well-being and development.*

*Topic: Environmental Contexts for Development*

*Difficulty Level: Moderate*

69. An experimental study of neighborhood mobility found that compared with peers who remained in poverty-stricken areas, children and youths who moved into low-poverty neighborhoods and remained there for several years showed \_\_\_\_\_.
- A) more mental health problems
  - B) better school achievement
  - C) more physical health problems
  - D) more social problems

Answer: B

Page Ref: 56

*Skill Level: Remember*

*Objective: 2.5 Describe family functioning from the perspective of ecological systems theory, along with aspects of the environment that support family well-being and development.*

*Topic: Environmental Contexts for Development*

*Difficulty Level: Easy*

70. Neighborhood resources \_\_\_\_\_.
- A) play little or no role in children's development
  - B) have a greater impact on adults than on children and youths
  - C) tend to benefit children from affluent families
  - D) have a greater impact on economically disadvantaged than on well-to-do young people

Answer: D

Page Ref: 57

*Skill Level: Understand*

*Objective: 2.5 Describe family functioning from the perspective of ecological systems theory, along with aspects of the environment that support family well-being and development.*

*Topic: Environmental Contexts for Development*

*Difficulty Level: Moderate*

71. Longitudinal follow-up research on the Better Beginnings, Better Futures Project of Ontario, Canada, revealed a(n) \_\_\_\_\_.

- A) reduction in children's social adjustment
- B) increase in adolescent delinquency
- C) improved sense of community connection
- D) reduction in children's academic achievement

Answer: C

Page Ref: 57

Skill Level: Remember

*Objective: 2.5 Describe family functioning from the perspective of ecological systems theory, along with aspects of the environment that support family well-being and development.*

*Topic: Environmental Contexts for Development*

*Difficulty Level: Moderate*

72. Students whose parents are involved in school activities and attend parent–teacher conferences \_\_\_\_\_.

- A) show better academic achievement
- B) often feel uncomfortable about coming to school
- C) are more likely to attend underfunded schools
- D) are less likely to graduate from high school

Answer: A

Page Ref: 58

Skill Level: Understand

*Objective: 2.5 Describe family functioning from the perspective of ecological systems theory, along with aspects of the environment that support family well-being and development.*

*Topic: Environmental Contexts for Development*

*Difficulty Level: Moderate*

73. One reason that Americans have been reluctant to accept the idea of government-supported benefits for all families, such as high-quality child care, is that \_\_\_\_\_.

- A) few mothers of very young children work outside the home
- B) it is widely believed that child care is harmful to young children
- C) most grandparents provide regular child care
- D) American values emphasize independence and self-reliance

Answer: D

Page Ref: 58

Skill Level: Understand

*Objective: 2.5 Describe family functioning from the perspective of ecological systems theory, along with aspects of the environment that support family well-being and development.*

*Topic: Environmental Contexts for Development*

*Difficulty Level: Difficult*

74. People who belong to \_\_\_\_\_ have beliefs and customs that differ from those of the larger culture.
- A) microsystems
  - B) subcultures
  - C) macrosystems
  - D) collectivist societies

Answer: B

*Page Ref: 58*

*Skill Level: Remember*

*Objective: 2.5 Describe family functioning from the perspective of ecological systems theory, along with aspects of the environment that support family well-being and development.*

*Topic: Environmental Contexts for Development*

*Difficulty Level: Easy*

75. Which of the following is true about extended-family households?
- A) Active, involved extended families are not typical among Asian and Native-American subcultures.
  - B) In extended-family households, children receive less attentive care.
  - C) In Hispanic extended families, grandparents are unlikely to share in rearing young children.
  - D) Extended-family households are a vital feature of African-American family life that promotes resilience in children.

Answer: D

*Page Ref: 59*

*Skill Level: Understand*

*Objective: 2.5 Describe family functioning from the perspective of ecological systems theory, along with aspects of the environment that support family well-being and development.*

*Topic: Environmental Contexts for Development*

*Difficulty Level: Moderate*

76. In cultures that emphasize collectivism, people value \_\_\_\_\_.
- A) independence
  - B) personal achievement
  - C) collaborative endeavors
  - D) choice in relationships

Answer: C

*Page Ref: 59*

*Skill Level: Understand*

*Objective: 2.5 Describe family functioning from the perspective of ecological systems theory, along with aspects of the environment that support family well-being and development.*

