

CHAPTER 2

BIOLOGICAL AND ENVIRONMENTAL FOUNDATIONS

MULTIPLE CHOICE

- 1) Directly observable characteristics, such as eye color and height, are called

A) zygotes.
B) phenotypes.
C) chromosomes.
D) genotypes.

Answer: B

Page Ref: 36

Skill: Factual

Objective: 2.1

- 2) Phenotypes depend in part on an individual's

A) cells.
B) chromosomes.
C) genotypes.
D) DNA.

Answer: C

Page Ref: 36

Skill: Factual

Objective: 2.1

- 3) A genotype is a

A) physical or behavioral characteristic, determined both by environmental and genetic factors.
B) directly observable characteristic.
C) rodlike structure in the cell nucleus that transmits genetic information.
D) complex blend of genetic information that determines the species and influences unique characteristics.

Answer: D

Page Ref: 36

Skill: Factual

Objective: 2.1

- 4) Within every cell (except red blood cells) is a control center, or

A) phenotype.
B) nucleus.
C) genotype.
D) zygote.

Answer: B

Page Ref: 36

Skill: Factual

Objective: 2.1

- 5) Generally, human chromosomes come in _____ matching pairs.

- A) 18
- B) 21
- C) 23
- D) 26

Answer: C

Page Ref: 36

Skill: Factual

Objective: 2.1

- 6) Rodlike structures called _____ store and transmit genetic information.

- A) phenotypes
- B) chromosomes
- C) genotypes
- D) genes

Answer: B

Page Ref: 36

Skill: Factual

Objective: 2.1

- 7) Research shows that _____ genes lie along the human chromosomes.

- A) 23 pairs of
- B) 2,000 to 2,500
- C) 20,000 to 25,000
- D) 200,000 to 250,000

Answer: C

Page Ref: 37

Skill: Factual

Objective: 2.1

- 8) A unique feature of DNA is that it can duplicate itself through a process called

- A) genotosis.
- B) meiosis.
- C) zygotosis.
- D) mitosis.

Answer: D

Page Ref: 37

Skill: Conceptual

Objective: 2.1

- 9) During mitosis,

- A) each new body cell contains unique genetic information.
- B) cells divide in half to form the fertilized ovum.
- C) the chromosomes copy themselves.
- D) each new body cell contains 23 chromosomes.

Answer: C

Page Ref: 37

Skill: Conceptual

Objective: 2.1

10) The area surrounding the cell nucleus is called the

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

Answer: B

Page Ref: 37

Skill: Factual

Objective: 2.1

11) _____ provide the biological foundation on which our characteristics are built.

- A) Proteins
- B) Genes
- C) Chromosomes
- D) Gametes

Answer: A

Page Ref: 37

Skill: Conceptual

Objective: 2.1

12) The sperm and the ovum are sex cells, or

- A) autosomes.
- B) gametes.
- C) zygotes.
- D) dizygotes.

Answer: B

Page Ref: 37

Skill: Factual

Objective: 2.2

13) A gamete

- A) contains 46 chromosomes.
- B) is formed through mitosis.
- C) contains 23 chromosomes.
- D) is formed when the chromosomes copy themselves.

Answer: C

Page Ref: 37

Skill: Conceptual

Objective: 2.2

14) _____ halves the number of chromosomes normally present in body cells.

- A) Mitosis
- B) The presence of a protein
- C) Cytoplasm
- D) Meiosis

Answer: D

Page Ref: 37

Skill: Conceptual

Objective: 2.2

- 15) _____ increase(s) the chances that at least some members of a species will cope with ever-changing environments and survive.

- A) Autosomes
- B) Fraternal twinning
- C) Meiosis
- D) Gametes

Answer: C

Page Ref: 37

Skill: Factual

Objective: 2.2

- 16) The exchange of chromosome segments during meiosis results in

- A) severe mutations.
- B) incredible variability among siblings.
- C) higher rates of fraternal twins for women with X-linked disorders.
- D) the production of more female zygotes than male zygotes.

Answer: B

Page Ref: 37

Skill: Conceptual

Objective: 2.2

- 17) The genetic variability produced by meiosis is

- A) rare.
- B) male dominant.
- C) adaptive.
- D) female dominant.

Answer: C

Page Ref: 37

Skill: Conceptual

Objective: 2.2

- 18) In the male, _____ sperm is/are produced when meiosis is complete.

- A) one
- B) two
- C) three
- D) four

Answer: D

Page Ref: 37

Skill: Factual

Objective: 2.2

- 19) In the female, meiosis results in

- A) just one ovum.
- B) two ova.
- C) three ova.
- D) four ova.

