Test Bank for Child Development Worldwide A Cultural Approach 1st Edition by Arnett

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Test Bank

TOTAL ASSESSMENT GUIDE

Chapter 2

Genetics and Prenatal Development

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Multiple Choice Questions

1. The basic units of hereditary information are called _____.
a) genes
b) DNA
c) alleles
d) chromosomes

Answer: a
Learning Objective: 2.1.1 Distinguish between genotype and phenotype, and identify the different forms of genetic inheritance.
Topic: Genotype and Phenotype
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.1

2. The structure in the nucleus of cells—except reproductive cells—that contains paired genes is _____.
a) DNA
b) a phenotype
c) a chromosome
d) a nucleotide

Answer: c
Learning Objective: 2.1.1 Distinguish between genotype and phenotype, and identify the different forms of genetic inheritance.
Topic: Genotype and Phenotype
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.1

3. Charisse has blue eyes, brunette hair, and full lips. These characteristics describe Charisse's _____.
a) recessive genes
b) genotype
c) alleles
d) phenotype

Answer: d
Learning Objective: 2.1.1 Distinguish between genotype and phenotype, and identify the different forms of genetic inheritance.
Topic: Genotype and Phenotype
Difficulty Level: Medium
Skill Level: Apply What You Know

APA Learning Objective: 1.1
4. Which statement accurately describes the human genome?
a) The human genome represents a cross-section of a person's genotype and phenotype.
b) The human genome is made up of approximately 19,000 genes.
c) The human genome is the totality of an individual's genes.
d) The human genome is reflected in the difference between a person's genotype and phenotype.

Answer: b
Learning Objective: 2.1.1 Distinguish between genotype and phenotype, and identify the different forms of genetic inheritance.
Topic: Genotype and Phenotype
Difficulty Level: Easy
Skill Level: Understand the Concepts
APA Learning Objective: 1.3

5. Which person is at the greatest risk for developing sickle-cell anemia?
a) Tobin, an African American
b) Nakota, a Native American
c) Erin, an Irish American
d) Anh, a Vietnamese American

Answer: a
Learning Objective: 2.1.1 Distinguish between genotype and phenotype, and identify the different forms of genetic inheritance.
Topic: Genotype and Phenotype
Difficulty Level: Easy
Skill Level: Apply What You Know
APA Learning Objective: 2.5

6. Barrett has straight, brown hair while Bonnie has curly, blonde hair. According to traits with single-gene dominant-recessive inheritance, which statement accurately predicts the likely hair characteristics of Barrett and Bonnie's offspring?
a) Their children will have curly, blonde hair.
b) Their children will have straight, brown hair.
c) Their children will have curly, brown hair.
d) Their children will have straight, blonde hair.

Answer: c
Learning Objective: 2.1.1 Distinguish between genotype and phenotype, and identify the different forms of genetic inheritance.
Topic: Genotype and Phenotype
Difficulty Level: Difficult
Skill Level: Apply What You Know
APA Learning Objective: 2.1

7. Most human characteristics are influenced by multiple genes, rather than just one, or are considered _____.
a) polygenic
b) dominant-recessive
c) incomplete dominant
d) multi-genic

Answer: a
Learning Objective: 2.1.1 Distinguish between genotype and phenotype, and identify the different forms of genetic inheritance.
Topic: Genotype and Phenotype
Difficulty Level: Medium
Skill Level: Remember the Facts
APA Learning Objective: 2.2

8. The _____ chromosome pair results in a _____ fetus.
a) XY; female
b) XX; female
c) XX; male
d) YY; male

Answer: b
Learning Objective: 2.1.2 Describe the sex chromosomes and identify what makes them different from other chromosomes.
Topic: The Sex Chromosomes
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.1

9. While anticipating the gender reveal of their fourth child, parents Moutabir and Samara learn they will be having a fourth daughter. Wishing for a son, Moutabir expresses frustration at Samara's inability to "give me a son." How might you respond to Moutabir's disappointment?
a) Remind Samara that her eggs carry the X chromosome. Therefore, she is not responsible for the sex of her children.
b) Remind Moutabir that sperm carry the XX chromosome. Therefore, he is not responsible for the sex of his children.
c) Remind Moutabir that sperm carry either an X or Y chromosome. Therefore, his sperm determines the sex of his children.
d) Remind Samara that her eggs carry both the X and Y chromosomes. Therefore, her eggs determine the sex of her children.

Answer: c
Learning Objective: 2.1.2 Describe the sex chromosomes and identify what makes them different from other chromosomes.
Topic: The Sex Chromosomes
Difficulty Level: Difficult
Skill Level: Apply What You Know
APA Learning Objective: 2.1

10. What statement accurately illustrates cultural differences in sex determination of an impending birth?
a) The ancient Mayans believed that sex can be predicted using the father's age and the month of conception.
b) In the United States, some believe that if the mother craves salty or sour foods, she will have a girl.
c) The Chinese believe sex can be predicted using the mother's age and the month of conception.
d) In the United States, some believe that if the mother is "carrying high," she will have a boy.

Answer: c
Learning Objective: 2.1.2 Describe the sex chromosomes and identify what makes them different from other chromosomes.
Topic: The Sex Chromosomes
Difficulty Level: Medium
Skill Level: Understand the Concepts
APA Learning Objective: 2.1

11. Which statement illuminates the current cultural view of sex bias?
a) Sex bias in favor of boys is more pronounced in European cultures.
b) Sex selection in favor of boys is increasing in South Korea.
c) Sex bias in favor of girls is more pronounced in the United States.
d) The sex bias against girls is diminishing in China.

Answer: d
Learning Objective: 2.1.2 Describe the sex chromosomes and identify what makes them different from other chromosomes.
Topic: The Sex Chromosomes
Difficulty Level: Medium
Skill Level: Understand the Concepts
APA Learning Objective: 2.1

12. What is the term for the inherited blood-clotting disorder that may result in a person bleeding to death?
a) hemophilia
b) Y-linked inheritance
c) PKU disease
d) sickle-cell anemia

Answer: a
Learning Objective: 2.1.2 Describe the sex chromosomes and identify what makes them different from other chromosomes.
Topic: The Sex Chromosomes
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.1

13. Due to _____, males are at greater risk of developing genetically based problems such as learning and intellectual abilities.
a) chromosomal abnormalities
b) X-linked inheritance
c) environmental toxins
d) Y-linked inheritance

Answer: b
Learning Objective: 2.1.2 Describe the sex chromosomes and identify what makes them different from other chromosomes.
Topic: The Sex Chromosomes
Difficulty Level: Medium
Skill Level: Understand the Concepts
APA Learning Objective: 2.2

14. Marco, Penny, and Kristine are discussing the topic of sexual orientation. Marco and Penny believe homosexuality is as a result of genetic make-up while Kristine believes environmental factors are at play. Given the debate on nature-nurture, which statement is the most accurate?
a) Marco and Penny believe nurture overrides nature in determining sexual orientation.
b) Kristine believes nature overrides nurture in determining sexual orientation.
c) Most scholars would support Kristine's view.
d) Most scholars conclude that both genes (nature) and environmental factors (nurture) play a key role in human development, including sexual orientation.

Answer: d
Learning Objective: None
Topic: Genes and the Environment
Difficulty Level: Difficult
Skill Level: Apply What You Know
APA Learning Objective: 2.2

15. Stacy is excited about her future career options. She is particularly fascinated with the field of study that examines the influence of genes on human development. Stacy is interested in _____.
a) social psychology
b) behavior genetics
c) neuroscience
d) developmental genetics

Answer: b
Learning Objective: 2.2.1 Explain how behavior geneticists use heritability estimates and concordance rates in their research.
Topic: Principles of Behavior Genetics
Difficulty Level: Medium
Skill Level: Apply What You Know
APA Learning Objective: 1.1

16. Fraternal, or _____ twins, and siblings have _____ of their genes in common.
a) monozygotic; 100%
b) dizygotic; 55% to 75%
c) monozygotic; 90% to 99%
d) dizygotic; 40% to 60%

Answer: d
Learning Objective: 2.2.1 Explain how behavior geneticists use heritability estimates and concordance rates in their research.
Topic: Principles of Behavior Genetics
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 2.1

17. _____ twins are a result of one fertilized egg splitting in two.
a) Dizygotic
b) Monozygotic
c) Siamese
d) Fraternal

Answer: b
Learning Objective: 2.2.1 Explain how behavior geneticists use heritability estimates and concordance rates in their research.
Topic: Principles of Behavior Genetics
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.1

18. If a trait such as shyness has a heritability estimate of 0.40, this suggests _____.
a) that 60% of shyness can be attributed to genetic factors
b) that 40% of shyness can be attributed to genetic factors
c) that environmental factors cannot negatively impact change in one's tendency toward shyness
d) that .40% of shyness is influenced by environmental factors

Answer: b
Learning Objective: 2.2.1 Explain how behavior geneticists use heritability estimates and concordance rates in their research.
Topic: Principles of Behavior Genetics
Difficulty Level: Medium
Skill Level: Understand the Concepts
APA Learning Objective: 2.2

19. Behavior geneticists estimate the heritability of intelligence to be about _____, suggesting _____% of the variation in IQ scores is attributable to genetics.
a) .30; 70
b) .50; 50
c) .75; 25
d) .90; 10

Answer: b
Learning Objective: 2.2.1 Explain how behavior geneticists use heritability estimates and concordance rates in their research.
Topic: Principles of Behavior Genetics
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 2.1

20. Which statement accurately explains the influence of heritability on human traits and characteristics?
a) Heritability estimates provide a precise measurement of genetic contributions to human development.
b) Heritability estimates measure genotype rather than phenotype.
c) Heritability estimates provide a precise measurement of environmental influences on human development.
d) Heritability estimates measure phenotype rather than genotype.

