

Chapter 2—Biological Foundations: Heredity, Prenatal Development, and Birth

MULTIPLE CHOICE

1. You are currently experiencing severe pain in your leg and go to your physician for a checkup. During the examination, your physician says, “The pain you are experiencing appears to be due to misshapen blood cells that are blocking the flow of oxygen to your leg.” This would indicate that the most accurate diagnosis of your condition would be
- cerebral palsy.
 - Huntington’s disease.
 - sickle-cell disease.
 - hemophilia.

ANS: C DIF: Easy REF: 2.1
OBJ: 2.1 MSC: Application

2. The threadlike structures in the nucleus of a cell that contain genetic material are called
- chromosomes.
 - germ discs.
 - ectoderms.
 - phenotypes.

ANS: A DIF: Easy REF: 2.1
OBJ: 2.1 KEY: Key Term MSC: Factual

3. If you were looking through a microscope at a normal sperm cell, you should see ____ chromosomes.
- 2
 - 22
 - 23
 - 46

ANS: C DIF: Easy REF: 2.1
OBJ: 2.1 KEY: Key Term MSC: Conceptual

4. The first ____ pairs of chromosomes are called autosomes.
- 2
 - 10
 - 22
 - 46

ANS: C DIF: Difficult REF: 2.1
OBJ: 2.1 KEY: Key Term MSC: Factual

5. Igor is approached by a mad scientist who says he will pay Igor either \$100 for each pair of his autosomes or \$500 for each pair of his sex chromosomes. Assuming Igor wants to make as much money as possible, which offer should he take?
- \$100 for each pair of autosomes
 - \$500 for each pair of sex chromosomes
 - Either one, because Igor will make the same amount with both offers
 - Neither one, because humans have neither autosomes nor sex chromosomes

ANS: A DIF: Difficult REF: 2.1
OBJ: 2.1 KEY: Key Term MSC: Application

6. When looking through a microscope at an entire set of human male chromosomes, how would you be able to differentiate an autosome pair from a sex chromosome pair?
- The sex chromosome pair would be about 10 times larger than the autosome pair.
 - The circular-shaped cells would be the autosomes and the square shapes would be the sex chromosomes.
 - There would be three cells in the autosome “pair” and two cells in the sex chromosome “pair.”
 - The shape of the sex chromosomes would differ, whereas each autosome pair would look identical.

ANS: D DIF: Difficult REF: 2.1
 OBJ: 2.1 KEY: Key Term MSC: Conceptual

7. A sperm cell contains a total of 22
- genes.
 - chromosomes.
 - autosomes.
 - sex cells.

ANS: C DIF: Moderate REF: 2.1
 OBJ: 2.1 KEY: Key Term MSC: Factual

8. What combination would result in a boy?
- A 17th pair of chromosomes with one X and one Y
 - A 23rd pair of chromosomes with one X and one Y
 - A 17th pair of chromosomes with two Xs
 - A 23rd pair of chromosomes with two Xs

ANS: B DIF: Easy REF: 2.1
 OBJ: 2.1 KEY: Key Term MSC: Factual

9. How many DNA molecules are typically contained in each human chromosome?
- 1
 - 46
 - 468
 - 100,000

ANS: A DIF: Moderate REF: 2.1
 OBJ: 2.1 KEY: Key Term MSC: Factual

10. Thymine and cytosine are types of
- genes.
 - neurotransmitters produced in the brain.
 - autosomes.
 - basic chemical compounds that form the double helix of a DNA molecule.

ANS: D DIF: Moderate REF: 2.1
 OBJ: 2.1 KEY: Key Term MSC: Factual

11. Human DNA is composed of a total of _____ different nucleotide bases.
- 4
 - 23
 - 444
 - 30,000

ANS: A DIF: Easy REF: 2.1
 OBJ: 2.1 MSC: Factual

12. Genes provide the cell with a specific set of _____ instructions.
- a. hormonal
 - b. biochemical
 - c. in vitro
 - d. bioelectric

ANS: B DIF: Moderate REF: 2.1
OBJ: 2.1 KEY: Key Term MSC: Factual

13. Within a typical human cell, which number is the greatest?
- a. The number of chromosomes
 - b. The number of autosomes
 - c. The number of genes
 - d. The number of different types of nucleotide bases

ANS: C DIF: Moderate REF: 2.1
OBJ: 2.1 KEY: Key Term MSC: Factual

14. Who has created a gene?
- a. Tom, who has strung together four adenine “beads”
 - b. Dick, who has just removed the sex chromosome from a cell
 - c. Harry, who has just generated a single bead of guanine
 - d. Sally, who has added an extra chromosome to a fertilized egg

ANS: A DIF: Difficult REF: 2.1
OBJ: 2.1 KEY: Key Term MSC: Application

15. The average child has approximately _____ genes.
- a. 25
 - b. 25,000
 - c. 25,000,000
 - d. 25,000,000,000

ANS: B DIF: Moderate REF: 2.1
OBJ: 2.1 KEY: Key Term MSC: Factual

16. Kyoko is 5 feet, 11 inches tall, plays tennis, and is an all-around nice person. This is a description of Kyoko’s
- a. allele.
 - b. genotype.
 - c. homozygosity.
 - d. phenotype.

ANS: D DIF: Moderate REF: 2.1
OBJ: 2.1 KEY: Key Term MSC: Application

17. Genotype is to phenotype as
- a. homozygous is to heterozygous.
 - b. nurture is to nature.
 - c. DNA is to RNA.
 - d. chromosome pattern is to physical features.

ANS: D DIF: Difficult REF: 2.1
OBJ: 2.1 KEY: Key Term MSC: Conceptual

18. Which is an example of *only* your genotype?

- a. Your complete set of genes
- b. Your physical appearance
- c. Your behaviors
- d. Your personality

ANS: A DIF: Moderate REF: 2.1
OBJ: 2.1 KEY: Key Term MSC: Conceptual

19. Which process can best be explained by alleles?

- a. The fact that phenotypes produce genotypes
- b. The formation of identical twins through the splitting of a fertilized egg
- c. The instructions for hair color come from two sources on the chromosome
- d. The teratogenic effects associated with fetal alcohol syndrome

ANS: C DIF: Difficult REF: 2.1
OBJ: 2.1 KEY: Key Term MSC: Conceptual

20. Homozygous is to heterozygous as

- a. same is to different.
- b. recessive is to dominant.
- c. genotype is to phenotype.
- d. many is to few.

ANS: A DIF: Easy REF: 2.1
OBJ: 2.1 KEY: Key Term MSC: Conceptual

21. Linda has one allele for curly hair and another for straight hair. Linda's alleles are

- a. polyzygotic.
- b. dizygotic.
- c. homozygous.
- d. heterozygous.

ANS: D DIF: Moderate REF: 2.1
OBJ: 2.1 KEY: Key Term MSC: Application

22. Joseph is homozygous for normal blood cells. This means that he

- a. is an identical twin.
- b. has matching alleles.
- c. has recessive alleles.
- d. is likely to develop sickle-cell anemia.