Answer: A

Page Ref: 37

Skill: Factual

Objective: 2.2

- 20) Research shows that a healthy
- A) male can father a child at any age after sexual maturity.
 - B) male is born with all his sperm present in the testes.
 - C) female produces ova throughout her childbearing years.
 - D) female can bear a child at any age after sexual maturity.

Answer: A

Page Ref: 37

Skill: Conceptual

Objective: 2.2

- 21) Of matching pairs of chromosomes, 22 of 23 are called _____ and one pair consists of _____.
- A) gametes; sex chromosomes
 - B) zygotes; XX chromosomes
 - C) autosomes; sex chromosomes
 - D) autosomes; YY chromosomes

Answer: C

Page Ref: 37

Skill: Conceptual

Objective: 2.2

- 22) The sex of a baby is determined by whether
- A) the X and Y chromosomes separate into sperm cells or ovum.
 - B) an X-bearing or a Y-bearing sperm fertilizes the ovum.
 - C) the sperm fertilizes an X-bearing or a Y-bearing egg.
 - D) the ovum is carrying an X chromosome or a Y chromosome.

Answer: B

Page Ref: 37

Skill: Conceptual

Objective: 2.2

- 23) Taylor's 23rd pair of chromosomes is XY. Taylor
- A) is male.
 - B) cannot be a fraternal twin.
 - C) is female.
 - D) cannot be an identical twin.

Answer: A

Page Ref: 37

Skill: Applied

Objective: 2.2

- 24) _____ are the most common type of multiple birth.
- A) Triplets
 - B) Fraternal twins
 - C) Identical twins
 - D) Quadruplets

Answer: B

Page Ref: 38

Skill: Factual

Objective: 2.3

25) Dizygotic twins

- A) have the same genetic makeup.
- B) develop more rapidly than children of single births.
- C) are no more alike than ordinary siblings.
- D) are less likely with each additional birth.

Answer: C

Page Ref: 38

Skill: Conceptual

Objective: 2.3

26) A zygote that separates into two clusters of cells instead of just one produces

- A) identical twins.
- B) dizygotic twins.
- C) fraternal twins.
- D) triple X syndrome.

Answer: A

Page Ref: 38

Skill: Conceptual

Objective: 2.3

27) _____ is/are a major cause of the dramatic rise in multiple births in recent decades.

- A) Prescription drug use during pregnancy
- B) Low maternal weight gain
- C) Young maternal age
- D) Fertility drugs

Answer: D

Page Ref: 38

Skill: Conceptual

Objective: 2.3

28) If the alleles from both parents _____, the child is _____.

- A) are alike; heterozygous
- B) differ; homozygous
- C) are alike; a carrier
- D) differ; heterozygous

Answer: D

Page Ref: 38

Skill: Conceptual

Objective: 2.4

29) The one allele that affects the child's characteristics is called

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

Answer: B

Page Ref: 38

Skill: Factual

Objective: 2.4

30) _____ hair is dominant, while _____ hair is recessive.

- A) Blond; dark
- B) Straight; curly
- C) Red; blond
- D) Curly; straight

Answer: D

Page Ref: 38

Skill: Conceptual

Objective: 2.4

31) In incomplete dominance,

- A) both alleles are expressed, resulting in a combined trait.
- B) the child is homozygous and will display the inherited trait.
- C) only the dominant allele affects the individual's characteristics.
- D) children have a 50 percent chance of inheriting the disorder if one parent has the trait.

Answer: A

Page Ref: 39

Skill: Conceptual

Objective: 2.4

32) Carriers of the sickle cell gene

- A) often do not display symptoms until after they have passed the gene on to their children.
- B) rarely have children who develop sickle cell anemia.
- C) may have children who have sickle cell anemia.
- D) develop sickle-shaped red blood cells that cause degeneration of the nervous systems.

Answer: C

Page Ref: 39

Skill: Conceptual

Objective: 2.4

33) 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 recessive alleles.
- B) the Y chromosome is much longer than the X chromosome.
- C) the Y chromosome lacks many corresponding alleles to override those carried on the X chromosome.
- D) his sex chromosomes match.

Answer: C

Page Ref: 39

Skill: Applied

Objective: 2.4

34) Children with diabetes tend to have fathers, not mothers, with the illness. The pattern of inheritance is best explained by

- A) incomplete dominance.
- B) X-linked inheritance.
- C) genomic imprinting.
- D) genetic mutation.