Answer: d
Learning Objective: 2.2.1 Explain how behavior geneticists use heritability estimates and concordance rates in their research.
Topic: Principles of Behavior Genetics
Difficulty Level: Difficult
Skill Level: Analyze It
APA Learning Objective: 2.2

21. The degree of similarity in phenotype among pairs of family members is known as _____.
a) heritability
b) concordance rate
c) familial heritability
d) ancestral rate

Answer: b
Learning Objective: 2.2.1 Explain how behavior geneticists use heritability estimates and concordance rates in their research.
Topic: Principles of Behavior Genetics
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.2

22. Lashae and Lyle want to have a baby together. While discussing the irregularity of her menstrual cycles with her doctor, Lashae learned that yo-yo dieting and resulting weight gain and loss is likely causing her unpredictable periods. This scenario highlights the field of _____.
a) epigenetics
b) behavior genetics
c) heritability
d) concordance rates

Answer: a
Learning Objective: 2.2.2 Explain how the concepts of epigenetics and reaction ranges address gene–environment interactions.
Topic: Gene-Environment Interactions: Epigenetics and Reaction Ranges
Difficulty Level: Medium
Skill Level: Apply What You Know
APA Learning Objective: 1.2

23. The understanding that genes create boundaries for how the environment influences potential expression of genes is referred to as _____.
a) reaction range
b) bidirectional influence
c) concordance rate
d) epigenetics

Answer: a
Learning Objective: 2.2.2 Explain how the concepts of epigenetics and reaction ranges address gene–environment interactions.
Topic: Gene-Environment Interactions: Epigenetics and Reaction Ranges
Difficulty Level: Medium
Skill Level: Understand the Concepts
APA Learning Objective: 1.2

24. Which statement accurately reflects how changes in nutrition and health patterns have impacted patterns of height around the world over the last century?
a) Average height rose steadily in the United States in the first half of the 20th century.
b) Average height rose steadily in South Korea in the first half of the 20th century.
c) Average height declined steadily in the United States in the last half of the 20th century.
d) Average height declined steadily in China in the last half of the 20th century.

Answer: a
Learning Objective: 2.2.2 Explain how the concepts of epigenetics and reaction ranges address gene–environment interactions.
Topic: Gene-Environment Interactions: Epigenetics and Reaction Ranges
Difficulty Level: Difficult
Skill Level: Analyze It
APA Learning Objective: 2.5

25. The theory of genotype→environment effects proposed by Scarr and McCartney suggests that _____.
a) genes influence the kind of environment humans experience
b) the environment works to change genes
c) genes and the environment equally influence human characteristics
d) genes have a greater impact on human development than the environment does

Answer: a
Learning Objective: 2.2.3 Explain how the theory of genotype → environment effects casts new light on the old nature–nurture debate.
Topic: The Theory of Genotype → Environment Effects
Difficulty Level: Medium
Skill Level: Understand the Concepts
APA Learning Objective: 1.2

26. As a young child, Daniella enjoyed watching her father patiently nurture magnificent roses in their backyard garden. Through her youth, she enthusiastically helped her father prepare the soil, select the plants, design the garden, and cultivate new plants. Ultimately, Daniella majored in horticulture and established a successful online rose-garden supply business. Daniella's successful business reflects _____.
a) passive genotype→environment effects.
b) evocative genotype→environment effects.
c) active genotype→environment effects.
d) kinesthetic→environment effects.

Answer: a
Learning Objective: 2.2.3 Explain how the theory of genotype → environment effects casts new light on the old nature–nurture debate.
Topic: The Theory of Genotype → Environment Effects
Difficulty Level: Difficult
Skill Level: Apply What You Know
APA Learning Objective: 2.5

27. The theory of genotype→environment effects changes balance over the lifetime. In childhood, the _____ genotype→environment effects are more pronounced while the _____ genotype→environment effects are fairly weak.
a) evocative; active
b) active; passive
c) passive; evocative
d) passive; active

Answer: d
Learning Objective: 2.2.3 Explain how the theory of genotype → environment effects casts new light on the old nature-nurture debate.
Topic: The Theory of Genotype → Environment Effects
Difficulty Level: Difficult
Skill Level: Analyze It
APA Learning Objective: 2.2

28. _____ genotype→environment effects remain fairly stable throughout one's lifetime.
a) Evocative
b) Passive
c) Active
d) All three

Answer: a
Learning Objective: 2.2.3 Explain how the theory of genotype→environment effects casts new light on the old nature-nurture debate.
Topic: The Theory of Genotype → Environment Effects
Difficulty Level: Medium
Skill Level: Understand the Concepts
APA Learning Objective: 2.2

29. The process of _____ occurs when chromosomes duplicate themselves and the cell divides into two new cells.
a) meiosis
b) mitosis
c) crossing over
d) cellularization

Answer: b
Learning Objective: 2.3.1 Outline the process of meiosis in the formation of sperm and eggs, and specify how the process differs for females and males.
Topic: Sperm and Egg Formation
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.1

30. The egg cells in the ovaries and the sperm in the testes are referred to as _____.
a) hormones
b) gametes
c) zygotes
d) chromosomes

Answer: b
Learning Objective: 2.3.1 Outline the process of meiosis in the formation of sperm and eggs, and specify how the process differs for females and males.
Topic: Sperm and Egg Formation
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.2

31. The process of mitosis and meiosis are a bit different in that meiosis is cell division specific to _____ cells.
a) heart
b) neuronal
c) reproductive
d) spinal cord

Answer: c
Learning Objective: 2.3.1 Outline the process of meiosis in the formation of sperm and eggs, and specify how the process differs for females and males.
Topic: Sperm and Egg Formation
Difficulty Level: Medium
Skill Level: Understand the Concepts
APA Learning Objective: 1.2

32. The male reproductive cell is called a(n) _____ while the female reproductive cell is known as the _____.
a) ovum; sperm
b) gamete; zygote
c) sperm; ovum
d) zygote; gamete

Answer: c
Learning Objective: 2.3.1 Outline the process of meiosis in the formation of sperm and eggs, and specify how the process differs for females and males.
Topic: Sperm and Egg Formation
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.2

33. Which statement exemplifies the process of crossing over?
a) After the cell divides during meiosis, genetic material from the mother and the father is rearranged.
b) Before the cell divides during mitosis, genetic material from both biological parents is exchanged.
c) Before the cell divides during meiosis, genetic material from both biological parents is exchanged.
d) After the cell divides during mitosis, genetic material from the mother and the father is rearranged.

Answer: c
Learning Objective: 2.3.1 Outline the process of meiosis in the formation of sperm and eggs, and specify how the process differs for females and males.
Topic: Sperm and Egg Formation
Difficulty Level: Difficult
Skill Level: Understand the Concepts
APA Learning Objective: 2.1

34. Marcus, his younger brother Max, and their older sister Madeline are curious how they have 23 pairs of chromosomes from the same parents but are so very different from each other. Which answer provides the most accurate response to the siblings' question?
a) The process of mitosis mixes genetic material from their mother and father in an infinite number of ways, resulting in sibling diversity.
b) The process of crossing over mixes genetic material from their mother and father in a specific number of ways, resulting in sibling diversity.
c) The process of cross-fertilization rearranges genetic material from their mother and father in a limited number of ways, resulting in sibling diversity.
d) The process of crossing over mixes genetic material from their mother and father in an infinite number of ways, resulting in sibling diversity.