ANS: B DIF: Moderate REF: 2.1
OBJ: 2.1 KEY: Key Term MSC: Application

23. How would you create an individual who will definitely have blue eyes?

- a. Make sure he has a pair of homozygous chromosomes for blue eyes.
- b. Make sure he has a pair of heterozygous chromosomes for eye color.
- c. Make sure he has a pair of alleles for eye color.
- d. Make sure he has one recessive gene for blue eyes.

ANS: A DIF: Moderate REF: 2.1
OBJ: 2.1 KEY: Key Term MSC: Application

24. Kirk is heterozygous for cheek dimples but is born with big dimples in both cheeks. Apparently, the allele for cheek dimples is
- a. dominant.
 - b. sex-linked.
 - c. recessive.
 - d. polygenetic.

ANS: A DIF: Difficult REF: 2.1
OBJ: 2.1 KEY: Key Term MSC: Application

25. If a person had a dominant allele for blonde hair and a recessive allele for red hair, the probability of that person having red hair would be closest to ____ percent.
- a. 0
 - b. 25
 - c. 50
 - d. 100

ANS: A DIF: Moderate REF: 2.1
OBJ: 2.1 KEY: Key Term MSC: Application

26. If tallness is dominant and designated as “T,” and shortness is recessive and designated as “s,” who would likely be short?
- a. Bing, who is “sT”
 - b. Crosby, who is “Ts”
 - c. Danny, who is “ss”
 - d. Kay, who is “TT”

ANS: C DIF: Moderate REF: 2.1
OBJ: 2.1 KEY: Key Term MSC: Application

27. If obesity is dominant and designated as “O” and thinness is recessive and designated as “t,” how many of the following individuals would likely be obese: Ginger who is “OO,” Mary Ann who is “Ot,” Thurston who is “tO,” and Gilligan who is “tt”?
- a. 1
 - b. 2
 - c. 3
 - d. 4

ANS: C DIF: Moderate REF: 2.1
OBJ: 2.1 KEY: Key Term MSC: Application

28. Which best exemplifies the concept of incomplete dominance?
- a. An individual with two alleles for baldness who has long hair
 - b. An individual with two alleles for shyness who is shy
 - c. An individual with one allele for obesity and another for thinness who is of average weight
 - d. An individual with a single allele for aggression who is violent

ANS: C DIF: Difficult REF: 2.1
OBJ: 2.1 KEY: Key Term MSC: Application

29. Which statement concerning the sickle-cell trait is true?
- Individuals with the trait have the dominant phenotype but possess the recessive genotype.
 - Individuals with the trait have both a dominant and recessive allele for the disorder.
 - Individuals with the trait are genetically predisposed to the disorder but cannot display any symptoms.
 - Individuals with the trait tend to have the most severe form of the disease.

ANS: B DIF: Difficult REF: 2.1
OBJ: 2.1 KEY: Key Term MSC: Factual

30. Dr. Fry has just been informed that his son has sickle-cell trait. As a knowledgeable physician, Dr. Fry would realize that his son's body is most likely to experience
- excess levels of body fat.
 - serious oxygen deprivation.
 - decreased lung capacity.
 - blindness.

ANS: B DIF: Moderate REF: 2.1
OBJ: 2.1 KEY: Key Term MSC: Application

31. What should Danko do when he is informed that his newborn son has PKU (phenylketonuria)?
- Panic, since PKU is an incurable genetic disorder that results in severe mental retardation
 - Don't panic, since PKU can be cured with drug treatments
 - Don't panic, since PKU is a sex-linked disorder that affects only females
 - Don't panic, since despite being a genetic disorder, it can be controlled through proper diet

ANS: D DIF: Moderate REF: 2.1
OBJ: 2.1 KEY: Key Term MSC: Application

32. Janaka's two-year-old daughter is mentally retarded due, in part, to a diet that included fish, bread, and dairy products. The most likely diagnosis for Janaka's daughter is that she has
- Turner's syndrome.
 - Huntington's disease.
 - Tay Sachs disease.
 - Phenylketonuria (PKU).

ANS: D DIF: Moderate REF: 2.1
OBJ: 2.1 KEY: Key Term MSC: Application

33. Huntington's disease is an unusual genetic disorder in that it is a fatal disease caused by dominant alleles that
- impact late enough in life so that the individual can reproduce.
 - are controllable through diet.
 - both must come from the mother.
 - strike only males.

ANS: A DIF: Moderate REF: 2.1
OBJ: 2.1 KEY: Key Term MSC: Conceptual

34. _____ is characterized by progressive degeneration of the nervous system.

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

ANS: A DIF: Moderate REF: 2.1
OBJ: 2.1 KEY: Key Term MSC: Factual

35. Which physical characteristic is most indicative of an individual with Down syndrome?

- a. Enlarged head
- b. A fold of skin over each eyelid
- c. Small tongue
- d. Taller than same-age peers

ANS: B DIF: Moderate REF: 2.1
OBJ: 2.1 MSC: Factual

36. Following a prenatal exam, your physician remarks, "It appears as if your fetus has 47 chromosomes." What would be the most likely response to this information?

- a. Concern, as this may indicate that your child has Down syndrome
- b. Concern, as this may indicate that your child has sickle-cell anemia
- c. Concern, as this may indicate that your child has phenylketonuria (PKU)
- d. Relief, since this is a normal number of chromosomes

ANS: A DIF: Moderate REF: 2.1
OBJ: 2.1 MSC: Application

37. Which maternal characteristic is most strongly associated with giving birth to a baby with Down syndrome?

- a. Low levels of intelligence (i.e., mental retardation)
- b. Consumption of alcohol
- c. Higher maternal age
- d. Exposure to lead or mercury

ANS: C DIF: Easy REF: 2.1
OBJ: 2.1 MSC: Factual

38. "Trisomy 21" (three 21st chromosomes) best describes

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

ANS: B DIF: Moderate REF: 2.1
OBJ: 2.1 MSC: Factual

39. Because of his accurate knowledge of genetics and disorders, Benson knows that his newborn son has no chance of having

- a. Turner's syndrome.
- b. Klinefelter's syndrome.
- c. Huntington's disease.
- d. Down syndrome.

ANS: A DIF: Difficult REF: 2.1
OBJ: 2.1 MSC: Application

40. Which combination of sex chromosomes is *not* possible in a living human being?
- a. A single X chromosome
 - b. XXY
 - c. XYY
 - d. A single Y chromosome

ANS: D DIF: Difficult REF: 2.1
OBJ: 2.1 MSC: Factual

41. As a behavioral geneticist, Juan would most likely be studying
- a. the maze-learning behavior of rats.
 - b. the evolution of intelligence.
 - c. a gene that is believed to cause shyness.
 - d. the physiological structure of a gene.

ANS: C DIF: Easy REF: 2.1
OBJ: 2.1 KEY: Key Term MSC: Application

42. Which statement best exemplifies the basic premise of behavioral genetics?
- a. "Your personality is all in your genes"
 - b. "Your personality is all in your environment"
 - c. "People are either very open to new experiences or avoid new experiences at all costs"
 - d. "Openness to new experience is not an either/or proposition but represents a wide range of reactions"

ANS: D DIF: Moderate REF: 2.1
OBJ: 2.1 KEY: Key Term MSC: Conceptual

43. If a physician informed you that your speech disorder was the result of problems on chromosomes 4, 7, and 15, you would rightly conclude that the disorder is always classifiable as
- a. recessive.
 - b. polygenetic.
 - c. dominant.
 - d. sex-linked.