*Topic: Environmental Contexts for Development*

*Difficulty Level: Easy*

77. The United States is more \_\_\_\_\_ than most Western European countries, which place greater weight on \_\_\_\_\_.

- A) collectivistic; individualism
- B) individualistic; independence
- C) collectivistic; interdependence
- D) individualistic; collectivism

Answer: D

*Page Ref: 59*

*Skill Level: Remember*

*Objective: 2.5 Describe family functioning from the perspective of ecological systems theory, along with aspects of the environment that support family well-being and development.*

*Topic: Environmental Contexts for Development*

*Difficulty Level: Moderate*

78. In the United States, public policies safeguarding children and youths \_\_\_\_\_.

- A) have served as a model for international standards
- B) have lagged behind policies in other developed nations
- C) undergo federal inspection and revision every two years
- D) were among the first to be established in the international community

Answer: B

*Page Ref: 59*

*Skill Level: Remember*

*Objective: 2.5 Describe family functioning from the perspective of ecological systems theory, along with aspects of the environment that support family well-being and development.*

*Topic: Environmental Contexts for Development*

*Difficulty Level: Easy*

79. \_\_\_\_\_ does not rank well on important key measures of children's health and well-being.

- A) Canada
- B) Belgium
- C) Australia
- D) The United States

Answer: D

*Page Ref: 59 Table 2.2*

*Skill Level: Remember*

*Objective: 2.5 Describe family functioning from the perspective of ecological systems theory, along with aspects of the environment that support family well-being and development.*

*Topic: Environmental Contexts for Development*

*Difficulty Level: Moderate*



80. A comparison of the United States with other nations on indicators of children's health and well-being shows that the United States \_\_\_\_\_.

- A) has a higher infant death rate than Canada
- B) has a lower teenage birth rate than Poland
- C) spends more public funds on education than Sweden
- D) spends more public funds on early childhood education than Germany

Answer: A

Page Ref: 59, Table 2.2

Skill Level: Remember

Objective: 2.5 Describe family functioning from the perspective of ecological systems theory, along with aspects of the environment that support family well-being and development.

Topic: Environmental Contexts for Development

Difficulty Level: Difficult

81. The Affordable Care Act of 2010\_\_\_\_\_.

- A) mandated affordable health insurance for low-income adults in all states
- B) extended government-supported health insurance to all children in low-income families
- C) created a universal, publicly funded health care system for all American families
- D) created national standards and public funding for child care in the United States

Answer: B

Page Ref: 60

Skill Level: Understand

Objective: 2.5 Describe family functioning from the perspective of ecological systems theory, along with aspects of the environment that support family well-being and development.

Topic: Environmental Contexts for Development

Difficulty Level: Moderate

82. Which statement about affordable child care in the United States is true?

- A) Much of it is mediocre to poor in quality.
- B) It is guaranteed by law.
- C) National standards ensure high-quality care.
- D) Publicly funded child care is easily available.

Answer: A

Page Ref: 60

Skill Level: Understand

Objective: 2.5 Describe family functioning from the perspective of ecological systems theory, along with aspects of the environment that support family well-being and development.

Topic: Environmental Contexts for Development

Difficulty Level: Moderate

83. One reason that attempts to help children and youths have been difficult to realize in the United States is that \_\_\_\_\_.

- A) similar government policies have failed in other Western countries

- B) U.S. cultural values emphasize interdependence
- C) children cannot vote or speak out to protect their own interests
- D) the United States already ranks at the top on key measures of children's health and well-being

Answer: C

Page Ref: 60

Skill Level: Understand

Objective: 2.5 Describe family functioning from the perspective of ecological systems theory, along with aspects of the environment that support family well-being and development.

Topic: Environmental Contexts for Development

Difficulty Level: Difficult

84. The Children's Defense Fund is a nonprofit organization that \_\_\_\_\_.
- A) provides free legal services to low-income families of children with disabilities
  - B) lobbies for increased government benefits for children with special needs
  - C) provides free meals to children living in poverty
  - D) engages in public education and partners with other organizations to improve policies for children

Answer: D

Page Ref: 60–61

Skill Level: Remember

Objective: 2.5 Describe family functioning from the perspective of ecological systems theory, along with aspects of the environment that support family well-being and development.

Topic: Environmental Contexts for Development

Difficulty Level: Easy

85. Behavioral genetics is a(n) \_\_\_\_\_.
- A) medical procedure that permits detection of developmental problems before birth
  - B) ambitious international research program aimed at deciphering genomes
  - C) field devoted to uncovering the contributions of nature and nurture to human diversity
  - D) biochemical process triggered by certain experiences that alter gene expression

Answer: C

Page Ref: 61

Skill Level: Remember

Objective: 2.6 Explain the various ways heredity and environment may combine to influence complex traits.