Answer: C

Page Ref: 40

Skill: Conceptual

Objective: 2.4

- 35) Fragile X syndrome is
- A) expressed only when it is passed from father to child.
 - B) the most common inherited cause of mental retardation.
 - C) expressed when it is passed from either parent to child.
 - D) linked to more than half of the cases of autism.

Answer: B

Page Ref: 40

Skill: Conceptual

Objective: 2.4

- 36) _____ is a sudden but permanent change in a segment in DNA that can create _____.
- A) Mutation; genetic abnormalities
 - B) Meiosis; X-linked disorders
 - C) Mitosis, fragile X syndrome
 - D) Genomic imprinting; mutations

Answer: A

Page Ref: 40

Skill: Conceptual

Objective: 2.4

- 37) Studies of mutation demonstrate that
- A) some mutations occur spontaneously, simply by chance.
 - B) mutations are never desirable.
 - C) males who are exposed to ionizing forms of radiation are not at increased risk for producing babies with genetic abnormalities.
 - D) exposure to nonionizing forms of radiation, such as microwaves, can cause genetic damage.

Answer: A

Page Ref: 40

Skill: Conceptual

Objective: 2.4

- 38) Somatic mutation
- A) increases with age.
 - B) decreases with age.
 - C) shows that each of us has a single, permanent genotype.
 - D) occurs at conception.

Answer: A

Page Ref: 40

Skill: Conceptual

Objective: 2.4

- 39) Characteristics that vary on a continuum among people, such as height, weight, or intelligence, are most likely determined by _____ inheritance.
- A) X-linked
 - B) polygenic
 - C) dominant-recessive
 - D) paternal

Answer: B

Page Ref: 40

Skill: Conceptual

Objective: 2.4

- 40) Most chromosomal defects result from
- A) X-linked disorders.
 - B) mistakes occurring during mitosis.
 - C) mistakes occurring during meiosis.
 - D) recessive disorders.

Answer: C

Page Ref: 40

Skill: Conceptual

Objective: 2.5

- 41) Down syndrome most commonly results from
- A) a failure of the twenty-first pair of chromosomes to separate during meiosis.
 - B) increased age of the father.
 - C) oxygen deprivation during or immediately after birth.
 - D) mutation of the genetic material on the twenty-third chromosomal pair.

Answer: A

Page Ref: 40

Skill: Conceptual

Objective: 2.5

- 42) The risk of bearing a child with Down syndrome rises dramatically with
- A) poor prenatal care.
 - B) maternal age.
 - C) prenatal tobacco exposure.
 - D) prenatal malnutrition.

Answer: B

Page Ref: 41

Skill: Conceptual

Objective: 2.5

- 43) The most common sex chromosome disorders involve
- A) aggressive and antisocial behavior.
 - B) the presence of an extra chromosome or the absence of one X in females.
 - C) spontaneous miscarriage.
 - D) mental retardation.

Answer: B

Page Ref: 41

Skill: Conceptual

Objective: 2.5

- 44) 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) females who are missing an X chromosome often have trouble with spatial relationships.
 - D) most children with these disorders suffer from mental retardation.

Answer: C

Page Ref: 41

Skill: Conceptual

Objective: 2.5

- 45) Mr. and Mrs. Hopewell are concerned because they have been trying to have a baby for over a year. Which of the following procedures would you recommend to them?

- A) gene therapy
- B) genetic counseling
- C) genetic engineering
- D) fetal medicine

Answer: B

Page Ref: 42

Skill: Applied

Objective: 2.6

- 46) The communication process of _____ can help couples understand genetic principles, genetic testing, and prevention of genetic disorders.

- A) genetic engineering
- B) prenatal diagnosis
- C) preimplantation genetic diagnosis
- D) genetic counseling

Answer: D

Page Ref: 42

Skill: Factual

Objective: 2.6

- 47) Genetic counselors prepare a _____, which identifies affected relatives in a couple's family tree.

- A) pedigree
- B) carrier detector
- C) prenatal diagnosis
- D) genetic diagnosis

Answer: A

Page Ref: 42

Skill: Factual

Objective: 2.6

- 48) _____ is commonly used to overcome male reproductive difficulties.

- A) In vitro fertilization
- B) Surrogacy
- C) Cloning of fertilized ova
- D) Donor insemination

Answer: D

Page Ref: 42 Box SI: Pros and Cons of Reproductive Technologies

Skill: Factual

Objective: 2.6

- 49) With _____, a woman is given hormones that stimulate the ripening of several ova. These are removed surgically and placed in a dish of nutrients, to which sperm are added.