Answer: d
Learning Objective: 2.3.1 Outline the process of meiosis in the formation of sperm and eggs, and specify how the process differs for females and males.
Topic: Sperm and Egg Formation
Difficulty Level: Medium
Skill Level: Apply What You Know
APA Learning Objective: 2.2

35. How many sperm are in a typical male ejaculation?
a) 20 thousand to 50 thousand
b) 50 million to 100 million
c) 100 million to 300 million
d) 200 million to 400 million

Answer: c
Learning Objective: 2.3.1 Outline the process of meiosis in the formation of sperm and eggs, and specify how the process differs for females and males.
Topic: Sperm and Egg Formation
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.2

36. Females are born with about _____ ova and approximately _____ of these will mature during a woman's childbearing years.
a) 10,000; 8,000
b) 300,000; 5,000
c) 1 million; 1,500
d) 2 million; 400

Answer: d
Learning Objective: 2.3.1 Outline the process of meiosis in the formation of sperm and eggs, and specify how the process differs for females and males.
Topic: Sperm and Egg Formation
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.2

37. During unprotected sexual intercourse between a male and a female, what path do sperm follow within a female's reproductive system?
a) uterus; vagina; cervix; fallopian tubes
b) vagina; cervix, uterus; fallopian tubes
c) vagina; uterus; fallopian tubes; cervix
d) cervix; vagina; fallopian tubes; uterus

Answer: b
Learning Objective: 2.3.2 Describe the process of fertilization and conception.
Topic: Conception
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.2

38. The _____ contains both the ovum and cytoplasm.
a) follicle
b) fallopian tube
c) ovary
d) cervix

Answer: a
Learning Objective: 2.3.2 Describe the process of fertilization and conception.
Topic: Conception
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.1

39. The purpose of the cytoplasm in the follicle is _____.
a) to help propel the ovum toward the cervix
b) to protect the ovum from imperfect sperm
c) to provide nutrients for the ovum during the first two weeks of growth after fertilization
d) to attract and support the penetration of the sperm before fertilization

Answer: c
Learning Objective: 2.3.2 Describe the process of fertilization and conception.
Topic: Conception
Difficulty Level: Medium
Skill Level: Understand the Concepts
APA Learning Objective: 2.1

40. Once the sperm penetrates the egg, the new union is called a(n) _____.
a) fetus
b) embryo
c) ovum
d) zygote

Answer: d
Learning Objective: 2.3.2 Describe the process of fertilization and conception.
Topic: Conception
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 2.2

41. Damien is concerned that a night of unprotected sex with his girlfriend might lead to pregnancy. His buddy Ted tells him not to worry because sperm die after 12 hours so the chances of his girlfriend getting pregnant are pretty slim. What should Damien and Ted know about the life expectancy of sperm?
a) Sperm live 12 hours after entering a woman's body, but most do not last more than 6 hours.
b) Sperm live 24 hours after entering a woman's body, but most do not last more than 12 hours.
c) Sperm can live 3 days after entering a woman's body, but most do not last more than 1 day.
d) Sperm can live 5 days after entering a woman's body, but most do not last more than 2 days.

Answer: d
Learning Objective: 2.3.2 Describe the process of fertilization and conception.
Topic: Conception
Difficulty Level: Difficult
Skill Level: Apply What You Know
APA Learning Objective: 2.1

42. A ball of approximately 100 cells that forms within a week of conception is called the _____.
a) blastocyst
b) zygote
c) gamete
d) embryo

Answer: a
Learning Objective: 2.4.1 Describe the structures that form during the germinal period, and identify when implantation takes place.
Topic: The Germinal Period (First 2 Weeks)
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.1

43. Egg cells in the female and sperm cells in the male are called _____.
a) embryos
b) zygotes
c) gametes
d) chromosomes

Answer: c
Learning Objective: 2.4.1 Describe the structures that form during the germinal period, and identify when implantation takes place.
Topic: The Germinal Period (First 2 Weeks)
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.1
44. The first cell division during the germinal period takes place _____ after conception.

a) 1 hour
b) 6 hours
c) 30 hours
d) 60 hours

Answer: c
Learning Objective: 2.4.1 Describe the structures that form during the germinal period, and identify when implantation takes place.
Topic: The Germinal Period (First 2 Weeks)
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.1

45. The purpose of the placenta is to connect the mother and the developing zygote, to ensure proper nutrients are passed along to the zygote, and to _____.
a) protect the developing zygote from the mother's waste and bacteria
b) protect the embryo from the effects of alcohol
c) provide a barrier for the embryo against sound pollution
d) protect the mother from the waste and bacteria produced by the fetus

Answer: a
Learning Objective: 2.4.1 Describe the structures that form during the germinal period, and identify when implantation takes place.
Topic: The Germinal Period (First 2 Weeks)
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.2

46. The _____ is a fluid-filled membrane that helps maintain a steady temperature and protects the developing organism from the impact of the mother's movement.
a) placenta
b) amnion
c) uterus
d) zygotic sac

Answer: b
Learning Objective: 2.4.1 Describe the structures that form during the germinal period, and identify when implantation takes place.
Topic: The Germinal Period (First 2 Weeks)
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.1

47. Research estimates that more than _____% of blastocysts never implant successfully.

a) 25
b) 35
c) 50
d) 75

Answer: c
Learning Objective: 2.4.1 Describe the structures that form during the germinal period, and identify when implantation takes place.
Topic: The Germinal Period (First 2 Weeks)
Difficulty Level: Medium
Skill Level: Understand the Concepts
APA Learning Objective: 2.2

48. Ariana is excited to see 3D images of her unborn child. The doctor expects her to be able to hear the heartbeat for the first time. She asks whether she'll be able to determine the gender, but her doctor tells it is far too early to know this. Ariana's pregnancy is in the _____.
a) embryonic period
b) placental period
c) germinal period
d) fetal period

Answer: a
Learning Objective: 2.4.2 Outline the major milestones of the embryonic period and identify when they take place.
Topic: The Embryonic Period (Weeks 3–8)
Difficulty Level: Medium
Skill Level: Apply What You Know
APA Learning Objective: 2.2

49. The stage of development in which all of the major organ systems are formed is called the _____.
a) germinal period
b) organic period
c) fetal period
d) embryonic period

Answer: d
Learning Objective: 2.4.2 Outline the major milestones of the embryonic period and identify when they take place.
Topic: The Embryonic Period (Weeks 3–8)
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.2

50. Which of the following statements accurately defines the developmental stages during the embryonic period?
a) The ectoderm forms to become the skin, hair, nails, sensory organs, and nervous system.
b) The endoderm develops into the muscles, bones, reproductive system, and the circulatory system.
c) The mesoderm ultimately forms into the digestive system and the respiratory system.
d) The embryonic period is a time of slow growth.

Answer: a
Learning Objective: 2.4.2 Outline the major milestones of the embryonic period and identify when they take place.
Topic: The Embryonic Period (Weeks 3-8)
Difficulty Level: Medium
Skill Level: Understand the Concepts
APA Learning Objective: 1.2

51. Research indicates babies are born with more neurons than an adult has, which suggests that babies have _____ neurons.
a) more than 86 billion
b) more than 50 billion
c) fewer than 40 million
d) fewer than 35 million

Answer: a
Learning Objective: 2.4.2 Outline the major milestones of the embryonic period and identify when they take place.
Topic: The Embryonic Period (Weeks 3–8)
Difficulty Level: Medium
Skill Level: Understand the Concepts
APA Learning Objective: 1.2

52. After the end of the first trimester, Betsy is curious as to the size of her baby. Her doctor tells her to remember _____, which approximates the size of the fetus to _____.
a) "two times three"; 2 inches, 3 pounds
b) "three times three"; 3 months, 3 ounces, and 3 inches
c) "three times two"; 3 months and double the rate of growth
d) "nine times two"; 9 weeks, 2 pounds

Answer: b
Learning Objective: 2.4.3 Describe the major milestones of the fetal period, including when viability occurs.
Topic: The Fetal Period (Week 9–Birth)
Difficulty Level: Medium
Skill Level: Apply What You Know
APA Learning Objective: 2.1

53. To protect the fetus from chapping while in the amniotic fluid, the fetal skin is covered in a slimy, white substance called _____.
a) lanugo
b) endoderm
c) vernix
d) amnion

Answer: c
Learning Objective: 2.4.3 Describe the major milestones of the fetal period, including when viability occurs.
Topic: The Fetal Period (Week 9–Birth)
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 2.1

54. The _____ is the fine hair that helps the vernix stick to the skin during fetal development.
a) lanugo
b) amnion
c) ectoderm
d) mesoderm

Answer: a
Learning Objective: 2.4.3 Describe the major milestones of the fetal period, including when viability occurs.
Topic: The Fetal Period (Week 9–Birth)
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 2.1

55. Which statement exemplifies the survival rate of preterm infants?
a) Babies born before 27 weeks rarely survive.
b) Survival rates of babies born before 26 weeks in developing countries are equal to survival rates in developed countries.
c) In most of the world, babies born before the end of the second trimester rarely survive.
d) Babies born between 22 and 26 weeks often have short-term disabilities.

