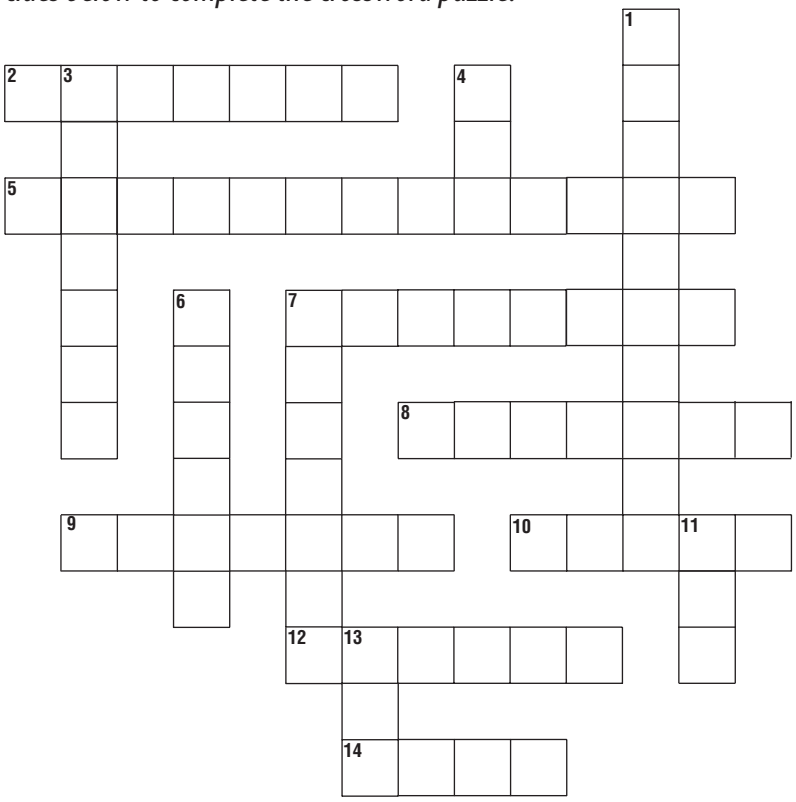
Name Date Class

Chapter Review

Cell Reproduction

Part A. Vocabulary Review

Directions: *Use the clues below to complete the crossword puzzle.*



Across

2. describes cells that do not have pairs of chromosomes

5. the joining of an egg and a sperm

7. any permanent change in a gene or chromosome of a cell

8. describes cells that have pairs of chromosomes

9. the process in which the nucleus divides to form two identical nuclei

10. cells formed in the male reproductive organs

12. type of reproduction when two sex cells, usually an egg and a sperm, come together

14. a section of DNA (on a chromosome) where instructions for making specific proteins are found

Down

1. a structure in the nucleus that contains hereditary material

3. type of reproduction when a new organism (sometimes more than one) is produced that has hereditary material identical to the parent organism

4. the code that contains all the information that an organism needs to grow and function

6. the cell that forms when an egg and a sperm join

7. a process by which haploid sex cells are produced

11. a type of nucleic acid that carries the codes for making proteins from the nucleus to the ribosomes

13. cells formed in the female reproductive organs which contain stored food along with the other cell parts

Assessment

Chapter Review (continued)

Part B. Concept Review

Directions: *Name the steps of mitosis described below. Write the terms in the blanks at the left.*

_____ **1.** nucleolus and nuclear membrane disappear, spindle fibers and centrioles appear

_____ **2.** duplicated chromosomes (pairs of chromatids) line up in the center of the cell and attach to spindle fibers at centromere

_____ **3.** centromere divides, chromatids split and identical chromosomes move to opposite ends of cell.

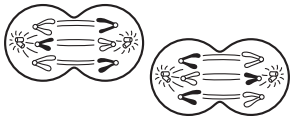
_____ **4.** spindle fibers disappear, new nucleus forms at each end of the cell

Directions: *Answer the following questions on the lines provided.*

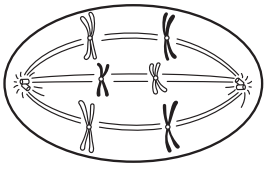
5. Name three examples of asexual reproduction.

a. _____ **b.** _____ **c.** _____

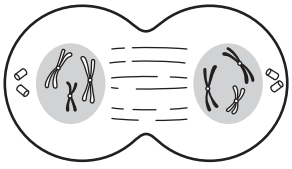
6. Name the steps of meiosis shown in the diagrams below.