- A) donor insemination
- B) in vitro fertilization
- C) surrogacy
- D) genetic engineering

Answer: B

Page Ref: 42 Box SI: Pros and Cons of Reproductive Technologies

Skill: Conceptual

Objective: 2.6

- 50) Children conceived through in vitro fertilization
- A) may be genetically unrelated to both of their parents.
 - B) tend to develop insecure attachments to their parents during infancy.
 - C) cannot be born to postmenopausal women.
 - D) tend to be less well-adjusted than their naturally conceived counterparts.

Answer: A

Page Ref: 42 Box SI: Pros and Cons of Reproductive Technologies

Skill: Conceptual

Objective: 2.6

- 51) Which of the following is an ethical concern regarding the use of reproductive technology?
- A) The in vitro “sex sorter” method could lead to parental sex selection.
 - B) Reproductive technology procedures cannot be used to overcome most male fertility problems.
 - C) More than 75 percent of reproductive technology procedures result in multiple births.
 - D) A lack of genetic ties often strains the parent–child relationship.

Answer: A

Page Ref: 43 Box SI: Pros and Cons of Reproductive Technologies

Skill: Conceptual

Objective: 2.6

- 52) In _____, sperm from a man whose wife is infertile are used to inseminate a woman, who is paid for her childbearing services.
- A) donor insemination
 - B) surrogate motherhood
 - C) in vitro fertilization
 - D) genetic engineering

Answer: B

Page Ref: 43 Box SI: Pros and Cons of Reproductive Technologies

Skill: Conceptual

Objective: 2.6

- 53) To detect problems before birth, doctors use
- A) prenatal diagnostic methods.
 - B) genetic treatments.
 - C) gene therapies.
 - D) carrier detectors.

Answer: A

Page Ref: 43

Skill: Factual

Objective: 2.6

- 54) Except for _____, prenatal diagnosis should not be used routinely because these methods have some chance of injuring the fetus.
- A) amniocentesis
 - B) fetoscopy
 - C) chorionic villus sampling
 - D) maternal blood analysis

Answer: D

Page Ref: 43

Skill: Conceptual

Objective: 2.6

- 55) The Human Genome Project is an ambitious international research program aimed at
- A) correcting genetic abnormalities by modifying gene-specified proteins.
 - B) cataloging a wide variety of prenatal diagnostic methods.
 - C) deciphering the chemical makeup of human genetic material.
 - D) genetic engineering.

Answer: C

Page Ref: 43

Skill: Factual

Objective: 2.6

- 56) Most adopted children
- A) have trouble developing feelings of trust and affection toward their adoptive parents.
 - B) become well-adjusted adults.
 - C) fare better if they are adopted after infancy.
 - D) begin to search for their birth parents during early adolescence.

Answer: B

Page Ref: 45

Skill: Conceptual

Objective: 2.7

- 57) Contemporary researchers view the family as a(n) _____, or network of interdependent relationships.
- A) exosystem
 - B) macrosystem
 - C) social system
 - D) independent system

Answer: C

Page Ref: 46

Skill: Conceptual

Objective: 2.8

- 58) When Erin and Brooke willingly comply, their 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) microsystem
 - C) macrosystem
 - D) indirect

Answer: A

Page Ref: 46

Skill: Applied

Objective: 2.8

- 59) Third parties
- A) have a direct influence on development.
 - B) can serve as supports for or barriers to development.
 - C) rarely have any influence on development.
 - D) primarily serve as barriers to early development.

Answer: B

Page Ref: 46

Skill: Factual

Objective: 2.8

- 60) When her parents fight, Jess feels worried and afraid. This is an example of
- A) internalizing difficulties.
 - B) direct influences.
 - C) externalizing difficulties.
 - D) niche-picking.

Answer: A

Page Ref: 46

Skill: Applied

Objective: 2.8

- 61) Higher-SES parents tend to emphasize the importance of _____ for their children, whereas lower-SES parents tend to emphasize _____.
- A) external characteristics; intellectual abilities
 - B) intellectual abilities; psychological traits
 - C) external characteristics; psychological traits
 - D) psychological traits; external characteristics

Answer: D

Page Ref: 47

Skill: Conceptual

Objective: 2.9

- 62) In the United States today, about _____ million Americans are affected by poverty.
- A) 3.7
 - B) 15
 - C) 40
 - D) 150

Answer: C

Page Ref: 47

Skill: Factual

Objective: 2.9

- 63) In the United States, the poverty rate for single mothers with preschool children and elderly women on their own is nearly _____ percent.
- A) 25
 - B) 35
 - C) 40
 - D) 50