Answer: c
Learning Objective: 2.4.3 Describe the major milestones of the fetal period, including when viability occurs.
Topic: The Fetal Period (Week 9–Birth)
Difficulty Level: Difficult
Skill Level: Analyze It
APA Learning Objective: 2.1

56. The three major regions of the brain include _____.
a) the hindbrain, the forebrain, and the limbic system
b) the midbrain, the forebrain, the cerebral cortex
c) the forebrain, the hypothalamus, the hippocampus
d) the hindbrain, the midbrain, and the forebrain

Answer: d
Learning Objective: 2.5.1 Identify the different regions of the brain.
Topic: Brain Regions
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.1

57. Two major functions of the hindbrain and the midbrain are _____.
a) regulation of breathing and heartbeat
b) regulation of body temperature
c) memory formation
d) monitoring of hormonal levels

Answer: a
Learning Objective: 2.5.1 Identify the different regions of the brain.
Topic: Brain Regions
Difficulty Level: Medium
Skill Level: Understand the Concepts
APA Learning Objective: 1.2

58. The primary function of the _____ allows humans to speak and understand language, to solve complex problems, and to think conceptually.
a) limbic system
b) hippocampus
c) cerebral cortex
d) corpus callosum

Answer: c
Learning Objective: 2.5.1 Identify the different regions of the brain.
Topic: Brain Regions
Difficulty Level: Medium
Skill Level: Understand the Concepts
APA Learning Objective: 1.2

59. Which statement accurately differentiates the human brain from the brains of other species?
a) Approximately 70% of the human brain's weight is due to the cerebral cortex.
b) Although adult humans weigh about the same as adult chimpanzees, the cerebral cortex of humans is three to four times larger.
c) Approximately 90% of the human brain's weight is due to the cerebral cortex.
d) Although adult humans weigh about the same as adult chimpanzees, the cerebral cortex of humans is four to five times larger.

Answer: b
Learning Objective: 2.5.1 Identify the different regions of the brain.
Topic: Brain Regions
Difficulty Level: Difficult
Skill Level: Analyze It
APA Learning Objective: 1.2

60. _____ is a term for the specialization of functions in the right and left hemispheres of the brain.
a) Specificity
b) Lateralization
c) Narrow-processing
d) Localization

Answer: b
Learning Objective: 2.5.1 Identify the different regions of the brain.
Topic: Brain Regions
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.1

61. Sixteen-month-old Jax took a tumble down a flight of stairs. Although Jax did not sustain any obvious injuries, his father notices Jax does not respond to sound as he did before the fall. Given the change in Jax's hearing, it is likely Jax suffered injury to his _____ lobe.
a) temporal
b) parietal
c) frontal
d) occipital

Answer: a
Learning Objective: 2.5.1 Identify the different regions of the brain.
Topic: Brain Regions
Difficulty Level: Difficult
Skill Level: Analyze It
APA Learning Objective: 2.1

62. Neuronal communication occurs across tiny gaps called _____ through the release and reception of neurotransmitters.
a) synapses
b) axons
c) cell body
d) dendrites

Answer: a
Learning Objective: 2.5.2 Describe how brain development during the fetal period involves neuronal migration and communication, as well as the loss of neural elements.
Topic: Neural Migration and Communication
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.1

63. The part of the neuron that transmits electrical impulses and releases neurotransmitters is the _____.
a) dendrite
b) synapse
c) axon
d) cell body

Answer: c
Learning Objective: 2.5.2 Describe how brain development during the fetal period involves neuronal migration and communication, as well as the loss of neural elements.
Topic: Neural Migration and Communication
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.2

64. The process responsible for the increased speed of neuronal communication is referred to as _____.
a) neurotransmission
b) myelination
c) synaptic pruning
d) synaptogenesis

Answer: b
Learning Objective: 2.5.2 Describe how brain development during the fetal period involves neuronal migration and communication, as well as the loss of neural elements.
Topic: Neural Migration and Communication
Difficulty Level: Medium
Skill Level: Understand the Concepts
APA Learning Objective: 1.2

65. In comparison to the adult brain, _____ allows the infant brain to more easily overcome and repair damage due to accident or disease.
a) synaptic exuberance
b) pruning
c) neurogenesis
d) plasticity

Answer: d
Learning Objective: 2.5.3 Explain how normal brain development involves both gene expression and environmental input.
Topic: The Role of Genes and Environment in Brain Development
Difficulty Level: Medium
Skill Level: Understand the Concepts
APA Learning Objective: 2.1

66. The notion that Sakae's newborn would prefer Japanese cooking rather than Pila's Indian fare is best explained by _____.
a) exposure-independent processes
b) experience-expectant processes
c) experience-dependent processes
d) exposure-expectant processes

Answer: c
Learning Objective: 2.5.3 Explain how normal brain development involves both gene expression and environmental input.
Topic: The Role of Genes and Environment in Brain Development
Difficulty Level: Medium
Skill Level: Understand the Concepts
APA Learning Objective: 2.1

67. Which of the following recommendations in prenatal care is a current practice?
a) Pregnant women from the Ivory Coast are advised to avoid drinking cow's milk during the early months of pregnancy.
b) Doctors recommend pregnant women limit weight gain to no more than 15 pounds.
c) Pregnant women on the island of Bali are to avoid menstruating women as they are considered spiritually impure.
d) Prenatal care should start after a woman is through the first trimester.

Answer: c
Learning Objective: 2.6.1 Compare prenatal care in traditional cultures and developed countries.
Topic: Variations in Prenatal Care
Difficulty Level: Difficult
Skill Level: Analyze It
APA Learning Objective: 2.5

68. A _____ is any behavior, environment, or bodily condition that can cause damage to a developing fetus.
a) terabyte
b) teratogen
c) cultural practice
d) ritual

Answer: b
Learning Objective: 2.6.2 Identify the major teratogens in developing countries and developed countries.
Topic: Teratogens
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.1

69. Robin is 2½ months pregnant with her first child. She attends a bridal shower for a friend and welcomes the celebratory glass of champagne. Another friend quickly grabs the glass of bubbly from Robin's hand, proclaims alcohol as a teratogen, and tells her that drinking while pregnant can cause long-term problems for her future child. Robin thinks her friend is overreacting. Who is correct?
a) Robin's friend is being overly dramatic as alcohol is not categorized as a teratogen.
b) Robin should recognize that experts consider alcohol a teratogen. Her friend is right and Robin should refrain from consuming any alcohol while pregnant.
c) Champagne is a very weak alcohol so Robin would be safe to drink a couple of glasses without fear of causing harm to her fetus.
d) Consuming alcohol very early in the pregnancy will not negatively impact the developing fetus, but drinking in the last month of pregnancy can cause problems with organ development.

Answer: b
Learning Objective: 2.6.2 Identify the major teratogens in developing countries and developed countries.
Topic: Teratogens
Difficulty Level: Difficult
Skill Level: Apply What You Know
APA Learning Objective: 2.4

70. The most powerful teratogen across the globe is _____.
a) cigarettes
b) alcohol
c) marijuana
d) malnutrition

Answer: d
Learning Objective: 2.6.2 Identify the major teratogens in developing countries and developed countries.
Topic: Teratogens
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.2

71. In the 1980s, China reported the highest incidence of two prenatal disorders, anencephaly and spina bifida, and, in an effort to reduce this problem, the government began providing mothers with supplements of _____.
a) vitamin C
b) folic acid
c) magnesium
d) iron

Answer: b
Learning Objective: 2.6.2 Identify the major teratogens in developing countries and developed countries.
Topic: Teratogens
Difficulty Level: Medium
Skill Level: Understand the Concepts
APA Learning Objective: 2.4

72. The infectious disease _____, which is prevalent in developing countries, causes significant damage during the embryonic period, including blindness, deafness, intellectual disability, and abnormalities of the heart, genitals, and intestinal system.
a) rubella
b) AIDS
c) tuberculosis
d) mumps

Answer: a
Learning Objective: 2.6.2 Identify the major teratogens in developing countries and developed countries.
Topic: Teratogens
Difficulty Level: Medium
Skill Level: Understand the Concepts
APA Learning Objective: 2.2

73. A child born with facial deformities, heart problems, misshapen limbs, and a variety of cognitive, behavioral, social, and emotional problems points to a diagnosis of _____.
a) mental retardation
b) infant alcoholism
c) fetal alcohol spectrum disorder
d) anencephaly

Answer: c
Learning Objective: 2.6.2 Identify the major teratogens in developing countries and developed countries.
Topic: Teratogens
Difficulty Level: Medium
Skill Level: Understand the Concepts
APA Learning Objective: 2.2

74. _____ is the leading cause of low birth weight in developed countries.
a) Environmental pollution
b) Severe maternal stress
c) Smoking
d) Binge drinking

Answer: c
Learning Objective: 2.6.2 Identify the major teratogens in developing countries and developed countries.
Topic: Teratogens
Difficulty Level: Medium
Skill Level: Understand the Concepts
APA Learning Objective: 1.2