Topic: Understanding the Relationship Between Heredity and Environment

Difficulty Level: Easy

86. A growing number of researchers regard the question of how much heredity and environment each contribute to differences among people as \_\_\_\_\_.
- A) unanswerable
  - B) answered mainly by DNA
  - C) unimportant
  - D) easily answered with kinship studies

Answer: A

Page Ref: 61

Skill Level: Understand

Objective: 2.6 Explain the various ways heredity and environment may combine to influence complex traits.

Topic: Understanding the Relationship Between Heredity and Environment

Difficulty Level: Moderate

87. Kayoko is interested in whether people who are genetically more alike are also more similar in intelligence and personality. She decides to use a common type of \_\_\_\_\_ study, in which she will compare identical twins with fraternal twins.

- A) kinship
- B) case
- C) cohort
- D) ethnographic

Answer: A

Page Ref: 62

Skill Level: Apply

Objective: 2.6 Explain the various ways heredity and environment may combine to influence complex traits.

Topic: Understanding the Relationship Between Heredity and Environment

Difficulty Level: Easy

88. Currently, most kinship findings support a \_\_\_\_\_ role for heredity in \_\_\_\_\_.

- A) strong; intelligence
- B) moderate; intelligence
- C) strong; anxiety
- D) weak; personality

Answer: B

Page Ref: 62

Skill Level: Understand

Objective: 2.6 Explain the various ways heredity and environment may combine to influence complex traits.

Topic: Understanding the Relationship Between Heredity and Environment

Difficulty Level: Moderate

89. Twin studies of schizophrenia, bipolar disorder, and autism \_\_\_\_\_.

- A) fail to demonstrate a strong genetic contribution to these disorders
- B) yield unreliable heritabilities, ranging from .20 to .75
- C) generally yield high heritabilities, above .70
- D) consistently yield low heritabilities, below .30

Answer: C

*Page Ref: 62*

*Skill Level: Remember*

*Objective: 2.6 Explain the various ways heredity and environment may combine to influence complex traits.*

*Topic: Understanding the Relationship Between Heredity and Environment*

*Difficulty Level: Moderate*

90. Heritabilities for antisocial behavior and major depression \_\_\_\_\_.

- A) fail to demonstrate a genetic contribution to these disorders
- B) range from .25 to .75
- C) are consistently above .70
- D) are in the .30s and .40s

Answer: D

*Page Ref: 62*

*Skill Level: Remember*

*Objective: 2.6 Explain the various ways heredity and environment may combine to influence complex traits.*

*Topic: Understanding the Relationship Between Heredity and Environment*

*Difficulty Level: Moderate*

91. Heritability estimates are \_\_\_\_\_.

- A) likely to exaggerate the role of the environment
- B) difficult to misapply
- C) not useful for studying complex traits, such as intelligence and personality
- D) likely to exaggerate the role of heredity

Answer: D

*Page Ref: 62*

*Skill Level: Understand*

*Objective: 2.6 Explain the various ways heredity and environment may combine to influence complex traits.*

*Topic: Understanding the Relationship Between Heredity and Environment*

*Difficulty Level: Moderate*

92. The concept of \_\_\_\_\_ means that because of their genetic makeup, individuals differ in their responsiveness to qualities of the environment.

- A) gene–environment interaction
- B) niche-picking
- C) passive correlation
- D) evocative correlation

Answer: A

*Page Ref: 63*

*Skill Level: Remember*

*Objective: 2.6 Explain the various ways heredity and environment may combine to influence complex traits.*

*Topic: Understanding the Relationship Between Heredity and Environment*

*Difficulty Level: Easy*

93. According to the concept of gene–environment correlation, \_\_\_\_\_.
- A) people respond similarly to the same qualities of the environment
  - B) heredity restricts the development of some characteristics to one outcome
  - C) our genes influence the environments to which we are exposed
  - D) the environment can alter gene expression without changing the DNA sequence

Answer: C

Page Ref: 63

Skill Level: Understand

*Objective: 2.6 Explain the various ways heredity and environment may combine to influence complex traits.*

*Topic: Understanding the Relationship Between Heredity and Environment*

*Difficulty Level: Moderate*

94. The child has no control over \_\_\_\_\_ gene–environment correlation.
- A) passive
  - B) evocative
  - C) active
  - D) regressive