Answer: D

Page Ref: 47

Skill: Factual

Objective: 2.9

- 64) Although schooling is vital for all children, the _____ has an especially powerful impact on the welfare of families, societies, and future generations.
- A) availability of preschool education
 - B) education of girls
 - C) education of boys
 - D) availability of high school education

Answer: B

Page Ref: 48 Box LV: Worldwide Education of Girls

Skill: Conceptual

Objective: 2.9

- 65) One of the two major benefits of education for girls in developing countries is
- A) time away from the emotional strains of confinement in their homes.
 - B) empowerment to improve their life conditions.
 - C) enhanced mathematical skills.
 - D) time away from the physical strains of working in their homes.

Answer: B

Page Ref: 48 Box LV: Worldwide Education of Girls

Skill: Conceptual

Objective: 2.9

- 66) Educating girls in the developing world is particularly beneficial because the girls develop
- A) enhanced communication skills.
 - B) enhanced mathematical skills.
 - C) a desire to move to larger cities.
 - D) domestic skills, such as housekeeping.

Answer: A

Page Ref: 48 Box LV: Worldwide Education of Girls

Skill: Conceptual

Objective: 2.9

- 67) 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: 48

Skill: Factual

Objective: 2.9

- 68) Neighborhoods have a(n) _____ impact on economically disadvantaged than well-to-do young people.
- A) similar
 - B) opposite
 - C) more negative
 - D) greater

Answer: D

Page Ref: 49

Skill: Factual

Objective: 2.10

- 69) Research on the effects of neighborhoods suggests that
- A) participation in neighborhood organizations does not impact school achievement.
 - B) neighborhood resources have a greater impact on children than adults.
 - C) neighborhoods affect the well-being of children and adults.
 - D) neighborhoods are not important in late adulthood because most elders spend more time in their homes.

Answer: C

Page Ref: 49

Skill: Conceptual

Objective: 2.10

- 70) Compared with large urban areas, small towns offer
- A) weaker connections between settings that influence children's lives.
 - B) stronger connections between settings that influence children's lives.
 - C) less civic group participation for adults.
 - D) better child-care programs for low-SES families.

Answer: B

Page Ref: 50

Skill: Conceptual

Objective: 2.10

- 71) Compared to those in large urban areas, adults in small towns are
- A) less likely to have contact with their children's teachers.
 - B) less likely to be actively involved in the community.
 - C) more likely to become victims of crime.
 - D) more likely to occupy positions of leadership.

Answer: D

Page Ref: 50

Skill: Conceptual

Objective: 2.10

- 72) Compared to elders in large cities, elders in small towns are
- A) more likely to move into planned housing for elders.
 - B) less likely to develop warm relationships with nonrelatives.
 - C) more likely to feel safe and secure.
 - D) less likely to remain actively involved in the community.

Answer: C

Page Ref: 50

Skill: Conceptual

Objective: 2.10

- 73) One reason that the American people have been reluctant to accept the idea of publicly supported 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: 50

Skill: Conceptual

Objective: 2.11

- 74) In _____, people hold different beliefs and customs from those held by the larger culture.
- A) microsystems
 - B) subcultures
 - C) macrosystems
 - D) collectivist societies

Answer: B

Page Ref: 50

Skill: Conceptual

Objective: 2.11

75) _____ societies value an _____ self.

- A) Collectivist; independent
- B) Individualistic; interdependent
- C) Collectivist; interdependent
- D) Independent; individualistic

Answer: C

Page Ref: 51

Skill: Conceptual

Objective: 2.11

76) Laws and government programs designed to improve widespread social problems are known as

- A) public policies.
- B) collectivism.
- C) economic policies.
- D) socialism.

Answer: A

Page Ref: 51

Skill: Conceptual

Objective: 2.11

77) In the United States, public policies safeguarding _____ lag behind policies for _____.

- A) the elderly; children and youths
- B) children and youths; the elderly
- C) the elderly; extended families
- D) school-age children; preschool children

Answer: B

Page Ref: 51

Skill: Conceptual

Objective: 2.11

78) Which of the following countries has a higher teenage birthrate?

- A) the United States
- B) Australia
- C) Czech Republic
- D) Poland

Answer: A

Page Ref: 51

Skill: Factual

Objective: 2.11

79) Which of the following countries has a higher infant death rate?