75. The development of chromosomal disorders takes place during _____.
a) mitosis
b) conception
c) meiosis
d) synaptic pruning

Answer: c
Learning Objective: 2.7.1 Explain how chromosomal disorders occur.
Topic: Chromosomal Disorders
Difficulty Level: Medium
Skill Level: Understand the Concepts
APA Learning Objective: 2.2

76. Estimates suggest as many as _____% of all conceptions involve too many or too few chromosomes.
a) 15
b) 25
c) 33
d) 50

Answer: d
Learning Objective: 2.7.1 Explain how chromosomal disorders occur.
Topic: Chromosomal Disorders
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.2

77. Down syndrome results when there is an extra chromosome on the _____ pair.
a) 23rd
b) 3rd
c) 11th
d) 21st

Answer: d
Learning Objective: 2.7.1 Explain how chromosomal disorders occur.
Topic: Chromosomal Disorders
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.2

78. Which statement describes the relationship between parental age and the incidence of chromosomal disorders?
a) Men who father children in middle age run a negligible risk of producing children with chromosomal disorders.
b) The risk of chromosomal disorders rises steeply for women wishing to become pregnant in their 40s.
c) Parental age poses very little risk to the development of chromosomal disorders.
d) Chromosomal disorders are only a risk for older parents if either parent has a family history of chromosomal disorders.

Answer: b
Learning Objective: 2.7.1 Explain how chromosomal disorders occur.
Topic: Chromosomal Disorders
Difficulty Level: Medium
Skill Level: Understand the Concepts
APA Learning Objective: 2.3

79. _____ is a prenatal technique conducted at 15 to 20 weeks of gestation that involves inserting a long, hollow needle into the abdomen to draw a sample of amniotic fluid.
a) Amniocentesis
b) Ultrasound
c) Chorionic villus sampling (CVS)
d) Maternal blood screening

Answer: a
Learning Objective: 2.7.2 Describe the four main techniques of prenatal testing and diagnosis, and explain why some prospective parents seek genetic counseling.
Topic: Prenatal Testing and Counseling
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 2.3

80. Amniocentesis can detect 40 different defects in fetal development with _____ accuracy.
a) 75%
b) 80%
c) 85%
d) 100%

Answer: d
Learning Objective: 2.7.2 Describe the four main techniques of prenatal testing and diagnosis, and explain why some prospective parents seek genetic counseling.
Topic: Prenatal Testing and Counseling
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 2.3

81. Ricco and Stephanie have been trying for several months to get pregnant and have been unsuccessful. Concerned and frustrated, they meet with a fertility specialist and learn infertility is defined as the inability to attain pregnancy after at least _____ of regular, unprotected sexual intercourse.
a) 1 month
b) 3 months
c) 6 months
d) 12 months

Answer: d
Learning Objective: 2.7.3 Describe psychological and social implications of infertility, and review major causes of and treatments for infertility.
Topic: Infertility
Difficulty Level: Medium
Skill Level: Apply What You Know
APA Learning Objective: 2.3

82. Which statement accurately illustrates how fertility is perceived in other non-Western countries?
a) In Latin cultures, if a wife is deemed infertile, her status is lowered in relation to her husband, her in-laws, and the community.
b) Women from Ghana consult a shaman, who focuses energy on trying to appease the anger of the gods believed to be inflicting infertility on the woman as a form of punishment.
c) In many cultures, men are blamed and shamed for problems with infertility.
d)A wife in Cameroon is encouraged to seek a divorce if unable to conceive with her husband.

Answer: b
Learning Objective: 2.7.3 Describe psychological and social implications of infertility, and review major causes of and treatments for infertility.
Topic: Infertility
Difficulty Level: Difficult
Skill Level: Analyze It
APA Learning Objective: 2.5

83. Research indicates infertility is attributed to men _____ of the time and to women _____ of the time.
a) 20%; 80%
b) 30%; 70%
c) 50%; 50%
d) 60%; 40%

Answer: c
Learning Objective: 2.7.3 Describe psychological and social implications of infertility, and review major causes of and treatments for infertility.
Topic: Infertility
Difficulty Level: Medium
Skill Level: Understand the Concepts
APA Learning Objective: 2.1

84. It takes _____ times longer for men older than 40 to impregnate a partner than it does for men under age _____.
a) two; 35
b) two; 30
c) three; 25
d) three; 20

Answer: c
Learning Objective: 2.7.3 Describe psychological and social implications of infertility, and review major causes of and treatments for infertility.
Topic: Infertility
Difficulty Level: Medium
Skill Level: Understand the Concepts
APA Learning Objective: 2.1

85. The oldest effective treatment for infertility is _____.
a) artificial insemination
b) use of fertility drugs
c) in vitro fertilization (IVF)
d) egg donation

Answer: a
Learning Objective: 2.7.3 Describe psychological and social implications of infertility, and review major causes of and treatments for infertility.
Topic: Infertility
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 2.2

Essay Questions

86. Briefly contrast traits with single-gene dominant-recessive inheritance, incomplete dominance, and polygenic inheritance.
Answer: Will vary but should contain the following for full credit:

1. Single-gene dominant-recessive inheritance is a pattern of inheritance in which a pair of chromosomes contains one dominant and one recessive gene, but only the dominant gene is observed in the phenotype. For example, freckles are dominant, while having no freckles is recessive.
2. Incomplete dominance is a type of dominant-recessive inheritance in which the phenotype is influenced primarily by the dominant gene but is influenced to some extent by the recessive gene. Sickle-cell anemia is an example of incomplete dominance.
3. Polygenic inheritance is the interaction of multiple genes rather than just one, resulting in the expression of phenotypes such as height, weight, skin color, intelligence, personality, and susceptibility to diseases.

Learning Objective: 2.1.1 Distinguish between genotype and phenotype, and identify the different forms of genetic inheritance.
Topic: Genotype and Phenotype
Difficulty Level: Difficult
Skill Level: Analyze It
APA Learning Objective: 2.1

87. Briefly describe the three forms of the theory of genotype→environment effects, and provide an example of each.
Answer: Will vary but should contain the following for full credit:

1. Passive-genotype→environment effects occur in biological families because parents provide both genes and environment for their children. For example, a father is a talented musician, playing the guitar on the weekends with his buddies. As soon as his daughter turns 10 years old, he presents her with a guitar of her own. She eventually becomes a guitar teacher for middle-school children.
2. Evocative-genotype→environment effects occur when a person's inherited characteristics evoke, or elicit, responses from others in his or her environment. For instance, if a young girl learns to read at age 3, her mother may send her to an elite preschool and purchase an extensive library of books for her.
3. Active-genotype→environment effects occur when people seek out environments that correspond to their genotypic characteristics, called niche-picking. For example, if an adolescent shows great interest and a natural ability to paint, he may ask to be sent to an art camp each summer.

Learning Objective: 2.2.3 Explain how the theory of genotype → environment effects casts new light on the old nature-nurture debate.
Topic: The Theory of Genotype → Environment Effects
Difficulty Level: Difficult
Skill Level: Analyze It
APA Learning Objective: 2.4

88. Briefly describe what factors increase the likelihood of dizygotic (DZ) twins and what factors increase the likelihood of monozygotic (MZ) twins.
Answer: Will vary but should contain the following for full credit:

1. Ethnic background increases the incidence of DZ twins, with Asians having the lowest rate of DZ twins and Africans the highest.
2. Additional factors influencing the chances of DZ twins include a family history of DZ twins, the age of the mother, nutrition, and infertility treatments.
3. MZ twins are universally less common and are not more prevalent in any specific ethnic group, nor are MZ twins influenced by age, nutrition, or family history.

Learning Objective: 2.3.2 Describe the process of fertilization and conception.
Topic: Conception
Difficulty Level: Difficult
Skill Level: Analyze It
APA Learning Objective: 2.1

89. Briefly describe fetal awareness of its external environment as demonstrated in the study using Dr. Seuss's *The Cat in the Hat*.

1. Mothers were asked to read *The Cat in the Hat* to their fetuses every day during the last 6 weeks of pregnancy. Once born, each infant showed a distinct preference for a recording of his or her mother reading the book, as demonstrated by the infant's sucking action on a plastic nipple, which activated the sound.
2. When compared to other recorded readings, each infant sucked harder when hearing his or her mother's voice recording of *The Cat in the Hat* compared to her reading other selections the infant had not heard while in the womb.

Learning Objective: 2.4.3 Describe the major milestones of the fetal period, including when viability occurs.
Topic: The Fetal Period (Week 9–Birth)
Difficulty Level: Difficult
Skill Level: Analyze It
APA Learning Objective: 2.4

90. Briefly explain how the mantra "Use it or lose it" applies to neural development.
Answer: Will vary but should contain the following for full credit:

1. During synaptic exuberance, or synaptogenesis, there is a significant spurt in synaptic connections. These spurts are followed by pruning, wherein up to 50% of the connections disappear.
2. If the connections are not used, they die. However, the connections that are used the most will become stronger.
3. The process of pruning allows the strongest connections to receive the resources to survive.