ANS: B DIF: Moderate REF: 2.1
OBJ: 2.1 KEY: Key Term MSC: Application

44. If the four dominant alleles for intelligence are WXYZ and the recessive alleles for intelligence are wxyz, which of the following would be the most common inheritance pattern?
- a. WWwwYYyy
 - b. WWxXyYZZ
 - c. WWXXYYZZ
 - d. WwxxYYzZ

ANS: D DIF: Difficult REF: 2.1
OBJ: 2.1 KEY: Key Term MSC: Application

Personally I think this is a ridiculous question, but that is just my opinion. I suggest removing it...

45. John and Wayne have the exact same genes. This indicates that they must be
- dizygotic twins.
 - monozygotic twins.
 - heterozygous.
 - co-dominant.

ANS: B DIF: Easy REF: 2.1
OBJ: 2.1 KEY: Key Term MSC: Application

46. As dizygotic twins, Jewel and Bjork
- are genetically identical.
 - must have come from the same fertilized egg.
 - share all phenotypes.
 - share about half of their genes.

ANS: D DIF: Moderate REF: 2.1
OBJ: 2.1 KEY: Key Term MSC: Application

47. Monozygotic is to dizygotic as
- one mother is to two mothers.
 - one egg is to two eggs.
 - dominant is to recessive.
 - heterozygous is to homozygous.

ANS: B DIF: Difficult REF: 2.1
OBJ: 2.1 KEY: Key Term MSC: Conceptual

48. José, who was adopted at birth, is found to have personality characteristics more similar to his biological mom than to his adoptive mom. How should you interpret this data?
- Personality appears to be a polygenetic characteristic.
 - Personality characteristics are learned.
 - Personality characteristics are influenced by genes.
 - Personality characteristics appear to be recessive.

ANS: C DIF: Moderate REF: 2.1
OBJ: 2.1 MSC: Application

49. Which result would *not* support the idea that genes play a significant role in behavior?
- Finding dizygotic twins to be more similar than monozygotic twins
 - Finding children to be more similar to their biological parents than to their adoptive parents
 - Finding similarities between biological siblings
 - Finding monozygotic twins to be more similar than pairs of unrelated individuals

ANS: A DIF: Moderate REF: 2.1
OBJ: 2.1 MSC: Conceptual

50. The concept that genotypes are not the only things that control traits involves the fact that
- dizygotic twins are virtually genetically identical.
 - each genotype can produce a variety of phenotypes.
 - recessive genes are more commonly expressed than dominant genes.
 - the environment has little impact on behavior.

ANS: B DIF: Moderate REF: 2.1
OBJ: 2.1 KEY: Key Term MSC: Conceptual

51. Despite being raised in two very different environments, identical twins Tina and Gina receive a similar score on a shyness scale. These results suggest that correlation between genetics and shyness is
- a. small.
 - b. large.
 - c. inverse.
 - d. polygenetic.

ANS: A DIF: Difficult REF: 2.1
OBJ: 2.1 KEY: Key Term MSC: Application

52. Genes and environments
- a. interact dynamically throughout development.
 - b. act independently throughout development.
 - c. interact dynamically in childhood and independently in adulthood.
 - d. act independently in childhood and interact dynamically in adulthood.

ANS: A DIF: Moderate REF: 2.1
OBJ: 2.1 MSC: Conceptual

53. As a behavioral geneticist, Professor Klink is most likely to calculate the extent to which depression is inherited using a _____ coefficient.
- a. nonshared
 - b. DNA
 - c. polygenetic
 - d. heritability

ANS: D DIF: Easy REF: 2.1
OBJ: 2.1 KEY: Key Term MSC: Application

54. A heritability coefficient of _____ means about 50 percent of the difference between people on a specific characteristic is the result of heredity.
- a. .5
 - b. 5
 - c. 50
 - d. 500

ANS: A DIF: Moderate REF: 2.1
OBJ: 2.1 KEY: Key Term MSC: Factual

55. A heritability coefficient is a derivation of a(n)
- a. t-test.
 - b. analysis of variance.
 - c. correlation.
 - d. chi-square.

ANS: C DIF: Moderate REF: 2.1
OBJ: 2.1 KEY: Key Term MSC: Conceptual

56. _____ occurs when an individual intentionally seeks out an environment that matches characteristics driven by his or her genes.
- a. Passive gene-environment interactions
 - b. Incomplete dominance
 - c. Niche-picking
 - d. Polygenetic inheritance

ANS: C DIF: Easy REF: 2.1
OBJ: 2.1 KEY: Key Term MSC: Factual

57. Which individual with a genetic predisposition toward being extroverted is demonstrating successful niche-picking?
- a. Wink, who is a game-show host
 - b. Wilbur, who is a horse trainer
 - c. Sebastian, who is a hermit who lives in a cave by himself
 - d. Dexter, who spends a lot of time studying in the library

ANS: A DIF: Easy REF: 2.1
OBJ: 2.1 KEY: Key Term MSC: Application

58. Nonshared environmental influences involve forces that make siblings
- a. act in virtually identical ways.
 - b. homozygous.
 - c. dizygotic twins.
 - d. different from one another.

ANS: D DIF: Easy REF: 2.1
OBJ: 2.1 KEY: Key Term MSC: Conceptual

59. Jack and Jill are twins. Because he is a boy, Jack's parents encourage him to run. However, they discourage Jill from engaging in athletic activity. As a result, Jack is much faster at running up a hill than Jill. The difference in Jack and Jill's behavior is best explained by
- a. nonshared environmental influences.
 - b. active gene-environment relations.
 - c. polygenetic effects.
 - d. niche-picking.

ANS: A DIF: Moderate REF: 2.1
OBJ: 2.1 KEY: Key Term MSC: Application

60. Which statement is true?
- a. Environmental influences within a family typically make children within a family different
 - b. Genes cannot influence the kind of environment to which a person is exposed
 - c. Behavioral consequences of genetic instructions are independent from environmental factors
 - d. The impact of environment on heredity wanes with age

ANS: A DIF: Moderate REF: 2.1
OBJ: 2.1 MSC: Conceptual

61. Which is *not* considered part of prenatal development?
- a. Period of the fetus
 - b. Period of the zygote
 - c. Period of the neonate
 - d. Period of the embryo

ANS: C DIF: Easy REF: 2.2
OBJ: 2.2 KEY: Key Term MSC: Factual

62. Prenatal development begins
- a. with sperm production.
 - b. with ovulation.
 - c. at conception.
 - d. at implantation into the uterus.