- A) Singapore
- B) the United States
- C) Ireland
- D) Hong Kong

Answer: B

Page Ref: 51

Skill: Factual

Objective: 2.11

80) Approximately _____ percent of U.S. children have no health insurance.

- A) 2
- B) 5
- C) 7
- D) 10

Answer: D

Page Ref: 51

Skill: Factual

Objective: 2.11

81) One reason that public policies safeguarding children are slow to emerge is because

- A) such government policies have failed in other Western countries.
- B) social programs are rarely cost effective.
- 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: 51

Skill: Conceptual

Objective: 2.11

82) Which of the following countries has a higher percentage of elderly living in poverty?

- A) Denmark
- B) Norway
- C) United Kingdom
- D) Sweden

Answer: C

Page Ref: 52

Skill: Factual

Objective: 2.11

83) Social Security and Medicare consume about _____ percent of the U.S. federal budget for the elderly.

- A) 20
- B) 50
- C) 75
- D) 96

Answer: D

Page Ref: 52

Skill: Factual

Objective: 2.11

84) The minimum income guaranteed to Americans age 65 and older from Social Security is

- A) more generous than those in most other Western nations.
- B) increasing substantially every year.
- C) below the poverty line.
- D) above the poverty line.

Answer: C

Page Ref: 52

Skill: Conceptual

Objective: 2.11

- 85) Senior citizens in the United States today are
- A) less likely than Canadian seniors to be poverty stricken.
 - B) more likely than any other group to be among the “near poor.”
 - C) more likely to be homeless than in the past.
 - D) less likely to be healthy and independent than in the past.

Answer: B

Page Ref: 52

Skill: Conceptual

Objective: 2.11

- 86) Nearly half of Americans over age 50 are members of
- A) the Children’s Defense Fund.
 - B) CDF.
 - C) AARP.
 - D) the Senior Defense Fund.

Answer: C

Page Ref: 53

Skill: Factual

Objective: 2.11

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

Answer: A

Page Ref: 53–54

Skill: Factual

Objective: 2.12

- 88) To infer the role of heredity in complex human characteristics, researchers use special methods, the most common being
- A) polygenic ranges.
 - B) kinship estimates.
 - C) reaction ranges.
 - D) heritability estimates.

Answer: D

Page Ref: 54

Skill: Factual

Objective: 2.13

- 89) Dr. Rudy wants to compare the characteristics of family members. What kind of research method would you recommend that Dr. Rudy use?
- A) a kinship study
 - B) a case study
 - C) a structured observation
 - D) a passive correlation

Answer: A

Page Ref: 54

Skill: Applied

Objective: 2.13

90) Research on heritability suggests that

- A) heritability of personality does not increase over the lifespan.
- B) genetic factors play only a minimal role in personality.
- C) heritability of personality increases drastically over the lifespan.
- D) heritability of intelligence does not increase over the lifespan.

Answer: A

Page Ref: 54

Skill: Conceptual

Objective: 2.13

91) One limitation of twin studies is

- A) the environments of most twin pairs are more diverse than those of the general population.
- B) most twin pairs are reared together under highly similar environmental conditions.
- C) heritability estimates are likely to exaggerate the role of environmental influences.
- D) separated twins are often placed in vastly diverse environments.

Answer: B

Page Ref: 55

Skill: Conceptual

Objective: 2.13

92) Because the environments of most twin pairs are less diverse than those of the general population,

- A) heritability estimates are likely to exaggerate the role of heredity.
- B) it is difficult to generate reaction ranges.
- C) kinship studies are rarely conducted.
- D) application of heritability estimates is rarely controversial.

Answer: A

Page Ref: 55

Skill: Conceptual

Objective: 2.13

93) Heritability estimates

- A) are likely to exaggerate the role of the environment.
- B) tend to overestimate the importance of the environment.
- C) cannot be used to study complex traits, such as intelligence and personality.
- D) are likely to exaggerate the role of heredity.

Answer: D

Page Ref: 55

Skill: Conceptual

Objective: 2.13

94) It is inappropriate to use heritability estimates to explain ethnic differences in intelligence because

- A) heritability of intelligence is lower under economically advantaged than disadvantaged rearing conditions.
- B) twinning occurs with a higher frequency among some ethnic groups.
- C) heritabilities computed on mostly white twin samples are not relevant to test score differences between ethnic groups.
- D) ethnic group differences in intelligence are largely due to heredity.

Answer: C

Page Ref: 55

Skill: Conceptual

Objective: 2.13

- 95) The most serious criticism of heritability estimates is that they
- A) are not applicable to people who do not have siblings.
 - B) can be used only with simple traits, such as eye color and handedness.
 - C) are not relevant to populations whose home, school, and rearing conditions are very similar.
 - D) provide no precise information about how the traits examined develop within individuals.