Learning Objective: 2.5.2 Describe how brain development during the fetal period involves neuronal migration and communication, as well as the loss of neural elements.
Topic: Neural Migration and Communication
Difficulty Level: Difficult
Skill Level: Analyze It
APA Learning Objective: 2.3

91. Briefly describe how illicit and prescription drugs, certain kinds of work, stress, and environmental pollution can affect a developing fetus.
Answer: Will vary but should contain the following for full credit:

1. Pregnant women who use drugs such as cocaine, heroin, and marijuana risk inflicting their offspring with physical, cognitive, and behavioral problems, while prescription drugs such as Accutane can cause damage to major organs if ingested during the embryonic period. Over-the-counter medications such as cold medications should only be used under the guidance of a medical doctor.
2. Jobs that expose pregnant women to X-rays, hazardous chemicals, or infectious diseases should be avoided.
3. Maternal stress due to the death of a family member, spouse, or close friend may result in a preterm delivery and low birth weight.
4. Exposure to elevated levels of environmental pollutants such as from automotive, airline, or manufacturing production may lead to premature birth and low birth weight.

Learning Objective: 2.6.2 Identify the major teratogens in developing countries and developed countries.
Topic: Teratogens
Difficulty Level: Difficult
Skill Level: Analyze It
APA Learning Objective: 1.2

92. Briefly describe the main sources of infertility for men and for women.
Answer: Will vary but should contain the following for full credit:

1. There are three main causes of infertility for men, including too few sperm produced; poor quality of sperm due to disease or defects; or low motility rendering the sperm unable to make it through the fallopian tubes. These problems may be due to genetics, age, or abuse of drugs, alcohol, cigarettes or being extremely overweight or underweight.
2. For women, the main cause of infertility is problems in ovulation. Problems with ovulation are most often due to age.

Learning Objective: 2.7.3 Describe psychological and social implications of infertility, and review major causes of and treatments for infertility.
Topic: Infertility
Difficulty Level: Difficult
Skill Level: Analyze It
APA Learning Objective: 2.2

TOTAL ASSESSMENT GUIDE

Revel Multiple Choice Assessment Questions	Remember the Facts	Understand the Concepts	Apply What You Know	Analyze It
2.1 Genetic Basics	EOM Q2.1.1, EOC Q2.2	EOM Q2.1.2, E OC Q2.1	EOM Q2.1.3	
2.2 Genes and Environment	EOM Q2.2.3	EOM Q2.2.1, EOM Q2.2.2, EOM Q2.2.4, EOM Q2.2.5	EOC Q2.3, EOC Q2.4, EOC Q2.5	
2.3 Genes and Individual Development	EOM Q2.3.3	EOM Q2.3.1, EOM Q2.3.2, EOC Q2.6, EOC Q2.7		
2.4 Prenatal Development	EOM Q2.4.1, EOC Q2.8	EOM Q2.4.2, EOC Q2.10	EOM Q2.4.3, EOC Q2.9	
2.5 Prenatal Brain Development	EOM Q2.5.2	EOM Q2.5.1, EOM Q2.5.3, EOC Q2.11		EOC Q2.12, OC Q2.13
2.6 Prenatal Care	EOM Q2.6.3, EOC Q2.15		EOC Q2.14	EOM Q2.6.1, EOM Q2.6.2
2.7 Pregnancy Problems	EOM Q2.7.1, EOM Q2.7.3	EOM Q2.7.2, EOC Q2.17		EOC Q2.16, EOC Q2.18

Revel Assessment Questions

2.1 Genetic Basics

EOM Q2.1.1

Nearly all cells in the human body contain _____ chromosomes in _____ pairs.
a) 22; 11
b) 30; 15
c) 46; 23
d) 50; 25
Consider This: One chromosome in each pair is inherited from the mother and the other inherited from the father.
Answer: c
Learning Objective: 2.1.1 Distinguish between genotype and phenotype, and identify the different forms of genetic inheritance.
Topic: Genetic Basics
Difficulty Level: Easy
Skill Level: Remember the Facts

EOM Q2.1.2

The totality of an individual's genes is the _____.
a) genotype
b) phenotype
c) DNA
d) chromosome
Consider This: This is the organism's unique genetic inheritance.
Answer: a
Learning Objective: 2.1.1 Distinguish between genotype and phenotype, and identify the different forms of genetic inheritance.
Topic: Genetic Basics
Difficulty Level: Moderate
Skill Level: Understand the Concepts

EOM Q2.1.3

Rebecca is pregnant and is craving sweets. She is carrying “high” according to her grandmother and this most certainly means that she is going to have a girl. Rebecca's grandmother likely is from _____.
a) the West
b) China
c) Indonesia
d) Nigeria
Consider This: Many cultures also have beliefs about how to predict the baby’s sex.
Answer: a
Learning Objective: 2.1.2 Describe the sex chromosomes and identify what makes them different from other chromosomes.
Topic: Genetic Basics
Difficulty Level: Difficult
Skill Level: Apply What You Know

2.2 Genes and the Environment

EOM Q2.2.1

Behavior geneticists are able to calculate a statistic called _____, which is an estimate of the extent to which genes are responsible for the differences among persons within a specific population.
a) heritability
b) epigenetics
c) reaction range
d) concordance rate
Consider This: The value of this estimate ranges from 0 to 1.00.
Answer: a
Learning Objective: 2.2.1 Explain how behavior geneticists use heritability estimates and concordance rates in their research.
Topic: Genes and the Environment
Difficulty Level: Moderate
Skill Level: Understand the Concepts

EOM Q2.2.2

Dr. Thompson is conducting research on _____, which is how genetic activity responds to environmental influences.
a) epigenetics
b) reaction range
c) heritability
d) behavior genetics
Consider This: According to this theory, genetic activity responds constantly to environmental influences.
Answer: a
Learning Objective: 2.2.1 Explain how behavior geneticists use heritability estimates and concordance rates in their research.
Topic: Genes and the Environment
Difficulty Level: Moderate
Skill Level: Understand the Concepts

EOM Q2.2.3

The genes for height simply establish the upper and lower boundaries of the _____, and where a person's actual height ends up is determined by environmental influences such as nutrition and disease.
a) reaction range
b) heritability
c) epigenetics
d) phenotype
Consider This: When genes influence human development it is by establishing boundaries for environmental influences rather than specifying a precise characteristic.
Answer: a
Learning Objective: 2.2.2 Explain how the concepts of epigenetics and reaction ranges address gene–environment interactions.
Topic: Genes and the Environment
Difficulty Level: Easy
Skill Level: Remember the Facts

EOM Q2.2.4

What is the name of theory proposing that genes influence the kind of environment we experience?
a) genotype → environment effects
b) heritability
c) incomplete dominance
d) meiosis
Consider This: According to this theory, both genotype and environment make essential contributions to human development.
Answer: a
Learning Objective: 2.2.3 Explain how the theory of genotype → environment effects casts new light on the old nature–nurture debate.
Topic: Genes and the Environment
Difficulty Level: Moderate
Skill Level: Understand the Concepts

EOM Q2.2.5

In adulthood, _____ fade almost entirely (except in cultures where persons continue to live with their parents even in adulthood).
a) passive genotype → environment effects
b) interactive genotype → environment effects
c) active genotype → environment effects
d) evocative genotype → environment effects
Consider This: Autonomy increases at this time.
Answer: a
Learning Objective: 2.2.3 Explain how the theory of genotype → environment effects casts new light on the old nature–nurture debate.
Topic: Genes and the Environment
Difficulty Level: Moderate
Skill Level: Understand the Concepts

2.3 Genes and Individual Development

EOM Q2.3.1

What are the cells, distinctive to each sex, that are involved in reproduction?
a) gametes
b) zygote
c) follicle
d) epigenetics
Consider This: These form in the ovaries of the female and the testes of the male.
Answer: a
Learning Objective: 2.3.1 Outline the process of meiosis in the formation of sperm and eggs, and specify how the process differs for females and males.
Topic: Genes and Individual Development
Difficulty Level: Moderate
Skill Level: Understand the Concepts

EOM Q2.3.2

What is the outcome of meiosis in males?
a) one viable sperm
b) two viable sperm
c) three viable sperm
d) four viable sperm
Consider This: In males, meiosis is completed before sperm are released, but in females the final stage of meiosis only takes place when and if the ovum is fertilized by a sperm.
Answer: d
Learning Objective: 2.3.1 Outline the process of meiosis in the formation of sperm and eggs, and specify how the process differs for females and males.
Topic: Genes and Individual Development
Difficulty Level: Moderate
Skill Level: Understand the Concepts