ANS: C DIF: Easy REF: 2.2
OBJ: 2.2 KEY: Key Term MSC: Factual

63. The period of the _____ lasts for approximately two weeks.

- a. Embryo
- b. Zygote
- c. Fetus
- d. Neonate

ANS: B DIF: Moderate REF: 2.2
OBJ: 2.2 KEY: Key Term MSC: Factual

64. The uniting of the egg and sperm (conception) typically takes place in the

- a. uterus.
- b. testes.
- c. fallopian tube.
- d. ovary.

ANS: C DIF: Easy REF: 2.2
OBJ: 2.2 KEY: Key Term MSC: Factual

65. If Agnieszka found out that she was conceived through in vitro fertilization, she would know for certain that

- a. she was conceived in a Petri dish.
- b. she was conceived inside a fallopian tube.
- c. her biological parents were not the same as the parents who reared her.
- d. the woman who carried her as a baby was not the woman who reared her.

ANS: A DIF: Moderate REF: 2.2
OBJ: 2.2 KEY: Key Term MSC: Application

66. Which event occurs following in vitro fertilization?

- a. A fertilized egg is placed directly into the uterus.
- b. A sperm is injected directly into the fallopian tube.
- c. A fertilized egg is directly placed in the ovary.
- d. A single sperm is injected directly into a fertilized egg.

ANS: A DIF: Moderate REF: 2.2
OBJ: 2.2 KEY: Key Term MSC: Conceptual

67. Which statement concerning in vitro fertilization is *false*?

- a. The odds of having twins or triplets may increase.
- b. About 90 percent of in vitro fertilization attempts are successful.
- c. The procedure is not typically covered by insurance.
- d. There is an increased risk of birth defects in infants conceived using the procedure.

ANS: B DIF: Easy REF: 2.2
OBJ: 2.2 KEY: Key Term MSC: Factual

68. Whose behavior best exemplifies eugenics?

- a. Dr. Green, who uses an in vitro fertilization technique
- b. Dr. Black, who allows only certain individuals to mate
- c. Dr. White, who studies the effects of thalidomide on prenatal development
- d. Dr. Brown, who closely monitors the nutrition of expecting mothers

ANS: B DIF: Moderate REF: 2.2
OBJ: 2.2 KEY: Key Term MSC: Application

69. The period of the zygote begins with
- ovulation.
 - ejaculation.
 - implantation.
 - fertilization.
- ANS: D DIF: Easy REF: 2.2
 OBJ: 2.2 KEY: Key Term MSC: Factual
70. A developing human that is traveling from a fallopian tube to the uterus would most accurately be described as a(n)
- embryo.
 - fetus.
 - zygote.
 - amnion.
- ANS: C DIF: Moderate REF: 2.2
 OBJ: 2.2 KEY: Key Term MSC: Factual
71. What began as a single fertilized egg has just separated into two distinct eggs. This indicates the formation of ____ twins that has occurred during the ____ period of development.
- fraternal; zygotic
 - fraternal; embryonic
 - identical; zygotic
 - identical; embryonic
- ANS: C DIF: Moderate REF: 2.2
 OBJ: 2.2 KEY: Key Term MSC: Application
72. The point at which a zygote burrows into the uterine wall is referred to as
- fertilization.
 - implantation.
 - niche-picking.
 - dilation.
- ANS: B DIF: Easy REF: 2.2
 OBJ: 2.2 KEY: Key Term MSC: Factual
73. A physician has just informed pregnant Moesha that the human organism developing inside of her has just begun to show differentiation of its cells. As a knowledgeable student, you would know that such an organism is technically call a(n)
- embryo.
 - zygote.
 - fetus.
 - neonate.
- ANS: B DIF: Difficult REF: 2.2
 OBJ: 2.2 KEY: Key Term MSC: Application
74. Pregnant Patty's body is currently experiencing the event that triggers hormonal changes that will prevent further menstruation. This event is called
- implantation.
 - conception.
 - dilation.
 - effacement.
- ANS: A DIF: Moderate REF: 2.2
 OBJ: 2.2 KEY: Key Term MSC: Application

75. The ____ is the cluster of cells in the center of the zygote that will eventually develop into the baby.
- a. Amnion
 - b. stem cell
 - c. germ disc
 - d. placenta
- ANS: C DIF: Moderate REF: 2.2
 OBJ: 2.2 KEY: Key Term MSC: Factual
76. I am the structure through which a mother and an embryo exchange waste and nutrients. I am called the
- a. amnion.
 - b. stem cell.
 - c. germ disc.
 - d. placenta.
- ANS: D DIF: Moderate REF: 2.2
 OBJ: 2.2 KEY: Key Term MSC: Factual
77. The developing human organism that has just become completely embedded in the wall of the uterus is called the
- a. amnion.
 - b. fetus.
 - c. zygote.
 - d. embryo.
- ANS: D DIF: Moderate REF: 2.2
 OBJ: 2.2 KEY: Key Term MSC: Conceptual
78. At five weeks after conception, a developing human is most accurately called a(n)
- a. embryo.
 - b. zygote.
 - c. fetus.
 - d. neonate.
- ANS: A DIF: Easy REF: 2.2
 OBJ: 2.2 MSC: Conceptual
79. Hair and the nervous system develop during the embryonic period from cells contained in the ____ layer.
- a. mesoderm
 - b. endoderm
 - c. placenta
 - d. ectoderm
- ANS: D DIF: Difficult REF: 2.2
 OBJ: 2.2 KEY: Key Term MSC: Factual
80. Damage to cells in the embryo's ____ layer would be most likely to result in the development of a defective digestive system.
- a. endoderm
 - b. placenta
 - c. ectoderm
 - d. mesoderm
- ANS: A DIF: Difficult REF: 2.2
 OBJ: 2.2 KEY: Key Term MSC: Factual

81. Dr. Proctor tells Uma that her developing embryo is showing distortions in the development of its circulatory system. As a knowledgeable student of human development, Uma should realize that the problem is within cells of the ____ layer.

- a. placenta
- b. mesoderm
- c. ectoderm
- d. endoderm

ANS: B DIF: Difficult REF: 2.2
OBJ: 2.2 KEY: Key Term MSC: Application

82. Ectoderm is to endoderm as

- a. heterozygous is to homozygous.
- b. fraternal is to identical.
- c. outer is to inner.
- d. bone is to muscle.

ANS: C DIF: Difficult REF: 2.2
OBJ: 2.2 KEY: Key Term MSC: Conceptual

83. Muscle and bones develop during the embryonic period from cells contained in the _____ layer.

- a. mesoderm
- b. endoderm
- c. placenta
- d. ectoderm

ANS: A DIF: Difficult REF: 2.2
OBJ: 2.2 MSC: Factual

84. While observing a special monitor, a physician tells an expectant mother, “As you can see, the legs and arms have just begun to emerge.” From this description, you should realize that the two are looking at a(n)

- a. zygote.
- b. fetus.
- c. embryo.
- d. germ disc.

ANS: C DIF: Moderate REF: 2.2
OBJ: 2.2 KEY: Key Term MSC: Application

85. The sac in which the embryo resides is called the

- a. ectoderm.
- b. amnion.
- c. germ disc.
- d. placenta.