Answer: D

Page Ref: 55

Skill: Conceptual

Objective: 2.13

- 96) The concept of range of reaction explains that children who are exposed to the same environmental conditions
- A) may respond to them differently because of their genetic makeup.
 - B) tend to overcome their inheritance, so their genes have no effect.
 - C) tend to show the same pattern of responses over time.
 - D) respond similarly if they are agemates.

Answer: A

Page Ref: 55

Skill: Conceptual

Objective: 2.14

- 97) According to the concept of genetic–environmental correlation,
- A) the environments to which we are exposed determine our genotype.
 - B) our genes affect how we respond to the environment.
 - C) we tend to seek out social partners with a similar genetic makeup.
 - D) our genes influence the environments to which we are exposed.

Answer: D

Page Ref: 55

Skill: Conceptual

Objective: 2.14

- 98) Trena and Kyle are actors. Their daughter Sophia participates in children’s theater. This is an example of
- A) range of reaction.
 - B) an evocative correlation.
 - C) an active correlation.
 - D) a passive correlation.

Answer: D

Page Ref: 56

Skill: Applied

Objective: 2.14

- 99) Angela, a cooperative and attentive child, receives more patient and sensitive interactions from her parents than Carlos, who is inattentive and hyper. This is an example of a(n) _____ genetic–environmental correlation.
- A) active
 - B) evocative
 - C) dynamic
 - D) passive

Answer: B

Page Ref: 56

Skill: Applied

Objective: 2.14

- 100) Anthony, a well-coordinated and muscular boy, decides to play high school football. This is an example of a(n) _____ genetic–environmental correlation.

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

Answer: A

Page Ref: 56

Skill: Applied

Objective: 2.14

- 101) Through _____, individuals tend to actively choose environments that complement their heredity.

- A) passive genetic–environmental correlation
- B) niche-picking
- C) evocative genetic–environmental correlation
- D) range of reaction

Answer: B

Page Ref: 56

Skill: Conceptual

Objective: 2.14

- 102) Which age group is likely to do more niche-picking?

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

Answer: A

Page Ref: 56

Skill: Conceptual

Objective: 2.14

- 103) Accumulating evidence reveals that the relationship between heredity and the environment is

- A) a one-way street.
- B) unidirectional.
- C) bidirectional.
- D) primarily negative.

Answer: C

Page Ref: 57

Skill: Conceptual

Objective: 2.14

- 104) According to the concept of epigenesis,

- A) heredity determines individual responsiveness to varying environments.
- B) genetic–environmental correlation is entirely driven by genetics.
- C) development results from ongoing, bidirectional exchanges between heredity and the environment.
- D) heredity restricts the development of some behaviors.

Answer: C

Page Ref: 57

Skill: Conceptual

Objective: 2.14

- 105) 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: 57

Skill: Conceptual

Objective: 2.14

ESSAY

- 106) Identify the two types of twins, explain how each is created, and list the factors that influence the incidence of each.

Answer: Identical, or monozygotic, twins occur when one zygote that has started to duplicate separates into two clusters of cells that develop into two individuals. These individuals have the same genetic makeup. Environmental influences that prompt this type of twinning include temperature changes, variation in oxygen levels, and late fertilization of the ovum. In a minority of cases, identical twinning runs in families, suggesting a genetic influence.

Fraternal, or dizygotic, twins occur when two ova are released at the same time from a woman's ovaries and both are fertilized. The resulting twins are no more genetically alike than ordinary siblings. This is the most common type of multiple birth, and is often influenced by maternal age, fertility drugs, and in vitro fertilization. Ethnicity, family history, nutrition, and number of prior births also affect the incidence to some degree.

Page Ref: 38

- 107) Using the inheritance of hair color as an example, explain dominant–recessive inheritance, dominant characteristics, recessive characteristics, and carriers.

Answer: In heterozygous pairings, dominant–recessive inheritance occurs. The dominant allele affects the child's characteristics. The second allele, which has no effect, is called recessive. The allele for dark hair color is dominant (symbolized by a capital D), whereas the one for blond hair is recessive (symbolized by a lowercase b). The child who inherits a homozygous pair of dominant alleles (DD) and the child who inherits a heterozygous pair (Db) will both be dark-haired. Blond hair can result only from having two recessive alleles (bb). Carriers of a trait are heterozygous individuals with just one recessive allele (Db) who pass that trait to their children.