Answer: A

Page Ref: 64

Skill Level: Understand

*Objective: 2.6 Explain the various ways heredity and environment may combine to influence complex traits.*

*Topic: Understanding the Relationship Between Heredity and Environment*

*Difficulty Level: Moderate*

95. Bart and Nadia are gymnasts. They decided to provide their 4-year-old son, Dylan, with gymnastics lessons. This is an example of \_\_\_\_\_.
- A) methylation
  - B) evocative correlation
  - C) active correlation
  - D) passive correlation

Answer: D

Page Ref: 64

Skill Level: Apply

*Objective: 2.6 Explain the various ways heredity and environment may combine to influence complex traits.*

*Topic: Understanding the Relationship Between Heredity and Environment*

*Difficulty Level: Moderate*

96. Angela, a cooperative and attentive child, receives more patient and sensitive interactions from her parents than Carlos, who is inattentive and hyperactive. This is an example of a(n) \_\_\_\_\_ gene–environment correlation.

- A) active
- B) evocative
- C) dynamic
- D) passive

Answer: B

*Page Ref: 64*

*Skill Level: Apply*

*Objective: 2.6 Explain the various ways heredity and environment may combine to influence complex traits.*

*Topic: Understanding the Relationship Between Heredity and Environment*

*Difficulty Level: Moderate*

97. Identical twins evoke \_\_\_\_\_.

- A) only moderately similar parental treatment in terms of negativity
- B) only moderately similar parental treatment in terms of warmth
- C) similar parental treatment in warmth and negativity because of their identical heredity
- D) varied maternal treatment because mothers in particular respond to each child's unique genetic makeup

Answer: C

*Page Ref: 64*

*Skill Level: Understand*

*Objective: 2.6 Explain the various ways heredity and environment may combine to influence complex traits.*

*Topic: Understanding the Relationship Between Heredity and Environment*

*Difficulty Level: Moderate*

98. \_\_\_\_\_ gene–environment correlation becomes common at older ages.

- A) Passive
- B) Active
- C) Evocative
- D) Stagnant

Answer: B

*Page Ref: 64*

*Skill Level: Understand*

*Objective: 2.6 Explain the various ways heredity and environment may combine to influence complex traits.*

*Topic: Understanding the Relationship Between Heredity and Environment*

*Difficulty Level: Easy*

99. Anthony, a well-coordinated and muscular boy, decides to play high school football. This is an example of \_\_\_\_\_ gene–environment correlation.

- A) active
- B) passive
- C) dynamic
- D) evocative

Answer: A

Page Ref: 64

Skill Level: Apply

Objective: 2.6 Explain the various ways heredity and environment may combine to influence complex traits.

Topic: Understanding the Relationship Between Heredity and Environment

Difficulty Level: Moderate

100. Emma, an intellectually curious 11-year-old, is a familiar patron at her local library. This is an example of \_\_\_\_\_.

- A) passive correlation
- B) niche-picking
- C) evocative correlation
- D) methylation

Answer: B

Page Ref: 64

Skill Level: Apply

Objective: 2.6 Explain the various ways heredity and environment may combine to influence complex traits.

Topic: Understanding the Relationship Between Heredity and Environment

Difficulty Level: Moderate

101. Which age group is likely to do more niche-picking?

- A) adolescents
- B) preschoolers
- C) infants
- D) toddlers

Answer: A

Page Ref: 64

Skill Level: Understand

Objective: 2.6 Explain the various ways heredity and environment may combine to influence complex traits.

Topic: Understanding the Relationship Between Heredity and Environment

Difficulty Level: Moderate

102. \_\_\_\_\_ explains why pairs of identical twins reared apart during childhood and later reunited may find that they have similar hobbies, food preferences, and vocations.

- A) Passive correlation
- B) Methylation
- C) Evocative correlation
- D) Niche-picking

Answer: D

*Page Ref: 64*

*Skill Level: Understand*

*Objective: 2.6 Explain the various ways heredity and environment may combine to influence complex traits.*

*Topic: Understanding the Relationship Between Heredity and Environment*

*Difficulty Level: Moderate*

103. Which statement is true of the influence of parents and other caring adults on gene expression?

- A) Regardless of the experiences they provide, they cannot modify their children's expression of hereditary tendencies.
- B) They can uncouple unfavorable gene–environment correlations by providing children with positive experiences.
- C) They can do little to alter genetic tendencies, which cause children to receive, evoke, or seek certain experiences.
- D) They cannot protect aggressive children from a spiraling, antisocial course of development.

