STUDY GUIDE – ANSWERS

Biological Bases of Behavior:

3C: Genetics, Evolutionary Psychology and Behavior

Unit Review

Introduction

1. personalities; interests; cultural; family
2. biological heritage; brain; language; social
3. nature; nurture

Behavior Genetics: Predicting Individual Differences

1. behavior geneticists
2. nongenetic
3. chromosomes; 46; 23; DNA
4. genes; many
5. genome
6. twin; adoption
7. identical; fraternal
8. more
9. being treated alike; could not
10. environment
11. do not; does; higher
12. heritability; do not necessarily imply
13. regulating; blueprints; react
14. psychological; genetic; environmental
15. interaction; genetic; environment
16. genes; responses; fraternal; identical
17. molecular genetics
18. genes; chromosome; DNA

Evolutionary Psychology: Understanding Human Nature

1. evolutionary psychologists
2. much alike
3. natural selection
4. mutations; diversity
5. looser; learn; adapt; environments; fitness; survive; reproduce; fats; store
6. more; more; gender
7. evolutionary; genes; are
8. youthful; mature; dominant; bold; affluent
9. backward; hindsight
10. social; inequality
11. alike; different; predictions

Reflections on Nature and Nurture

1. less; converging
2. nature; nurture; open; biopsychosocial
3. Occam's razor

Progress Test 1

Multiple-Choice Questions

1. c. is the answer. (p. 103)
   a., b., & d. Whereas evolutionary psychologists attempt to explain universal human tendencies, these researchers investigate genetic differences among individuals.
2. c. is the answer. Research has not shown a strong parental influence on personality, temperament, or emotional reactivity. (p. 99)
3. b. is the answer. (p. 97)
   a. & c. Although an identical twin is at increased risk, the relationship is far from perfect. Mental disorders, like all psychological traits, are influenced by both nature and nurture.
   d. This is not at all implied by the evidence from twin studies.
4. d. is the answer. (p. 98)
   a., b., & c. In order to pinpoint the influence of one of the two factors (genes and environment), it is necessary to hold one of the factors constant.
5. b. is the answer. (p. 104)
6. b. is the answer. Women can incubate only one infant at a time. (p. 106)
   c. & d. The text does not suggest that there is a gender difference in the strength of the sex drive.
7. b. is the answer. (p. 106)
   a. According to this perspective, women prefer mates with the potential for long-term nurturing investment in their joint offspring.
   c. While men are drawn to women whose waists are roughly a third narrower than their hips, the text does not suggest that women equate muscularity with fertility.
   d. Excitement was not mentioned as a criterion for mating.
8. b. is the answer. (p. 97)
   c. & d. There are no such things as "placental" or "nonplacental" twins. All twins have a placenta during prenatal development.
9. d. is the answer. (p. 104)
   a. Survival ability is only one aspect of fitness.
   b. & c. Neither of these is related to fitness.
10. d. is the answer. (p. 102)

Matching Items

1. d (p. 103)	5. j (p. 95)	9. h (p. 102)
2. c (p. 96)	6. b (p. 96)	10. k (p. 104)
3. e (p. 97)	7. i (p. 95)	11. g (p. 95)
4. a (p. 95)	8. f (p. 95)	

Progress Test 2

Multiple-Choice Questions

1. c. is the answer. (p. 95)
   b. & d. Each cell of the human body contains hundreds of genes.
2. b. is the answer. (p. 95)
   a. Hormones are chemical messengers produced by the endocrine glands.
   c. & d. Genes are segments of DNA, which are the makeup of chromosomes.
3. c. is the answer. (p. 96)
   a. This defines DNA.
   b. This defines a gene.
   d. The genes provide the code for synthesizing proteins.
4. c. is the answer. (p. 96)
5. a. is the answer. (p. 104)
6. a. is the answer. (p. 107)
7. b. is the answer. (p. 98)
   a., c., & d. Despite being raised in different environments, long-separated identical twins often have much in common, including likes, dislikes, and life-styles. This indicates the significant heritability of many traits.
8. b. is the answer. (p. 99)
   a., c., & d. The personalities of adopted children do not much resemble those of their adoptive parents (therefore, not a.) or other children reared in the same home (therefore, not c. or d.).
9. a. is the answer. (p. 95)
   b. Neurotransmitters are the chemicals involved in synaptic transmission in the nervous system.
   d. Enzymes are chemicals that facilitate various chemical reactions throughout the body but are not involved in heredity.
10. d. is the answer. (p. 101)

    a. A norm is a culturally determined set of expected behaviors for a particular role, such as a gender role.

    b. & c. When two factors are correlated, it means either that increases in one factor are accompanied by increases in one factor are accompanied by decreases in the other (negative correlation).
11. a. is the answer. This is an example of a trait that contributes to survival of the human species and the perpetuation of one's genes. (p. 104)

    b., c., & d. These traits and issues would likely be of greater interest to a behavior geneticist, since they concern the influence of specific genes on behavior.