Page Ref: 38–39

- 108) List the steps prospective parents can take before conception to increase the chances of a healthy baby.

Answer: The couple should arrange for physical examinations before conception to detect diseases or other medical problems that could reduce fertility or affect the baby. They should consider their genetic makeup. If anyone in the family has had a child with a genetic disease, the couple should seek genetic counseling before conception. Prospective parents can reduce or eliminate toxins under their control. The mother should take prenatal vitamin–mineral supplements, including folic acid, and ensure proper nutrition. They should consult a doctor after 12 months of unsuccessful efforts at conception.

Page Ref: 42

- 109) Explain how both affluence and poverty can negatively affect development.

Answer: Affluent parents often fail to engage in family interaction and parenting that promotes favorable development. As a group, wealthy parents are nearly as physically and emotionally unavailable to their youngsters as parents coping with poverty. At the same time, affluent parents often make excessive demands for achievement. Adolescents whose parents value their accomplishments more than their character are more likely to have academic and emotional problems.

When families slip into poverty, development is seriously threatened. Children of poverty are more likely than other children to suffer from lifelong poor physical health, persistent deficits in cognitive development and academic achievement, high school dropout, mental illness, and antisocial behavior. The constant stressors that accompany poverty gradually weaken the family system. Poor families have many daily hassles. When daily crises arise, family members become depressed, irritable, and distracted, and hostile interactions increase. Negative outcomes are especially severe in single-parent families and families that must live in poor housing and dangerous neighborhoods.

Page Ref: 47–49

- 110) How does the education of girls impact the welfare of families and societies in developing countries?

Answer: The diverse benefits of girls' schooling largely accrue in two ways: (1) through enhanced verbal skills—reading, writing, and oral communication; and (2) through empowerment—a growing desire to improve their life conditions. Education gives people the communicative skills and confidence to seek health services and to benefit from public health information. The empowerment that springs from education is associated with more equitable spousal relationships and a reduction in harsh disciplining of children. The education of girls is the most effective means of combating the profound, global threats to human development: poverty, maternal and child mortality, and disease.

Page Ref: 48

- 111) Define public policy, and discuss how Americans fare on key measures of childhood health and well-being and policies for the elderly.

Answer: Public policies are laws and government programs designed to reduce widespread social problems like poverty, homelessness, hunger, and disease. U.S. public policies safeguarding children and youths, as well as policies for the elderly, lag behind many other industrialized nations. The United States does not rank well on any key measure of children's health and well-being. It is the only industrialized nation in the world without a universal, publicly funded health care program. The United States has been slow to move toward national standards and funding for early childhood education and child care. American cultural values of self-reliance and privacy make the government hesitant to become involved in family matters. Social Security and Medicare consume 96 percent of the U.S. federal budget for the elderly; only 4 percent is devoted to other programs.

Page Ref: 51–52

- 112) Define heritability estimates, and discuss their limitations.

Answer: Heritability estimates measure the extent to which individual differences in complex traits in a specific population are due to genetic factors. Heritability estimates are obtained from kinship studies, which compare the characteristics of family members.

The first criticism of heritability estimates is that they refer only to the particular population studied and its unique range of genetic and environmental influences.

Second, the accuracy of the estimates depends on the extent to which the twin pairs on which they are computed reflect genetic and environmental variation in the population. Because the environments of most twin pairs do not represent the broad range of environments found in the general population, it is often difficult to generalize the findings to the population as a whole. Heritability estimates are likely to exaggerate the role of heredity.

Third, heritability estimates can easily be misapplied. For example, high heritabilities have been used to suggest that ethnic differences in intelligence have a genetic basis. However, this line of reasoning is incorrect because heritabilities computed on mostly white twin samples do not tell us what is responsible for test score differences between ethnic groups.

A final criticism is that these statistics give us no information about how these traits develop or how individuals might respond to environments designed to help them develop as far as possible. Therefore, their usefulness is limited.

Page Ref: 54–55

- 113) Describe the concept of genetic–environmental correlation, including passive, evocative, and active types. Define niche-picking.

Answer: A major problem in trying to separate heredity and environment is that they are often correlated. According to the concept of genetic–environmental correlation, our genes influence the environments to which we are exposed. At younger ages, two types of genetic–environmental 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, an active, friendly baby probably receives more social stimulation from parents than a quiet baby. At older ages, active 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 toddlers cannot do much niche-picking because adults select environments for them. However, adolescents and adults are increasingly in charge of their environments.

Page Ref: 55–56