EOM Q2.3.3

How many sperm make it up the fallopian tubes to where fertilization can take place?
a) just one
b) a few hundred
c) a few thousands
d) a few million
Consider This: Keep in mind that sperm are composed of a single cell, so they are not exactly skilled at navigation.
Answer: d
Learning Objective: 2.3.2 Describe the process of fertilization and conception.
Topic: Genes and Individual Development
Difficulty Level: Easy
Skill Level: Remember the Facts

2.4 Prenatal Development

EOM Q2.4.1

The first 2 weeks after fertilization are called the _____.
a) germinal period
b) fetal period
c) embryonic period
d) ectoderm period
Consider This: This is the period when the zygote travels down the fallopian tubes to the uterus and implants in the uterine wall.
Answer: a
Learning Objective: 2.4.1 Describe the structures that form during the germinal period, and identify when implantation takes place.
Topic: Genes and Individual Development
Difficulty Level: Easy
Skill Level: Remember the Facts

EOM Q2.4.2

The mesoderm is the cell layer that will become _____.
a) the muscles, bones, reproductive system, and circulatory system
b) the skin, hair, nails, sensory organs, and nervous system
c) the spinal cord and brain
d) the digestive system and the respiratory system
Consider This: The mesoderm is the middle of the cell layers.
Answer: a
Learning Objective: 2.4.2 Outline the major milestones of the embryonic period and identify when they take place.
Topic: Genes and Individual Development
Difficulty Level: Moderate
Skill Level: Understand the Concepts

EOM Q2.4.3

Janet is 6 months pregnant and has just had a visit with her doctor. She asked her doctor what would happen if she were to go into labor at this time. The doctor told her that the main obstacle to viability at the beginning of the third trimester is the _____.
a) immaturity of the lungs
b) development of the brain
c) vernix that covers the fetus
d) downy hair called the lanugo
Consider This: Weight gain is also important.
Answer: a
Learning Objective: 2.4.3 Describe the major milestones of the fetal period, including when viability occurs.
Topic: Genes and Individual Development
Difficulty Level: Difficult
Skill Level: Apply What You Know

2.5 Prenatal Brain Development

EOM Q2.5.1

The _____ is divided into two hemispheres, left and right, which are connected by a band of neural fibers.
a) cerebral cortex
b) hypothalamus
c) hippocampus
d) thalamus
Consider This: The band of neural fibers is called the corpus callosum, which allows the hemispheres to communicate.
Answer: a
Learning Objective: 2.5.1 Identify the different regions of the brain.
Topic: Prenatal Brain Development
Difficulty Level: Moderate
Skill Level: Understand the Concepts

EOM Q2.5.2

Neurons communicate across the synapses through the release and reception of chemicals called _____.
a) neurotransmitters
b) axons
c) dendrites
d) myelin
Consider This: Neurons differ from other cells in the body in that they are not directly connected to each other.
Answer: a
Learning Objective: 2.5.2 Describe how brain development during the fetal period involves neuronal migration and communication, as well as the loss of neural elements.
Topic: Prenatal Brain Development
Difficulty Level: Easy
Skill Level: Remember the Facts

EOM Q2.5.3

What is the term for the process by which the rapidly developing young brain requires certain common and universal experiences in order for development to proceed normally?
a) experience-expectant process
b) experience-dependent process
c) myelination
d) lateralization
Consider This: Normal brain development, both prenatally and after birth, is a result of both gene expression and environmental input.
Answer: a
Learning Objective: 2.5.3 Explain how normal brain development involves both gene expression and environmental input.
Topic: Prenatal Brain Development
Difficulty Level: Moderate
Skill Level: Understand the Concepts

2.6 Prenatal Care

EOM Q2.6.1

Which of the following statements about women and weight gain during pregnancy is true?
a) Scientific studies have shown that average-weight women should typically gain 25–35 pounds during pregnancy.
b) Women who gain less than 40 pounds are at risk for having babies who are preterm and low birth weight.
c) For women who do not gain enough weight, their children are at risk for becoming overweight or obese during childhood and developing diabetes, high blood pressure, or heart disease later in life.
d) A recent large-scale survey of pregnant American women found that about 5% gained too little weight, and almost 20% gained too much.
Consider This: Even in developed countries, which have a long scientific tradition, not much was known about prenatal care from a scientific perspective until recent decades.
Answer: a
Learning Objective: 2.6.1 Compare prenatal care in traditional cultures and developed countries.
Topic: Prenatal Care
Difficulty Level: Difficult
Skill Level: Analyze It

EOM Q2.6.2

Which of the following statements about teratogens is true?
a) Males are more vulnerable to teratogens than females.
b) Females are more vulnerable to teratogens than males.
c) Females and males are equally as vulnerable to teratogens.
d) Males are more vulnerable to teratogens than females in the early stages of development.
Consider This: Teratogens are behaviors, environments, and bodily conditions that could be harmful to the developing organism.
Answer: a
Learning Objective: 2.6.2 Identify the major teratogens in developing countries and developed countries.
Topic: Prenatal Care
Difficulty Level: Difficult
Skill Level: Analyze It

EOM Q2.6.3

What is the most common teratogen worldwide?
a) malnutrition
b) infectious diseases
c) prescription drugs
d) alcohol
Consider This: Generally, the more a developing organism is exposed to a teratogen, the worse the effect.
Answer: a
Learning Objective: 2.6.2 Identify the major teratogens in developing countries and developed countries.
Topic: Prenatal Care
Difficulty Level: Easy
Skill Level: Remember the Facts

2.7 Pregnancy Problems

EOM Q2.7.1

How many chromosomes should there be in each cell for healthy development?
a) 44
b) 45
c) 46
d) 47
Consider This: It is estimated that as many as half of all conceptions involve too many or too few chromosomes, but most of the zygotes that result either never begin to develop or are spontaneously aborted early in the pregnancy.
Answer: c
Learning Objective: 2.7.1 Explain how chromosomal disorders occur.
Topic: Pregnancy Problems
Difficulty Level: Easy
Skill Level: Remember the Facts

EOM Q2.7.2

Which prenatal technique is used for diagnosing genetic problems and involves taking a sample of cells at 5–10 weeks gestation by inserting a tube into the uterus?
a) chorionic villus sampling (CVS)
b) amniocentesis
c) maternal blood screening
d) ultrasound
Consider This: This is used only when there is a family history of genetic abnormalities, the woman is age 35 or older, or as a follow-up to a blood screening test.
Answer: a
Learning Objective: 2.7.2 Describe the four main techniques of prenatal testing and diagnosis, and explain why some prospective parents seek genetic counseling.
Topic: Pregnancy Problems
Difficulty Level: Moderate
Skill Level: Understand the Concepts

EOM Q2.7.3

Most women of reproductive age who have sexual intercourse on a regular basis will become pregnant within _____.
a) 3–6 months
b) 1–2 years
c) 2–3 years
d) 3–4 years
Consider This: Women are generally considered to be of reproductive age between the ages of 15–40.
Answer: b
Learning Objective: 2.7.3 Describe psychological and social implications of infertility, and review major causes of and treatments for infertility.
Topic: Pregnancy Problems
Difficulty Level: Easy
Skill Level: Remember the Facts

End of Chapter: Genetics and Prenatal Development

EOC Q2.1

Although single gene pairs sometimes play a crucial role in development, more commonly the influence of genes is a consequence of _____, the interaction of multiple genes rather than just one.
a) polygenic inheritance
b) incomplete dominance
c) dominant–recessive inheritance
d) phenotypes
Consider This: This is true for physical characteristics such as height, weight, and skin color, as well as for characteristics such as intelligence, personality, and susceptibility to various diseases.
Answer: a
Learning Objective: 2.1.1 Distinguish between genotype and phenotype, and identify the different forms of genetic inheritance.
Topic: Genetics and Prenatal Development
Difficulty Level: Moderate
Skill Level: Understand the Concepts

EOC Q2.2

Which country's sex ratio is currently considered to be normal, despite previously being high?
a) South Korea
b) United States
c) China
d) Japan
Consider This: While sex ratios in many countries remain skewed toward more baby boys than girls, census data indicate that the bias against girls is diminishing.
Answer: a
Learning Objective: 2.1.2 Describe the sex chromosomes and identify what makes them different from other chromosomes.
Topic: Genetics and Prenatal Development
Difficulty Level: Easy
Skill Level: Remember the Facts

EOC Q2.3

Jack and John have 100% of their genes in common. What are they?
a) monozygotic twins
b) fraternal twins
c) dizygotic twins
d) cousins
Consider This: These result from one fertilized egg splitting in two.
Answer: a
Learning Objective: 2.2.1 Explain how behavior geneticists use heritability estimates and concordance rates in their research.
Topic: Genetics and Prenatal Development
Difficulty Level: Difficult
Skill Level: Apply What You Know