Answer: B

*Page Ref: 65*

*Skill Level: Understand*

*Objective: 2.6 Explain the various ways heredity and environment may combine to influence complex traits.*

*Topic: Understanding the Relationship Between Heredity and Environment*

*Difficulty Level: Difficult*

104. Which concept emphasizes development resulting from ongoing bidirectional exchanges between heredity and all levels of the environment?

- A) gene–environment interaction
- B) gene–environment correlation
- C) epigenesis
- D) niche-picking

Answer: C

*Page Ref: 65*

*Skill Level: Remember*

*Objective: 2.6 Explain the various ways heredity and environment may combine to influence complex traits.*

*Topic: Understanding the Relationship Between Heredity and Environment*

*Difficulty Level: Moderate*



105. \_\_\_\_\_ help explain why identical twins, though precisely the same in DNA sequencing, sometimes display strikingly different phenotypes with age.

- A) Heredity estimates
- B) Passive correlations
- C) Evocative correlations
- D) Methylation levels

Answer: D

Page Ref: 65

Skill Level: Remember

Objective: 2.6 Explain the various ways heredity and environment may combine to influence complex traits.

Topic: Understanding the Relationship Between Heredity and Environment

Difficulty Level: Moderate

106. Environmental modification of gene expression \_\_\_\_\_.

- A) may become possible in the future
- B) cannot occur until after puberty
- C) can occur at any age, even prenatally
- D) happens in other mammals, but not humans

Answer: C

Page Ref: 65

Skill Level: Understand

Objective: 2.6 Explain the various ways heredity and environment may combine to influence complex traits.

Topic: Understanding the Relationship Between Heredity and Environment

Difficulty Level: Moderate

107. Parental post-traumatic stress disorder (PTSD) is \_\_\_\_\_.

- A) a strong predictor of child PTSD
- B) not correlated with child PTSD
- C) unrelated to methylation of the GR gene
- D) weakly associated with child PTSD

Answer: A

Page Ref: 66 Box: BIOLOGY AND ENVIRONMENT: The Tutsi Genocide and Epigenetic Transmission of Maternal Stress to Children

Skill Level: Remember

Objective: 2.6 Explain the various ways heredity and environment may combine to influence complex traits.

Topic: Understanding the Relationship Between Heredity and Environment

Difficulty Level: Moderate

108. In a study of Tutsi women who were pregnant during the genocide of 1994, in comparison with non-exposed mothers, mothers who witnessed the genocidal carnage had \_\_\_\_\_.

- A) higher PTSD and depression scores, but their children displayed weaker GR methylation
- B) substantially higher PTSD and depression scores, and their children displayed stronger GR methylation
- C) higher PTSD scores and lower depression scores, and their children did not show GR methylation
- D) similar PTSD and depression scores, but their children displayed stronger GR methylation

Answer: B

*Page Ref: 66 Box: BIOLOGY AND ENVIRONMENT: The Tutsi Genocide and Epigenetic Transmission of Maternal Stress to Children*

*Skill Level: Remember*

*Objective: 2.6 Explain the various ways heredity and environment may combine to influence complex traits.*

*Topic: Understanding the Relationship Between Heredity and Environment*

*Difficulty Level: Difficult*

109. Development is best understood as \_\_\_\_\_.

- A) genetically determined
- B) environmentally influenced
- C) a series of complex exchanges between nature and nurture
- D) an unsolvable puzzle

Answer: C

*Page Ref: 67*

*Skill Level: Understand*

*Objective: 2.6 Explain the various ways heredity and environment may combine to influence complex traits.*

*Topic: Understanding the Relationship Between Heredity and Environment*

*Difficulty Level: Moderate*

## **ESSAY**

110. Explain how dizygotic and monozygotic twins originate, and identify the frequency with which each type of twin occurs. Summarize the genetic and environmental factors that increase the chances of giving birth to each type of twins.

Answer: Dizygotic, or fraternal, twins are the most common type of multiple offspring. They result from the release and fertilization of two ova. Genetically, they are no more alike than ordinary siblings. Older maternal age, fertility drugs, and in vitro fertilization are major causes of the dramatic rise in fraternal twinning and other multiple births in industrialized nations over the past several decades. Currently, fraternal twins account for 1 in about every 33 births in the United States. Monozygotic, or identical, twins are created when a zygote that has started to duplicate separates into two clusters of cells that develop into two individuals. The frequency of identical twins is the same around the world—about 1 in every 350 to 400 births. Environmental influences that prompt monozygotic twinning include temperature changes, variation in oxygen levels, and late fertilization of the ovum.