True-False Items

1. F (p. 106)	5. T (p. 102)	9. T (p. 106)
2. T (p. 96)	6. T (p. 106)	10. T (p. 101)
3. F (p. 100)	7. T (p. 104)	11. F (p. 99)
4. F (p. 101)	8. F (p. 100)	

Psychology Applied

Multiple-Choice Questions

1. a. is the answer. (p. 95)

   b. DNA is a molecule.

   c. & d. Genes are segments of DNA, and the genome is the complete instructions for making an organism.
2. b. is the answer. (pp. 95, 97)
   a. Evolutionary psychologists study the evolution of behavior using the principles of natural selection.
   c. Molecular geneticists search for the specific genes that influence behaviors. In his example, the researcher is merely comparing twins.
   d. Who knows?
3. c. is the answer. (p. 99)

   a. Although heredity does influence certain traits, such as outgoingness and emotional instability, it is the interaction of heredity and experience that ultimately molds personality.
   b. There is no single "most important factor" in personality. Moreover, for the same reason two sisters or brothers often have dissimilar personalities, a sister and brother may be very much alike.
   d. Karen and John's case is not at all unusual.
4. d. is the answer. To separate the influences of heredity and experience on behavior, one of the two must be held constant. (p. 97
   b. & c. These situations would not allow one to separate the contributions of heredity and environment.
5. b. is the answer. (p. 96)
   a. Because they are genetically the same, identical twins are always of the same sex.

c. & d. Fraternal twins develop from two fertilized eggs.

6. b. is the answer. Actually, only 5 percent are differences among population groups. (p. 104)
7. c. is the answer. (p. 97)
8. b. is the answer. (p. 101)
   a. An interaction requires at least two variables; in this example there is only one (competition).
   c. This is an example of a negative correlation.
   d. This is an example of a positive correlation.
9. d. is the answer. (pp. 103-104)
10. d. is the answer. (p. 105)
    b. & c. These are typical male attitudes and behaviors.

Essay Question

Evolutionary psychologists would not be surprised by the tension between Lakia and Jerome and would see it as a reflection of women's more relational and men's more recreational approach to sex. Since eggs are expensive, compared with sperm, women prefer mates with the potential for long-term investment in their joint offspring. According to this perspective, this may be why Lakia is not in a hurry to become sexually intimate with Jerome. Men, on the other hand, are selected for "pairing widely" but not necessarily wisely in order to maximize the spreading of their genes. This is especially true of men like Jerome, who have traditional masculine attitudes.

Key Terms

1. Behavior genetics is the study of the relative power and limits of genetic and environmental influences on behavior. (p. 95)
2. In behavior genetics, environment refers to every nongenetic, or external, influence on our traits and behaviors. (p. 95)
3. Chromosomes are threadlike structures made of DNA molecules that contain the genes. In conception, the 23 chromosomes in the egg are paired with the 23 chromosomes in the sperm. (p.95)
4. DNA *(deoxyribonucleic acid)* is a complex molecule containing the genetic information that makes up the chromosomes. (p. 95)
5. Genes are the biochemical units of heredity that make up the chromosomes; they are segments of the DNA molecules capable of synthesizing a protein. (p. 95)
6. A genome is the complete genetic instructions for making an organism. (p. 96)
7. Identical twins develop from a single fertilized egg that splits in two and therefore are genetically identical. (p. 96)
8. Fraternal twins develop from two separate eggs fertilized by different sperm and therefore are no more genetically similar than ordinary siblings. (p.97)
9. Heritability refers to the proportion of variation among individuals that can be attributed to genes. (p. 100)
10. An interaction occurs when the effects of one factor (such as environment) depend on another factor (such as heredity). (p. 101)

    Example: Because the way people react to us (an environmental factor) depends on our genetically influenced temperament (a genetic factor), there is an interaction between environment and heredity.
11. Molecular genetics is a subfield of biology that studies the molecular structure and function of specific genes. (p. 102)
12. Evolutionary psychology is the study of the evolution of behavior and the mind, using principles of natural selection. (p. 103)
13. Natural selection is the evolutionary principle that traits that lead to increased reproduction and survival are the most likely to be passed on to succeeding generations. (p. 103)
14. Mutations are random errors in gene replication that are the source of genetic diversity within a species. (p. 104)