Name: _____ Class: _____ Date: _____ ID: A

Biology Chapter 11 Test: Complex Inheritance and Human Heredity

True/False
Indicate whether the statement is true or false.

____ 1. A woman with an X-linked dominant genetic disorder will have children who have a 50% chance to be affected by the trait also, regardless of their gender.

____ 2. A man whose parents both have heart disease is worried that he too will have heart disease. It is possible for him to reduce his risk of the disease by maintaining a healthy diet and by engaging in frequent exercise.

____ 3. Parents of normal height who have children with achondroplasia are heterozygous for the trait.

____ 4. It is possible to create a karyotype of a fetus.

____ 5. Organisms such as yeast can reproduce through mitotic division. During this type of reproduction, nondisjunction is possible.

____ 6. The staff in the neonatal unit at a hospital are not sure which of two babies belong to which set of parents. The blood types of the babies are AB and O. One set of parents has blood types A and B. With this knowledge it would still be necessary to test the second couple.

____ 7. Once a person is born, the phenotype is set in place and remains stable throughout the lifetime.

Multiple Choice
Identify the choice that best completes the statement or answers the question.

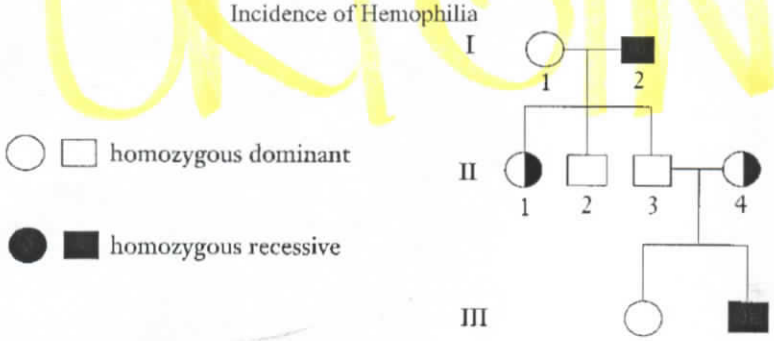

Figure 11-1

____ 8. Refer to Figure 11-1. If individual III-2 marries a person with the same genotype as individual I-1, what is the chance that one of their children will be afflicted with hemophilia?
a. 0%
b. 25%
c. 50%
d. 75%

____ 9. What type of inheritance pattern does the trait represented by the shaded symbols in Figure 11-1 illustrate?
a. incomplete dominance
b. multiple alleles
c. codominance
d. sex-linked

____ 10. For the trait being followed in the pedigree, individuals II-1 and II-4 in Figure 11-1 can be classified as ____.
a. homozygous dominant
b. mutants
c. homozygous recessive
d. carriers

____ 11. What is the relationship between individual I-1 and individual III-2 in Figure 11-1?
a. grandfather-granddaughter
b. grandmother-grandson
c. great aunt-nephew
d. mother-son

____ 12. If a female fruit fly heterozygous for red eyes (X^RX^r) crossed with a white-eyed male (X^rY), what percent of their offspring would have white eyes?
a. 0%
b. 25%
c. 50%
d. 75%

____ 13. When roan cattle are mated, 25% of the offspring are red, 50% are roan, and 25% are white. Upon examination, it can be seen that the coat of a roan cow consists of both red and white hairs. This trait is one controlled by ____.
a. multiple alleles
b. codominant alleles
c. sex-linked genes
d. polygenic inheritance

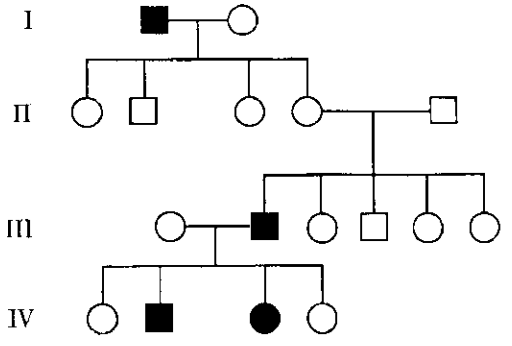

Figure 11-2

____ 14. According to the pedigree in Figure 11-2, how many of the offspring in the III generation show the normal trait?
a. 1
b. 2
c. 4
d. 5

____ 15. A phenotype that results from a dominant allele must have at least _____ dominant allele(s) present in the parent(s).
a. one
b. two
c. three
d. four

___ 16. Examine the graph in Figure 11-3, which illustrates the frequency in types of skin pigmentation in humans. Another human trait that would show a similar inheritance pattern and frequency of distribution is ____.

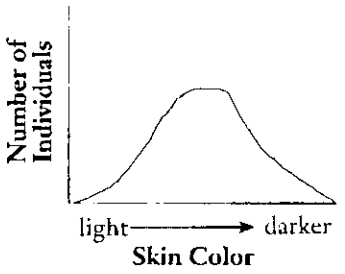

Figure 11-3

a. height
b. blood type
c. number of fingers and toes
d. incidence of cystic fibrosis

___ 17. A man heterozygous for blood type A marries a woman heterozygous for blood type B. The chance that their first child will have type O blood is ____.