*Page Ref: 42*

111. Explain X-linked inheritance and how it affects both males and females.

Answer: When a harmful allele is carried on the X chromosome, X-linked inheritance applies. Males are more likely to be affected because their sex chromosomes do not match. In females, any recessive allele on one X chromosome has a good chance of being suppressed by a dominant allele on the other X. But the Y chromosome is only about one-third as long and therefore lacks many corresponding genes to override those on the X. A well-known example of X-linked inheritance is hemophilia, a disorder in which the blood fails to clot normally. There is a greater likelihood of inheritance by male children whose mothers carry the abnormal allele. Similarly, fragile X syndrome, the most common inherited cause of intellectual disability, affects about 1 in 2,000 males and 1 in 6,000 females. In this disorder an abnormal repetition of a sequence of DNA bases occurs on the X chromosome, damaging a particular gene.

*Page Ref: 44*

112. How do contemporary researchers view the family? Describe direct and indirect influences within family members' interdependent relationships, and provide examples of each.

Answer: Contemporary researchers view the family as a network of interdependent relationships. Bidirectional influences exist in which the behaviors of each family member affect those of others. These influences operate both directly and indirectly. Kind, patient communication evokes cooperative, harmonious responses, whereas harshness and impatience engender angry, resistive behavior. Each of these reactions, in turn, forges a new link in the interactive chain. In the first instance, a positive message tends to follow; in the second, a negative or avoidant one is likely. When parents are firm but warm, children tend to comply with their requests. When children cooperate, their parents are likely to be warm and gentle in the future. Furthermore, third parties indirectly influence the family. Interaction between any two family members is affected by others present in the setting. Third parties can serve as supports for or barriers to development. For example, when a marital relationship is warm and considerate, mothers and fathers are more likely to engage in effective coparenting. Effective coparenting, in turn, fosters a positive marital relationship.

*Page Ref: 52–53*

113. Why are so many affluent youths troubled?

Answer: Despite their advanced education and great material wealth, affluent parents—those in prestigious and high-paying occupations—too often fail to engage in family interaction and parenting that promote favorable development. Poorly adjusted young people, compared to their better-adjusted counterparts, report less emotional closeness, less supervision, and fewer serious consequences for misbehaviors from their parents, who lead professionally and socially demanding lives. As a group, wealthy parents are nearly as physically and emotionally unavailable to their youngsters as parents coping with serious financial strain. At the same time, these parents often make excessive demands for achievement and are critical when their children perform less than perfectly. Adolescents whose parents value their accomplishments more than their character are more likely to have academic and emotional problems.

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114. Describe kinship studies, and explain how they are used in the field of behavioral genetics.

Answer: Kinship studies compare the characteristics of family members. The most common type of kinship study compares identical twins, who share all their genes, with fraternal twins, who, on average, share only half. If people who are genetically more alike are also more similar in intelligence and personality, then the researcher assumes that heredity plays an important role. Kinship studies are used in the field of developmental science to help identify which traits and behaviors have a genetic link. For example, kinship studies of intelligence provide some of the most controversial findings in the field. Some experts claim a strong genetic influence, whereas others believe that heredity is barely involved. Currently, most kinship findings support a moderate role for heredity. Heritability research also reveals that genetic factors are important in personality. Unlike intelligence, however, heritability of personality does not increase with age.

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115. Describe the concept of gene–environment correlation, including passive, evocative, and active types. How does niche-picking help explain active gene–environment correlations, and when during development is niche-picking likely to emerge?

Answer: A major problem in trying to separate heredity and environment is that they are often correlated. According to the concept of gene–environment correlation, our genes influence the environments to which we are exposed. At younger ages, two types of gene–environment correlation are common. In passive correlation, the child has no control over the connection. Parents provide environments influenced by their own heredity. For example, musically inclined parents enroll their children in music lessons. In evocative correlation, children evoke responses that are influenced by the child’s heredity, and these responses strengthen the child’s original style. For example, a cooperative, attentive child is likely to receive more patient and sensitive interactions from parents than an inattentive, distractible child. At older ages, active gene–environment correlation becomes common. Children seek environments that fit with their genetic tendencies. For example, the musically talented child joins the school choir. Niche-picking is the tendency to actively choose environments that complement our heredity. Infants and young children cannot do much niche-picking because adults select environments for them. However, older children and adolescents are increasingly in charge of their environments.

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