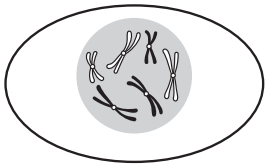
a. _____



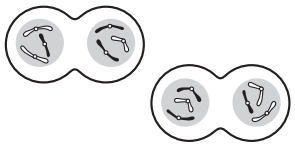
b. _____



c. _____



d. _____



e. _____

7. List three differences between mitosis and meiosis.

a. _____

b. _____

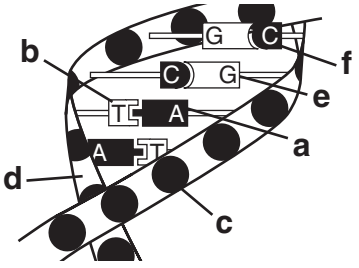
c. _____

8. Identify the six parts of the DNA molecule below.

a. _____

b. _____

c. _____



d. _____

e. _____

f. _____

Assessment

Name Date Class

Chapter Test

Cell Reproduction

I. Testing Concepts

Directions: *Match the terms in Column II with the descriptions in Column I. Write the letter of the correct term in the blank at the left.*

Column I

_____ **1.** reproduction in which a new organism is produced when sex cells combine

_____ **2.** cell that forms in fertilization

_____ **3.** the joining of an egg and a sperm

_____ **4.** a nucleic acid which carries the code for making proteins from the nucleus to the ribosomes

_____ **5.** structures in the nucleus that contain hereditary material

_____ **6.** formation of two nuclei with identical chromosomes

_____ **7.** nuclear division that forms sex cells

_____ **8.** coded instructions that control cell activity

_____ **9.** segment of DNA controlling production of one protein

_____ **10.** any permanent change in genetic material of a cell

Column II

a. asexual reproduction
b. chromosomes
c. DNA
d. egg
e. fertilization
f. gene
g. sperm
h. meiosis
i. mitosis
j. mutation
k. RNA
l. sexual reproduction
m. zygote

Directions: *For each of the following, write the letter of the term or phrase that best completes the sentence.*

_____ **11.** Most of the life of any cell is spent in a period of cell growth and development called _____
a. interphase **b.** metaphase **c.** prophase **d.** telophase

_____ **12.** All of the following are true of animals and plant cells during mitosis **EXCEPT** _____.
a. only animals have spindle fibers **c.** only plants form cell plates
b. only plants have rigid cells walls **d.** only animals have centrioles

_____ **13.** All of the following are composed of body cells **EXCEPT** _____.
a. bone **b.** kidney **c.** liver **d.** sperm

_____ **14.** Each human skin cell has _____ pairs of chromosomes.
a. 13 **b.** 18 **c.** 23 **d.** 46

_____ **15.** Human sex cells have _____ individual chromosomes.
a. 13 **b.** 23 **c.** 33 **d.** 46

Chapter Test (continued)

_____ **16.** In sexual reproduction, a new organism is produced when _____.
- **a.** cells divide by mitosis
- **b.** sex cells combine
- **c.** an organism divides into two equal parts
- **d.** a new organism grows from the body of its parent

_____ **17.** By _____, a new organism can grow from just a part of the parent organism.
a. fission **b.** meiosis **c.** regeneration **d.** sexual union

_____ **18.** In _____, a new organism grows from the body of the parent organism.
a. budding **b.** fission **c.** regeneration **d.** sexual union

_____ **19.** The number of chromosomes in a sex cell of an organism is its _____ chromosome number.
a. one **b.** haploid **c.** RNA **d.** zygote

_____ **20.** Meiosis consists of _____ division(s) of the nucleus.
a. one **b.** two **c.** three **d.** four

_____ **21.** At the end of meiosis, _____ cells have been produced from one cell.
a. two **b.** three **c.** four **d.** five

_____ **22.** Proteins are made of units called _____, which are linked together in a specific order.
a. amino acids **b.** centrioles **c.** centromeres **d.** ribosomes

_____ **23.** The code for making proteins is carried to the ribosomes by _____.
a. tRNA **b.** DNA **c.** mRNA **d.** thymine

_____ **24.** In DNA, adenine always pairs with _____.
a. cytosine **b.** guanine **c.** thymine **d.** uracil

II. Understanding Concepts

Skill: Outlining

Directions: *Outline the following entries using sexual and asexual as main topics.*