a. 0%
b. 25%
c. 50%
d. 75%

___ 18. According to Figure 11-4, what is the chance that individual A will be afflicted with Huntington's?

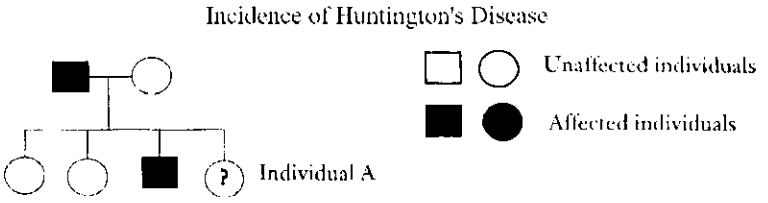

Figure 11-4

a. 25%
b. 50%
c. 75%
d. 100%

____ 19. What phenotype is depicted in Figure 11-5?

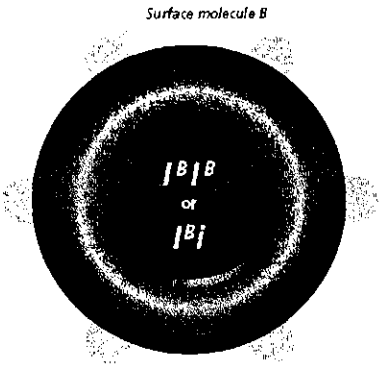

Figure 11-5

a. O
b. AB
c. A
d. B

____ 20. What is the origin of nondisjunction for an XXX genotype that produces a phenotype of a nearly normal female?
a. meiosis in sperm formation
b. meiosis in egg formation
c. meiosis I in sperm or egg formation
d. meiosis II in sperm or egg formation

____ 21. Nondisjunction is related to a number of serious human disorders. How does nondisjunction cause these disorders?
a. alters the number of gametes produced
b. alters the number of zygotes produced
c. alters the chromosome structure
d. alters the chromosome number

____ 22. What occurs during the process of meiosis in humans that can lead to a child with the condition of Down Syndrome?
a. production of a duplicate chromosome set
b. production of gametes which are diploid
c. production of gametes with one duplicate chromosome
d. production of gametes with one duplicate sex chromosome

____ 23. Which of the following could *only* be a result of nondisjunction during meiosis of sperm formation and not egg formation?
a. XYY
b. XXX
c. XXY
d. XO

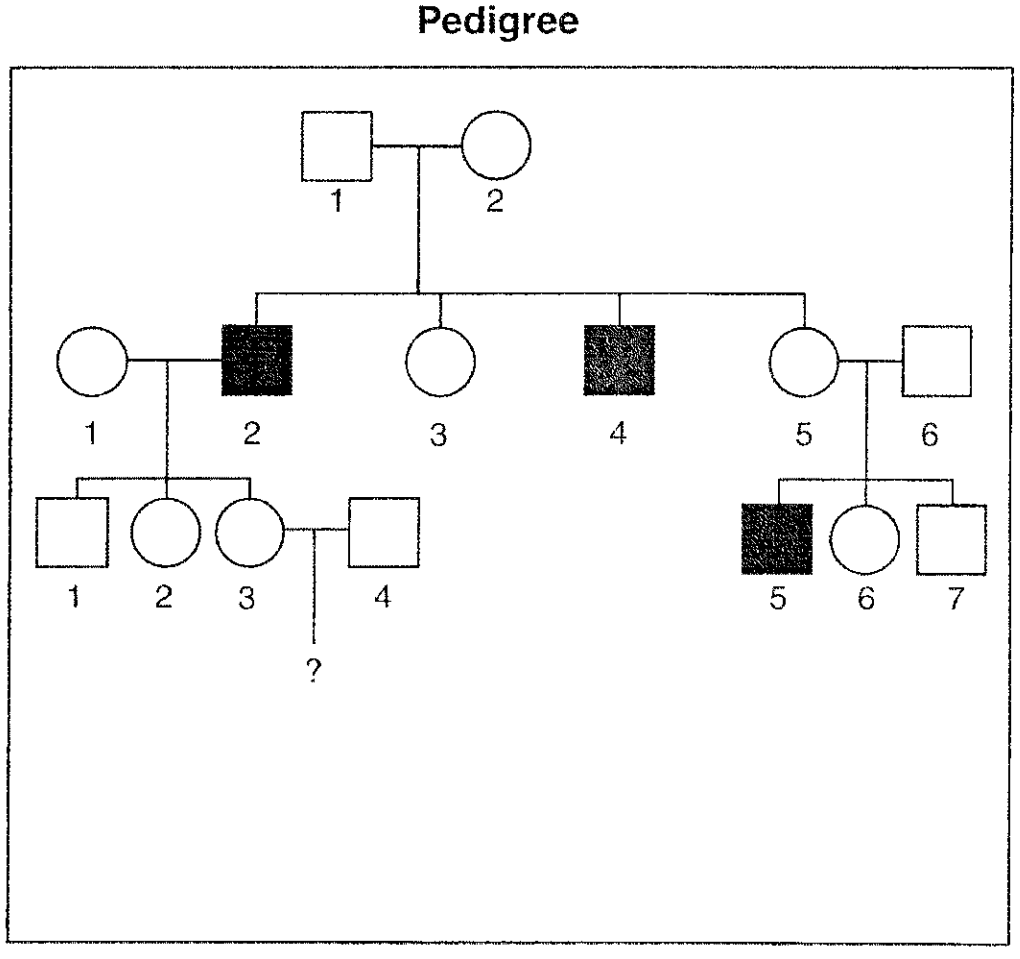

Figure 11-6
This pedigree shows the transmission of a rare disease that is debabilitating but not lethal. Carriers are not shown.

____ 24. Which type of heredity does the pedigree in Figure 11-6 demonstrate?
a. autosomal recessive
b. autosomal dominant
c. X-linked recessive
d. X-linked dominant

____ 25. What part of the chromosome might be involved with processes such as aging and cancer?
a. karyotype
b. nondisjunction
c. telomere
d. telophase