ANS: B DIF: Easy REF: 2.2
OBJ: 2.2 KEY: Key Term MSC: Factual

86. One key purpose of the amniotic fluid is to

- a. provide the embryo with nutrients.
- b. stimulate development of neurotransmitters.
- c. screen the flow of blood between mother and embryo.
- d. maintain a constant temperature for the embryo.

ANS: D DIF: Moderate REF: 2.2
OBJ: 2.2 KEY: Key Term MSC: Factual

87. The ____ houses the blood vessels that join the embryo and its mother.

- a. umbilical cord
- b. amnion
- c. germ disc
- d. mesoderm

ANS: A DIF: Easy REF: 2.2
OBJ: 2.2 KEY: Key Term MSC: Factual

88. The placenta

- a. directly connects the blood stream of the embryo to the blood stream of the mother.
- b. contains amniotic fluid.
- c. helps the fetus to maintain a constant temperature.
- d. allows for an exchange of nutrients and waste.

ANS: D DIF: Easy REF: 2.2
OBJ: 2.2 KEY: Key Term MSC: Factual

89. The fact that the embryonic head develops before the body illustrates the ____ principle.

- a. cephalocaudal
- b. incomplete dominance
- c. proximodistal
- d. niche-picking

ANS: A DIF: Easy REF: 2.2
OBJ: 2.2 KEY: Key Term MSC: Conceptual

90. A doctor could best illustrate the proximodistal principle by discussing the fact that

- a. male fetuses develop faster than female fetuses.
- b. identical twins tend to be smaller than fraternal twins.
- c. the outside portion of the amniotic sac is thicker than the inside portion.
- d. a baby can control its shoulder before it can control its fingers.

ANS: D DIF: Moderate REF: 2.2
OBJ: 2.2 KEY: Key Term MSC: Application

91. During prenatal development, the arm develops before the fingers. This most illustrates the ____ principle.

- a. Premack
- b. coefficient
- c. cephalocaudal
- d. proximodistal

ANS: D DIF: Moderate REF: 2.2
OBJ: 2.2 MSC: Conceptual

92. Which organism can truthfully state, "It is during my time that all body parts and organs are first put into place?"

- a. The neonate
- b. The zygote
- c. The fetus
- d. The embryo

ANS: D DIF: Moderate REF: 2.2
OBJ: 2.2 KEY: Key Term MSC: Conceptual

93. Marsha's doctor informs her that her child is just entering the longest period of prenatal development. About how long has Marsha been carrying her unborn child?
- a. 1 day
 - b. 3 weeks
 - c. 9 weeks
 - d. 28 weeks

ANS: C DIF: Moderate REF: 2.2
OBJ: 2.2 KEY: Key Term MSC: Application

94. Which event signals the beginning of the period of the fetus?
- a. The first beat of the heart
 - b. The first neural activity in the neocortex
 - c. The formation of bone from cartilage
 - d. The attachment of the umbilical cord to the placenta

ANS: C DIF: Difficult REF: 2.2
OBJ: 2.2 KEY: Key Term MSC: Factual

95. The thick, greasy substance that covers the fetus around five to six months after conception is called
- a. placenta.
 - b. vernix.
 - c. amnion.
 - d. endoderm.

ANS: B DIF: Easy REF: 2.2
OBJ: 2.2 KEY: Key Term MSC: Factual

96. Currently, the earliest "age of viability" occurs around _____ weeks after conception.
- a. 14
 - b. 22
 - c. 30
 - d. 38

ANS: B DIF: Moderate REF: 2.2
OBJ: 2.2 KEY: Key Term MSC: Factual

97. Which best describes the main finding of a study in which pregnant mothers read the story *The Cat in the Hat*?
- a. Prior to birth, the fetus begins to mimic the sounds its mother makes.
 - b. After birth, infants appeared to recognize the rhythm at which their mother has read a story.
 - c. After birth, infants showed no reaction when they once again heard a story that had been read by their mother before they were born.
 - d. After birth, infants who had been read to began to speak at an earlier age than a control group that had not been read to.

ANS: B DIF: Moderate REF: 2.2
OBJ: 2.2 MSC: Factual

98. Just after the birth of her son Nelly, mom Kelly was informed that little Nelly's neural tube did not properly close during his prenatal development. This would mean that Nelly will be diagnosed with
- a. spina bifida.
 - b. muscular dystrophy.
 - c. cerebral palsy.
 - d. sickle-cell anemia.

ANS: A DIF: Moderate REF: 2.3
OBJ: 2.3 KEY: Key Term MSC: Application

99. A knowledgeable nutritionist would tell a pregnant mother that in order to reduce the risk of having a baby born with spina bifida, mom needs to make sure that she is ingesting an adequate amount of
- a. vitamin A.
 - b. iron.
 - c. vitamin E.
 - d. folic acid.

ANS: D DIF: Moderate REF: 2.3
OBJ: 2.3 KEY: Key Term MSC: Factual

100. Maternal stress is most likely to negatively impact a developing embryo/fetus when that stress is
- a. intermittent and extreme.
 - b. intermittent and moderate.
 - c. chronic and extreme.
 - d. chronic and moderate.

ANS: C DIF: Easy REF: 2.3
OBJ: 2.3 MSC: Conceptual

101. The main reason why teenage mothers tend to give birth to less healthy infants than mothers in their 20s is that the teens
- a. tend to neither seek nor receive good prenatal care.
 - b. take too many vitamins.
 - c. have more genetically defective eggs.
 - d. are more likely to smoke while pregnant.

ANS: A DIF: Easy REF: 2.3
OBJ: 2.3 MSC: Factual

102. Halley is 40 years old and she and her daughter Berry, 20, are both currently pregnant. Which statement concerning these two mothers is most accurate?
- a. Berry has a greater risk of giving birth to a baby with sickle-cell anemia.
 - b. Halley is twice as fertile as Berry.
 - c. Berry's odds of having a baby with Down syndrome are three times higher than Halley's.
 - d. Halley has a greater risk of having a miscarriage.

ANS: D DIF: Moderate REF: 2.3
OBJ: 2.3 MSC: Application

103. A teratogen is any agent that
- results in abnormal prenatal development.
 - enhances the flow of oxygen across the placental barrier.
 - decreases the chances of having a child with a genetic disorder.
 - inhibits the impact of drugs on the developing embryo.

ANS: A DIF: Moderate REF: 2.3
OBJ: 2.3 KEY: Key Term MSC: Factual

104. Whose mother most likely took thalidomide while pregnant?
- Dean, who has a heart defect
 - Martin, who has deformed arms and legs
 - Jerry, who is deaf
 - Lewis, who is severely mentally retarded

ANS: B DIF: Moderate REF: 2.3
OBJ: 2.3 MSC: Application

105. How many of the following are potential teratogens: aspirin, nicotine, cocaine, caffeine?
- 1
 - 2
 - 3
 - 4

ANS: D DIF: Moderate REF: 2.3
OBJ: 2.3 KEY: Key Term MSC: Application

106. What effect is *not* associated with fetal alcohol syndrome?
- Slow growth
 - Mental retardation
 - Blindness
 - Misshapen face

ANS: C DIF: Moderate REF: 2.3
OBJ: 2.3 KEY: Key Term MSC: Factual

107. Bryant's teacher notices that Bryant has unusual facial features (i.e., short nose and wide-set eyes) and shows signs of mental retardation. Due to her training in developmental psychology, Bryant's teacher realizes that Bryant's mom likely _____ while she was pregnant.

