

Biology Chapter 10 Test: Sexual Reproduction and Genetics

True/False

Indicate whether the statement is true or false.

- ___ 1. A gamete has one-half the number of chromosomes of a regular body cell.
- ___ 2. Homologous chromosomes are two chromosomes with identical DNA sequences.
- ___ 3. During meiosis, chromosome number is reduced through three rounds of cell division.
- ___ 4. In humans, the ability to roll one's tongue is a dominant trait. Therefore, a tongue roller can only have children who are also tongue rollers.
- ___ 5. The separation of genes during crossing over occurs more frequently between genes that are far apart on a chromosome than for genes that are close together.
- ___ 6. Polyploidy is more common in plants than animals.
- ___ 7. During meiosis I, homologous chromosome pairs are separated when the centromeres split apart.
- ___ 8. Gregor Mendel's research supports the idea each organism carries a pair of alleles.

Multiple Choice

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

- ___ 9. In mink, brown fur color is dominant to silver-blue fur color. If a homozygous brown mink is mated with a silver-blue mink and 8 offspring are produced, how many would be expected to be silver-blue?
 - a. 0
 - b. 3
 - c. 6
 - d. 8
- ___ 10. The diagram in Figure 10-2 shows a diploid cell with two homologous pairs of chromosomes. Due to independent assortment, the possible allelic combinations that could be found in gametes produced by the meiotic division of this cell are ____.

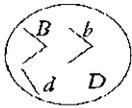


Figure 10-2

- a. Bb , Dd , BB , and DD
- b. BD , hD , Bd , and hd
- c. $BbDd$ and $BDhd$
- d. Bd and hD only

11. Using Figure 10-3, which process would result in the formation of chromosome C from chromosomes A and B?

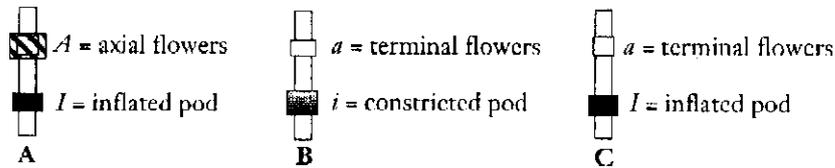


Figure 10-3

- a. asexual reproduction
- b. independent assortment
- c. crossing over
- d. segregation

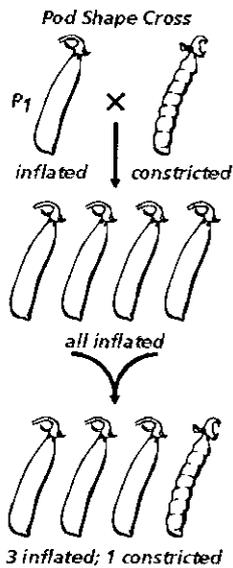


Figure 10-5

12. What is the genotype of generation 1 in Figure 10-5?

- a. *II*
- b. *Ii*
- c. *ii*
- d. *I*

- _____ 21. Which stage of meiosis is responsible for the law of independent assortment?
- metaphase I
 - prophase I
 - telophase I
 - metaphase II
- _____ 22. A true-breeding tall pea plant is crossed with a true-breeding short pea plant, and all the offspring are tall. What is the most likely genotype of the offspring assuming a single-gene trait?
- tt
 - Tt
 - TT
 - TT or tt
- _____ 23. If two heterozygous individuals are crossed, what percent of their offspring are also expected to be heterozygous?
- 0
 - 50
 - 75
 - 100

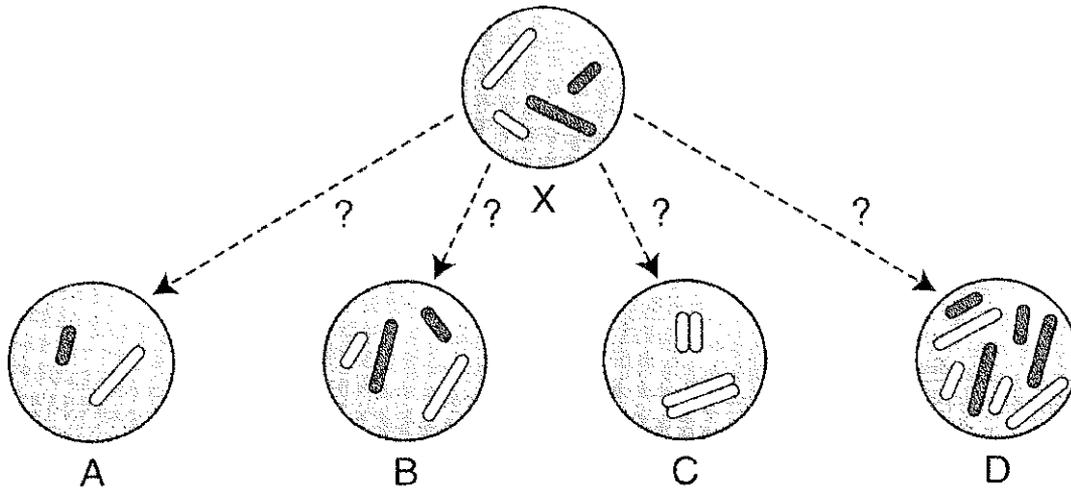


Figure 10-9

- _____ 24. Consider the cell labeled X in Figure 10-9 containing 4 chromosomes. Which of the four cells below it represents a healthy gamete that could be produced from this cell?
- A
 - B
 - C
 - D

Name: _____

ID: A

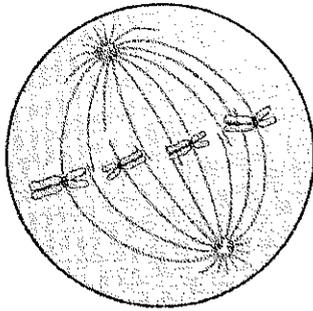


Figure 10-10

- ____ 25. Which stage of meiosis is represented in Figure 10-10?
- a. anaphase I
 - b. metaphase I
 - c. anaphase II
 - d. metaphase II