Fertilization **Mitosis** **Budding** **Meiosis** **Sexual** **Asexual**

1. I. _____

2. a. _____

3. b. _____

4. II. _____

5. a. _____

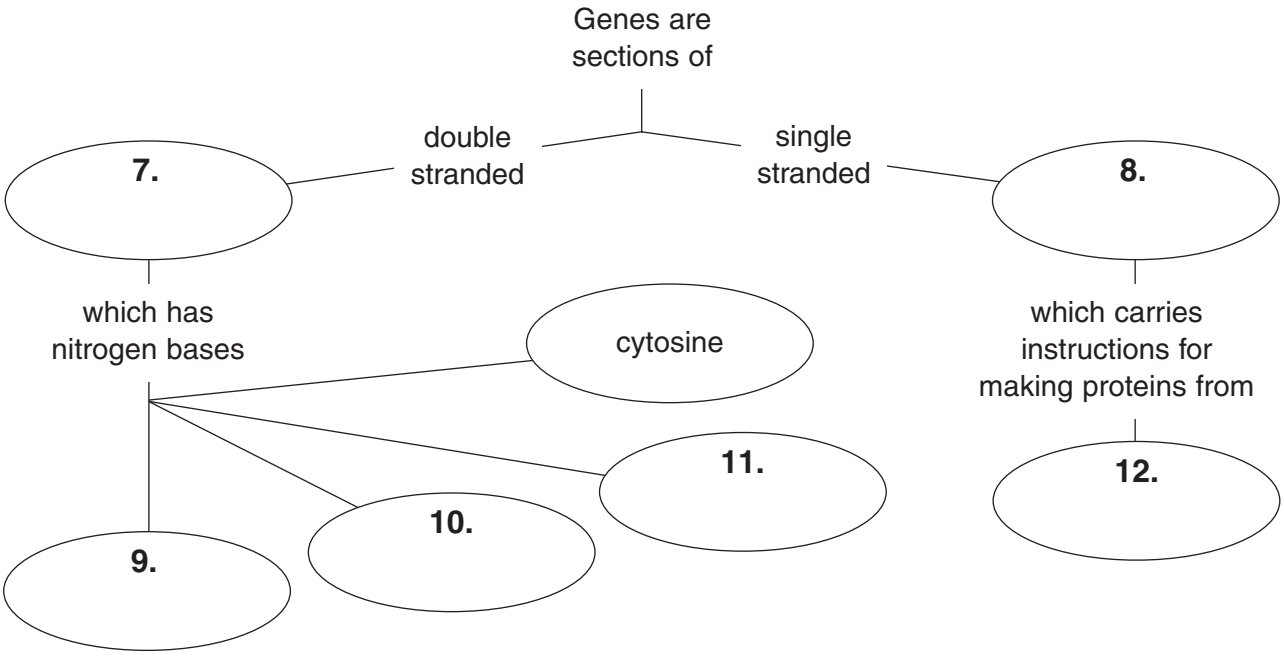
6. b. _____

Assessment

Chapter Test (continued)

Skill: Concept Mapping

Directions: *Complete the concept map showing features of genetic material.*



Directions: *Complete the paragraphs by filling in the blanks.*

Cells that divide do so in one of two ways. Body cells divide using a process called **14.** _____. Sex cells divide using a process called **15.** _____. During **16.** _____, a cell grows, makes a copy of its chromosomes, or **17.** _____ material, and prepares for cell division. When a body cell is ready to divide into two new cells, it undergoes the **18.** _____ steps of mitosis. In the first step, called **19.** _____, the pairs of chromatids become fully visible. In animal cells, two structures called **20.** _____ move to opposite ends of the cell. Between these, spindle fibers begin to stretch across the cell.

During the next step **21.** _____, the pairs of chromatids line up across the center of the cell. As the process enters the third step, **22.** _____ each centromere divides and each pair of chromatids separates and begins to move to opposite ends of the cell. The separated chromatids are now called identical **23.** _____.

In the last step, or **24.** _____, spindle fibers start to disappear. A nuclear membrane forms around each mass of chromosomes, and a new nucleolus forms in each new nucleus. Then the **25.** _____ separates, and two new cells are formed.

Chapter Test (continued)

III. Applying Concepts

Directions: *Choose the correct type of reproduction from the second column for each item in the first column. Each type of reproduction may be used more than once.*

_____ **1.** used to make body cells

_____ **2.** used to make sex cells

_____ **3.** produces new cells with each having half as many chromosomes as the original cell

_____ **4.** occurs in both plants and animals

_____ **5.** has eight steps in cell division

_____ **6.** has four steps in cell division

a. meiosis

b. mitosis

Directions: *Identify each part of a DNA molecule and write its name in the space provided.*

7. _____

8. _____

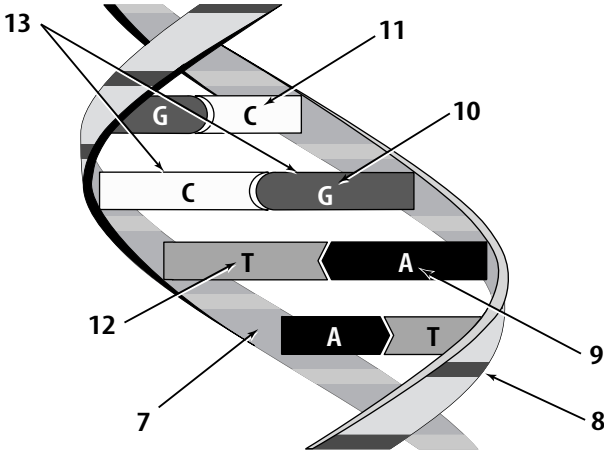
9. _____

10. _____

11. _____

12. _____

13. _____



IV. Writing Skills

Directions: *Answer the following question using complete sentences.*

14. Describe the process through which DNA makes a copy of itself.