- consumed alcohol
- injected heroin
- smoked marijuana
- consumed an excessive amount of caffeine

ANS: A DIF: Moderate REF: 2.3
OBJ: 2.3 KEY: Key Term MSC: Application

108. A woman who consumes alcohol _____ has the greatest risk of giving birth to a baby with fetal alcohol syndrome.

- lightly and sporadically
- moderately and sporadically
- lightly and consistently
- moderately and consistently

ANS: D DIF: Easy REF: 2.3
OBJ: 2.3 KEY: Key Term MSC: Factually

109. Both AIDS and genital herpes
- can be passed along to an infant as it passes through the birth canal.
 - typically result in blindness.
 - cannot be transmitted to a fetus through the placenta.
 - can be eliminated by maternal inoculation.

ANS: A DIF: Moderate REF: 2.3
OBJ: 2.3 KEY: Key Term MSC: Factual

110. Which statement concerning teratogens is *false*?
- They impact different genotypes differently.
 - They impact specific aspects of development.
 - Their effects may not emerge until later in life.
 - Their effects are the same regardless of the time when the individual is exposed.

ANS: D DIF: Moderate REF: 2.3
OBJ: 2.3 MSC: Conceptual

111. The key lesson learned by the fact that thalidomide showed no impact when tested on prenatal rabbits but led to birth defects in prenatal humans is that
- teratogens impact different genotypes differently.
 - teratogens impact specific aspects of development.
 - teratogen effects may not emerge until later in life.
 - teratogen effects are the same regardless of the time when the individual is exposed.

ANS: A DIF: Moderate REF: 2.3
OBJ: 2.3 MSC: Conceptual

112. What was the most critical lesson about teratogens learned from studies on the use of the drug DES by pregnant women?
- Sometimes what appear to be teratogens actually are harmless drugs.
 - Infants in the late fetal period appear to be the most at risk for impact from drug-related teratogens.
 - Sometimes the effects of teratogens are not apparent until long after exposure.
 - Females appear to be at much greater risk from teratogens.

ANS: C DIF: Moderate REF: 2.3
OBJ: 2.3 MSC: Conceptual

113. Exposure to a teratogen during the _____ period is most likely to result in a spontaneous abortion.
- | | |
|-----------------|--------------|
| a. implantation | c. embryonic |
| b. zygotic | d. fetal |

ANS: B DIF: Moderate REF: 2.3
OBJ: 2.3 MSC: Factual

114. As there is a history of hereditary disease in the families of Archie and Veronica, they have arranged a meeting with a specialist at which a family tree concerning the odds of them having a child with a birth defect will be constructed. This event would most accurately be described as

- a. amniocentesis.
- b. chorionic villus sampling.
- c. teratogenic.
- d. genetic counseling.

ANS: D DIF: Easy REF: 2.3
OBJ: 2.3 MSC: Application

115. Claire is very concerned about the prebirth position of the child she is carrying. Which technique would be the best for determining whether Claire's concerns are warranted?

- a. Genetic counseling
- b. Ultrasound
- c. Chorionic villus sampling
- d. Amniocentesis

ANS: B DIF: Easy REF: 2.3
OBJ: 2.3 KEY: Key Term MSC: Application

116. Which prenatal assessment technique results in a picture of the fetus?

- a. Genetic screening
- b. Ultrasound
- c. Chorionic villus sampling
- d. Amniocentesis

ANS: B DIF: Easy REF: 2.3
OBJ: 2.3 KEY: Key Term MSC: Factual

117. The sample taken during an amniocentesis comes from

- a. the lining of the uterus.
- b. inside the body of the fetus.
- c. the fluid surrounding the fetus.
- d. the umbilical cord.

ANS: C DIF: Moderate REF: 2.3
OBJ: 2.3 KEY: Key Term MSC: Factual

118. Regan is a medical student who is learning a procedure in which a long needle is inserted into the abdomen of a pregnant woman. What technique is he most likely learning?

- a. Genetic counseling
- b. Amniocentesis
- c. Chorionic villus sampling
- d. Ultrasound

ANS: B DIF: Moderate REF: 2.3
OBJ: 2.3 KEY: Key Term MSC: Application

119. Mia and her doctor need to know as quickly as possible (hopefully within 24 hours) whether the child she has been carrying for only nine weeks possesses any genetic abnormalities. Which technique is Mia's doctor most likely to employ?

- a. Chorionic villus sampling
- b. Ultrasound
- c. Amniocentesis
- d. Genetic counseling

ANS: A DIF: Difficult REF: 2.3
OBJ: 2.3 KEY: Key Term MSC: Application

120. Troy is very interested in the field of fetal medicine. Given this, he would most likely be fascinated by a book titled
- Afterbirth Care and You.*
 - The Benefits of Healthy Eating Before Pregnancy.*
 - Fixing Birth Defects Before Birth.*
 - The Importance of Childhood Inoculations.*

ANS: C DIF: Easy REF: 2.3
OBJ: 2.3 KEY: Key Term MSC: Applications

121. Physicians are currently able to correct spina bifida at around seven to eight months after birth using
- genetic engineering.
 - fetal surgery.
 - chorionic villus sampling.
 - ultrasound.

ANS: B DIF: Moderate REF: 2.3
OBJ: 2.3 MSC: Factual

122. The process in which defective cells in the body are replaced with cells that have had the genetic defect “repaired” is called
- amniocentesis.
 - genetic engineering.
 - genetic screening.
 - niche-picking.

ANS: B DIF: Moderate REF: 2.3
OBJ: 2.3 MSC: Factual

123. Because it involves prolonged physical effort, the process of childbirth is often referred to as involving stages of
- labor.
 - parturition.
 - travail.
 - pursuit.

ANS: A DIF: Easy REF: 2.4
OBJ: 2.4 KEY: Key Term MSC: Conceptual

124. By the time Debbie got to the hospital to deliver her child, the child had entered the vaginal opening. This means that Debbie was in the _____ stage of labor.
- first
 - second
 - third
 - fourth

ANS: B DIF: Difficult REF: 2.4
OBJ: 2.4 MSC: Application

125. When her physician mentions the term “crowning,” Erica, who is giving birth, should realize that means that her
- cervix has just fully dilated.
 - uterine contractions are about to start.
 - baby’s head has just reached the vaginal opening.
 - placenta is about to be delivered.

ANS: C DIF: Moderate REF: 2.4
OBJ: 2.4 KEY: Key Term MSC: Application

126. Which is expelled during afterbirth?

- a. Fetus
- b. Placenta
- c. Cervix
- d. Ova

ANS: B DIF: Easy REF: 2.4
OBJ: 2.4 MSC: Factual

127. Wilma is afraid of the pain involved in delivering her baby. Are childbirth classes likely to help her?

- a. Yes, because women who take these courses report experiencing less pain than women who don't.
- b. Yes, because women who take these courses qualify for painkilling medications they would not usually receive.
- c. No, because childbirth courses only make people more knowledgeable about the birthing process and can have no effect on pain.
- d. No, because individuals who know most about the birthing process experience the most pain.