EOC Q2.4

Which of the following statements is true?
a) In recent decades in Western countries there has been little change in average height.
b) In recent decades in Western countries there has been little change in average weight.
c) In recent decades in Western countries there has been substantial change in average height and weight.
d) In recent decades in Western countries there has been substantial change in average height but not weight.
Consider This: This indicates that the populations of these countries have reached the upper boundary of their reaction range.
Answer: a
Learning Objective: 2.2.2 Explain how the concepts of epigenetics and reaction ranges address gene–environment interactions.
Topic: Genetics and Prenatal Development
Difficulty Level: Difficult
Skill Level: Apply What You Know

EOC Q2.5

Logan likes to build things. Even though his parents have no interest in building, they buy him Legos and Minecraft games to encourage his interest and talent. This is an example of _____.

a) evocative genotype → environment effects
b) passive genotype → environment effects
c) active genotype → environment effects
d) interactive genotype → environment effects

Consider This: This results when a person's inherited characteristics elicits responses from others in the environment.
Answer: a
Learning Objective: 2.2.3 Explain how the theory of genotype → environment effects casts new light on the old nature–nurture debate.
Topic: Genetics and Prenatal Development
Difficulty Level: Difficult
Skill Level: Apply What You Know

EOC Q2.6

When does crossing over happen during meiosis?

a) at the outset
b) throughout the entire process
c) in the middle
d) at the end

Consider This: Crossing over mixes the combinations of genes in the chromosomes, so that genetic material that originated from the mother and father is rearranged in a virtually infinite number of ways.
Answer: a
Learning Objective: 2.3.1 Outline the process of meiosis in the formation of sperm and eggs, and specify how the process differs for females and males.
Topic: Genetics and Prenatal Development
Difficulty Level: Moderate
Skill Level: Understand the Concepts

EOC Q2.7

Fertilization usually takes place in the _____.
a) fallopian tubes
b) cervix
c) uterus
d) vagina
Consider This: It is only during the first 24 hours after the ovum enters the this that fertilization can occur.
Answer: a
Learning Objective: 2.3.2 Describe the process of fertilization and conception.
Topic: Genetics and Prenatal Development
Difficulty Level: Moderate
Skill Level: Understand the Concepts

EOC Q2.8

Implantation occurs during which week after conception?
a) first week
b) second week
c) third week
d) fourth week
Consider This: Implantation occurs as the blastocyst becomes firmly embedded into the lining of the uterus.
Answer: b
Learning Objective: 2.4.1 Describe the structures that form during the germinal period, and identify when implantation takes place.
Topic: Genetics and Prenatal Development
Difficulty Level: Easy
Skill Level: Remember the Facts

EOC Q2.9

Amber is expecting her first baby and loves to read about what to expect in her pregnancy. She is excited to read that her baby's heart will begin to beat during this week, and the ribs, muscles, and digestive tract also appear. What period of prenatal development is she in?
a) embryonic
b) fetal
c) germinal
d) blastocyst
Consider This: By the end of this period, all major body parts will have formed.
Answer: a
Learning Objective: 2.4.2 Outline the major milestones of the embryonic period and identify when they take place.
Topic: Genetics and Prenatal Development
Difficulty Level: Difficult
Skill Level: Apply What You Know

EOC Q2.10

Which of the following statements about the survival rates for premature babies is true?
a) In most of the world, babies born before the end of the second trimester have no access to advanced medical care and do not survive.
b) The survival rate by 24 weeks is 20%.
c) The survival rate by 26 weeks is 50%.
d) Survivors who are born between 22 and 26 weeks often do not have disabilities other than problems with hearing and sight.
Consider This: Babies born before 22 weeks rarely survive, even with the most advanced technological assistance.
Answer: a
Learning Objective: 2.4.3 Describe the major milestones of the fetal period, including when viability occurs.
Topic: Genetics and Prenatal Development
Difficulty Level: Moderate
Skill Level: Understand the Concepts

EOC Q2.11

Which part of the brain is divided into two main parts, the limbic system and the cerebral cortex?
a) forebrain
b) hindbrain
c) midbrain
d) hypothalamus
Consider This: The most distinctively human part of the brain is the cerebral cortex.
Answer: a
Learning Objective: 2.5.1 Identify the different regions of the brain.
Topic: Genetics and Prenatal Development
Difficulty Level: Moderate
Skill Level: Understand the Concepts

EOC Q2.12

Which of the following statements about myelin is true?
a) Myelination increases the speed of communication between neurons.
b) While myelination starts in early childhood, it is especially active in adulthood.
c) Dendrites become wrapped in a white, fatty substance called myelin.
d) Starting early in the fetal period, around the 36th week, axons become wrapped in myelin.
Consider This: Myelination is process of the growth of the myelin sheath around the axon of a neuron.
Answer: a
Learning Objective: 2.5.2 Describe how brain development during the fetal period involves neuronal migration and communication, as well as the loss of neural elements.
Topic: Genetics and Prenatal Development
Difficulty Level: Difficult
Skill Level: Analyze It

EOC Q2.13

Which of the following statements about human brain development is true?
a) Humans are born at an earlier stage of brain development relative to other African great ape species.
b) Humans are born at a later stage of brain development relative to other African great ape species.
c) The human brain at birth is a larger percentage of its adult size than a chimpanzee at birth.
d) The human infant's brain is 75% of the adult size at birth.
Consider This: For the human child, extensive brain maturation takes place within postnatal physical and cultural environments.
Answer: a
Learning Objective: 2.5.3 Explain how normal brain development involves both gene expression and environmental input.
Topic: Genetics and Prenatal Development
Difficulty Level: Difficult
Skill Level: Analyze It

EOC Q2.14

Talia believes that a pregnant mother should not accept food from a menstruating woman. Which country is she most likely from?
a) Bali
b) United States
c) Mexico
d) Japan
Consider This: In this country witches are believed to be especially attracted to the blood of a pregnant woman and her unborn child, so pregnant women are advised to obtain a magic charm and wear it on their belt or hang it on the gate of their yard, for protection.
Answer: a
Learning Objective: 2.6.1 Compare prenatal care in traditional cultures and developed countries.
Topic: Genetics and Prenatal Development
Difficulty Level: Difficult
Skill Level: Apply What You Know

EOC Q2.15

One of the most prevalent and serious infectious diseases affecting prenatal development is _____.
a) rubella
b) influenza
c) mumps
d) herpes
Consider This: The embryonic period is a critical period for exposure to this illness, which is also known as German measles.
Answer: a
Learning Objective: 2.6.2 Identify the major teratogens in developing countries and developed countries.
Topic: Genetics and Prenatal Development
Difficulty Level: Easy
Skill Level: Remember the Facts

EOC Q2.16

Which of the following statements about chromosomal abnormalities is true?
a) Children with chromosomal problems are almost always born to parents who have no disorder.
b) When there is an extra chromosome on the 20th pair, the condition is known as Down syndrome.
c) The sex chromosomes are not very likely to be involved in chromosomal disorders.
d) Recent research has suggested that paternal age is not linked to autism spectrum disorder.
Consider This: In 1 out of 200 live births, the child has a chromosomal disorder.
Answer: a
Learning Objective: 2.7.1 Explain how chromosomal disorders occur.
Topic: Genetics and Prenatal Development
Difficulty Level: Difficult
Skill Level: Analyze It

EOC Q2.17

What is considered to be cheap, easy, and safe, and allows doctors to monitor fetal growth and gives parents the enjoyment of seeing the fetus as it is developing in the womb?
a) ultrasound
b) CVS
c) amniocentesis
d) MRI
Consider This: It also allows parents to learn the sex of the child before birth, if they wish.
Answer: a
Learning Objective: 2.7.2 Describe the four main techniques of prenatal testing and diagnosis, and explain why some prospective parents seek genetic counseling.
Topic: Genetics and Prenatal Development
Difficulty Level: Moderate
Skill Level: Understand the Concepts

EOC Q2.18

Which of the following statements about infertility is true?
a) In the West, from about the 4th century BCE to the 1800s, the reigning explanation for infertility was based on a theory that both women and men must produce a seed in order for conception to occur, and that the seed was released through orgasm.
b) Rates of infertility in the United States have been inconsistent over the past century.
c) Rates of infertility in the United States have been about 20%–25% of couples.
d) A worldwide assessment of infertility between 1990 and 2010 found that rates had stayed consistent at about 30%–35%.
Consider This: The implications of infertility vary by culture. They include a sense of sadness and loss in some individualistic countries, and stigmatization and ostracism of the woman in some traditional cultures.
Answer: a
Learning Objective: 2.7.3 Describe psychological and social implications of infertility, and review major causes of and treatments for infertility.
Topic: Genetics and Prenatal Development
Difficulty Level: Difficult
Skill Level: Analyze It