ANS: A DIF: Difficult REF: 2.4
OBJ: 2.4 MSC: Application

128. Which is *not* a typical childbirth class technique for reducing the pain associated with delivery?

- a. Teach deep breathing to reduce muscle tension.
- b. Teach visual imagery focusing on pleasant scenes or experiences.
- c. Teach a "coach" to attend to mother and help her cope with pain.
- d. Teach that medications have no place in the delivery room.

ANS: D DIF: Moderate REF: 2.4
OBJ: 2.4 MSC: Conceptual

129. For healthy pregnant women,

- a. home and hospital delivery carry the same birth defect risk.
- b. hospital delivery is safer than home delivery.
- c. home delivery is safer than hospital delivery.
- d. the home delivery versus hospital delivery risk factors are unknown.

ANS: A DIF: Moderate REF: 2.4
OBJ: 2.4 MSC: Factual

130. Postpartum depression

- a. occurs in about 50 percent of new mothers.
- b. is more common following planned pregnancies than unplanned pregnancies.
- c. is a purely psychological phenomenon (i.e., has no physiological basis).
- d. may be reduced via breast-feeding.

ANS: D DIF: Moderate REF: 2.4
OBJ: 2.4 MSC: Factual

131. After learning that his newborn son's birth involved hypoxia, Sven (a knowledgeable nurse) would most likely ask,
- "How long until my wife's scar heals?"
 - "How long was the cord wrapped around his neck?"
 - "Did the cervix ever dilate?"
 - "Is such a premature birth normal?"

ANS: B DIF: Moderate REF: 2.4
OBJ: 2.4 KEY: Key Term MSC: Application

132. How is a physician most likely to guard against fetal hypoxia?
- Monitor the fetus's heart rate.
 - Avoid exposing the fetus to tainted blood.
 - Encourage the mother to deliver vaginally.
 - Conduct a genetic screen of the parents.

ANS: A DIF: Difficult REF: 2.4
OBJ: 2.4 KEY: Key Term MSC: Factual

133. A Cesarean section is best thought of as
- vaginal childbirth.
 - a technique for determining possible birth defects in an embryo.
 - a common form of teratogen.
 - the surgical removal of a fetus.

ANS: D DIF: Easy REF: 2.4
OBJ: 2.4 KEY: Key Term MSC: Factual

134. Mona has decided to have a Cesarean section rather than a vaginal delivery. While this decision will reduce some risks, it will increase the risk of
- hypoxia.
 - spina bifida.
 - maternal infection.
 - low birth weight.

ANS: C DIF: Moderate REF: 2.4
OBJ: 2.4 MSC: Application

135. By definition, premature infants are born prior to _____ weeks after conception.
- 42
 - 40
 - 38
 - 36

ANS: D DIF: Moderate REF: 2.4
OBJ: 2.4 KEY: Key Term MSC: Factual

136. The cutoff between normal and low birth weight is about _____ pounds.
- 7.7
 - 5.5
 - 3.3
 - 2.2

ANS: B DIF: Moderate REF: 2.4
OBJ: 2.4 KEY: Key Term MSC: Factual

137. Because her birth weight was 1200 grams (about 3 pounds), Kia would be correctly classified as having a(n) ____ birth weight.
- a. normal
 - b. low
 - c. very low
 - d. extremely low

ANS: C DIF: Difficult REF: 2.4
OBJ: 2.4 KEY: Key Term MSC: Application

138. Born 39 weeks after conception, Sasha weighs in at around 2 pounds. Given this information, Sasha is best defined as
- a. full-term and normal birth weight.
 - b. preterm and normal birth weight.
 - c. preterm and very low birth weight.
 - d. full-term and extremely low birth weight.

ANS: D DIF: Difficult REF: 2.4
OBJ: 2.4 KEY: Key Term MSC: Application

139. Jamal was born 34 weeks after he was conceived and weighed 6 pounds. Jamal is best described as
- a. full-term and normal birth weight.
 - b. preterm and normal birth weight.
 - c. full-term and low birth weight.
 - d. preterm and low birth weight.

ANS: B DIF: Difficult REF: 2.4
OBJ: 2.4 KEY: Key Term MSC: Application

140. Longitudinal research on Hawaiian children indicated that problems associated with low birth weight
- a. were typically lifelong.
 - b. had no impact on social or cognitive abilities.
 - c. were only found in males.
 - d. could be overcome if the child was raised in a stable family environment.

ANS: D DIF: Moderate REF: 2.4
OBJ: 2.4 MSC: Factual

141. Infant mortality rate is defined as the percentage of infants who die
- a. before birth.
 - b. during birth.
 - c. before their first birthday.
 - d. before their second birthday.

ANS: C DIF: Moderate REF: 2.4
OBJ: 2.4 KEY: Key Term MSC: Factual

142. Which parent should most realistically fear her child dying before reaching their first birthday?
- a. Alfie, who is in Afghanistan
 - b. Charleene, who is in the Czech Republic
 - c. Fran, who is in Finland
 - d. Jen, who is in Japan

ANS: A DIF: Moderate REF: 2.4
OBJ: 2.4 MSC: Application

143. Low birth weight can most effectively be prevented through
- regular prenatal care.
 - avoiding teratogens.
 - maternal inoculations.
 - chorionic villus sampling.

ANS: A DIF: Easy REF: 2.4
OBJ: 2.4 KEY: Key Term MSC: Factual

TRUE/FALSE

1. A typical fertilized egg contains a total of 22 pairs of chromosomes.

ANS: F REF: 2.1 OBJ: 2.1

2. Your phenotype includes physical, psychological, and behavioral features.

ANS: T REF: 2.1 OBJ: 2.1

3. When the chromosomes in a pair are the same, they are said to be heterozygous.

ANS: F REF: 2.1 OBJ: 2.1

4. Individuals with sickle-cell trait must carry both recessive alleles in order to display symptoms.

ANS: F REF: 2.1 OBJ: 2.1

5. While characterized as a progressive and fatal disorder, symptoms of Huntington's disease can be eliminated through a special diet.

ANS: F REF: 2.1 OBJ: 2.1

6. Monozygotic twins come from a single egg.

ANS: T REF: 2.1 OBJ: 2.1

7. A heritability coefficient is used to calculate the extent to which a characteristic is the result of genetics.

ANS: T REF: 2.1 OBJ: 2.1

8. Nonshared environmental influences tend to make siblings in a family more similar to each other.

ANS: F REF: 2.1 OBJ: 2.1

9. The correct order of prenatal development is zygote to embryo to fetus.

ANS: T REF: 2.2 OBJ: 2.2

10. In vitro fertilization takes place in a test tube.
ANS: F REF: 2.2 OBJ: 2.2
11. Implantation occurs when the zygote burrows into the placenta.
ANS: F REF: 2.2 OBJ: 2.2
12. Hair and skin originally develops in the ectoderm layer of a zygote.
ANS: T REF: 2.2 OBJ: 2.2
13. The embryo is connected to the uterus via the fallopian tube.
ANS: F REF: 2.2 OBJ: 2.2
14. Cephalocaudal development proceeds from your extremities toward your body.
ANS: F REF: 2.2 OBJ: 2.2
15. The period of the fetus is the longest period of prenatal development.
ANS: T REF: 2.2 OBJ: 2.2
16. The modern age of viability begins at 16 weeks.
ANS: F REF: 2.2 OBJ: 2.2
17. Pregnant women who fail to consume enough vitamin A are at risk for giving birth to a baby with spina bifida.
ANS: F REF: 2.2 OBJ: 2.2
18. The younger the mother, the greater the risk that she will give birth to an infant with Down syndrome.
ANS: F REF: 2.2 OBJ: 2.2
19. Common symptoms of fetal alcohol syndrome include facial deformities, deafness, and mental retardation.
ANS: F REF: 2.2 OBJ: 2.2
20. Damage from teratogens are sometimes not evident until later in life.
ANS: T REF: 2.3 OBJ: 2.3

21. An ultrasound uses sound waves to create an image of a fetus.

ANS: T REF: 2.3 OBJ: 2.3

22. Research has demonstrated that childbirth techniques designed to reduce pain during labor do not work.

ANS: F REF: 2.4 OBJ: 2.4

23. The condition of hypoxia involves a reduction in the flow of oxygen to the brain.

ANS: T REF: 2.4 OBJ: 2.4

24. By definition, any infant born weighing less than 4 pounds is considered extremely low birth weight.

ANS: F REF: 2.4 OBJ: 2.4

COMPLETION

1. The first 22 pairs of chromosomes are called _____.

ANS: autosomes REF: 2.1 OBJ: 2.1

2. DNA is short for _____ acid.

ANS: deoxyribonucleic REF: 2.1 OBJ: 2.1

3. When each member of a pair of alleles produces a different outcome, the alleles are classified as _____.

ANS: heterozygous REF: 2.1 OBJ: 2.1

4. A(n) _____ allele is ignored when it is combined with a dominant allele.

ANS: recessive REF: 2.1 OBJ: 2.1

5. An individual with phenylketonuria is born without a key _____ enzyme required for normal development.

ANS: liver REF: 2.1 OBJ: 2.1

6. Fraternal twins are also called _____ twins.

ANS: dizygotic REF: 2.1 OBJ: 2.1

7. When a child deliberately seeks an environment that fits his or her heredity, the child is engaging in _____.

ANS: niche-picking REF: 2.1 OBJ: 2.1

8. The portion of the zygote that will eventually develop into the baby is called the _____.

ANS: germ disc REF: 2.2 OBJ: 2.2

9. The _____ layer of the zygote forms the digestive system and lungs.

ANS: endoderm REF: 2.2 OBJ: 2.2

10. The _____ is designed to cushion the developing embryo and to help it maintain a constant temperature.

ANS: amniotic fluid REF: 2.2 OBJ: 2.2

11. The point at which a fetus has a chance to survive if it were to be born is called the age of _____.

ANS: viability REF: 2.2 OBJ: 2.2

12. Any substance that causes abnormal prenatal development is classified as a(n) _____.

ANS: teratogen REF: 2.3 OBJ: 2.3

13. _____ sampling is a procedure in which a tissue sample is taken from the placenta.

ANS: Chorionic villus REF: 2.3 OBJ: 2.3

14. The moment at which the baby's head first appears at the vaginal opening during birth is called _____.

ANS: crowning REF: 2.4 OBJ: 2.4

15. A newborn weighing less than 1500 grams (3.3 pounds) but at least 1000 grams (2.2 pounds) is classified as _____ birth weight.

ANS: very low REF: 2.4 OBJ: 2.4

ESSAY

1. A new genetic disorder called "Blumberg's disease" is found to involve heterozygous alleles, is recessive, and is characterized by incomplete dominance. Discuss the implications of this description concerning the inheritance of this disorder.

ANS: Answer not provided. OBJ: 2.1

2. The following quotes summarize key concepts in biology. For each one, describe a real-life example illustrating each of these principles:
- “The behavioral consequences of genetic instructions depend on the environment in which those instructions are implemented.”
 - “Genes can influence the kind of environment to which a person is exposed.”
 - “Environmental influences typically make children within a family different.”

ANS: Answer not provided.

OBJ: 2.1

3. Describe any two genetic disorders that involve abnormal chromosomes. Be sure to both identify the exact chromosomal aberration and the impact of the aberration on development.

ANS: Answer not provided.

OBJ: 2.2

4. Jen is 20 years old, pregnant, and eats well, but she is under a lot of stress. Her friend Angelina, who is also pregnant, is 42 years old and has a very poor diet, but is under little stress. What prediction could you make concerning the postbirth health of each of these women’s babies?

ANS: Answer not provided.

OBJ: 2.3

5. Identify one disease, one drug, and an environmental hazard that is known to negatively impact prenatal development. Be sure to describe the specific impact of each teratogen.

ANS: Answer not provided.

OBJ: 2.3

6. Identify and describe any three principles that govern how teratogens impact development.

ANS: Answer not provided.

OBJ: 2.3

7. Beth is 12 weeks pregnant and concerned that her fetus may have a genetic disorder. Describe two techniques that a physician could use to determine whether Beth’s concerns are warranted. Also discuss how fetal medicine could be used to deal with a disorder if one is identified.

ANS: Answer not provided.

OBJ: 2.3

8. Describe the three basic stages of childbirth in terms of time, purpose, and symptoms.

ANS: Answer not provided.

OBJ: 2.4

9. Your friend Ming Lee is currently pregnant and attempting to learn about common birth complications and whether or not homebirth is a good option for her. She is 25 years old, in good health, and expecting her first child. Help her by first describing any two birth complications and then discuss why a home delivery may be a viable option in her case.

ANS: Answer not provided.

OBJ: 2.4

10. Length of gestation (i.e., number of weeks in utero) and weight at birth are both related to birth risk. Demonstrate your awareness of key related concepts by discussing the concepts of prematurity, low birth weight, and extremely low birth weight.

ANS: Answer not provided.

OBJ: 2.4

11. Describe why in vitro fertilization and eugenics represent controversial issues in human development.

ANS: In vitro fertilization involves conception outside of the body (e.g., in a Petri dish). Ethical concerns include a parent's right to select specific traits and the high costs, which tend to not be covered by insurance. Eugenics is an effort to improve humans by allowing only certain individuals to mate and pass along genes.

OBJ: 2.4

12. Compare and contrast development during the period of the zygote with development during the embryonic period.

ANS: The zygotic period occurs during the first two weeks following conception. It includes implantation of the zygote into the uterine wall, the development of the germinal disc that will eventually become the body, and the development of the placenta. The period of the embryo lasts from 3 to 8 weeks after conception. During this time, layers of tissue (e.g., ectoderm, mesoderm, endoderm) begin to shape the developing organism. This is also the time when all body structures and organs are formed.

OBJ: 2.2

