1. ____________________ The process by which a cell divides in two daughter cells

2. ____________________ division of the cell nucleus

3. ____________________ division of the cell cytoplasm

4. ____________________ the area in which two chromatids are attached to each other

5. ____________________ microtubules that connect the centriole to the centromere

6. ____________________ proteins that regulate mitosis

7. ____________________ disorder where cells do not respond to signals regulating growth.

8. ____________________ Name for all the G1 phase, S phase, and G2 phase

9. ____________________ Each chromosome consists of two of these.

10. ____________________ stage of the cell cycle in which DNA is duplicated.

11. ____________________ mitosis stage where chromosomes line up in the center of cell

12. ____________________ mitosis stage where two new nuclear envelopes form

13. ____________________ mitosis stage where spindle first starts to form

14. ____________________ mitosis stage where chromosomes move to opposite sides of cell
15. The diagram below illustrates the cell cycle. Name the events represented by each letter

A. ________________________________
B. ________________________________
C. ________________________________
D. ________________________________

16. What does figure 10-5 represent?

17. Is the cell in 10-5 an animal or plant cell? How do you know?

18. Name the structure labeled X

19. Name the structure labeled Y

20. List the correct order for the diagrams in figure 10-5

21. In figure 10-2, what is the structure marked A? B?
21. ________ As a cell becomes larger, its
   a. Volume increases faster than its surface area
   b. Surface area increases faster than its volume
   c. Volume increases, but surface area stays the same.
   d. Surface area stays the same, but its volume increases

22. ________ All of the following are problems that growth causes for cells EXCEPT
   a. DNA overload           c. obtaining enough food
   b. Excess oxygen          d. expelling waste

23. ________ Which of the following is NOT a way that cell division solves the problems
           of cell growth?
   a. Cell division provides each daughter cell with its own copy of DNA.
   b. Cell division increases the mass of the original cell.
   c. Cell division increases the surface area of the original cell.
   d. Cell division reduces the original cell’s volume.

24. ________ When during the cell cycle are chromosomes visible?
   a. Only during interphase
   b. Only when they are being replicated
   c. Only during the M phase
   d. Only during the G1 phase

25. ________ Which pair is correct?
   a. G1 phase, DNA replication
   b. G2 phase, preparation for mitosis
   c. S phase, cell division
   d. M phase, cell growth

26. ________ When during the cell cycle is a cell’s DNA replicated?
   a. G1 phase              c. S phase
   b. G2 phase              d. M phase

27. ________ Which of the following represents the phases of mitosis in their proper
            sequence?
   a. Prophase, metaphase, anaphase, telophase
   b. Interphase, prophase, metaphase, anaphase, telophase
   c. Interphase, prophase, metaphase, telophase
   d. Prophase, metaphase, anaphase, telophase, cytokinesis
28. _______ What is the role of the spindle during mitosis?
   a. It helps separate the chromosomes.
   b. It breaks down the nuclear membrane.
   c. It duplicates the DNA
   d. It divides the cell in half

29. _______ The two main stages of cell division are called
   a. Mitosis and interphase
   b. Synthesis and cytokinesis
   c. The M phase and the S phase
   d. Mitosis and cytokinesis

30. _______ Which of the following is a factor that can stop normal cells from growing?
   a. Contact with other cells
   b. A cut in the skin
   c. growth factors
   d. Cyclin that has been taken from a cell in mitosis

31. _______ Which of the following explains why normal cells grown in a petri dish tend to stop growing once they have covered the bottom of the dish?
   a. The cells lack cyclin
   b. The petri dish inhibits cell growth
   c. Contact with other cells stops growth
   d. Most cells grown in petri dishes have a defective p53

32. _______ Cyclins are a family of closely related proteins that
   a. Regulate the cell cycle
   b. Product p53
   c. Cause cancer
   d. Work to heal wounds

33. _______ Cancer is a disorder in which some cells have lost the ability to control their
   a. size
   b. spindle fibers
   c. growth rate
   d. surface area

34. _______ The process by which a cell divides into two daughter cells is called
   a. cell division
   b. metaphase
   c. interphase
   d. mitosis
35. ________ Which of the following is a phase in the cell cycle?
   a. G1 phase           c. M phase
   b. G2 phase           d. all of the above

36. ________ The cell cycle is the
   a. Series of events that cells go through as they grow and divide.
   b. Period of time between the birth and the death of a cell
   c. Time from prophase until cytokinesis
   d. Time it takes for one cell to undergo mitosis

37. ________ Which of the following is a phase of mitosis?
   a. Cytokinesis          c. anaphase
   b. Interphase           d. S phase

38. ________ What is a tumor?
   a. An accumulation of cyclins
   b. A mass of cancer cells
   c. The rapidly dividing cells found at the site of a wound
   d. A defective p53 gene

39. What kinds of problems does growth cause for cells? How does cell division help a cell solve these problems?

40. Why are chromosomes not visible in most cells except during cell division?
41. List and describe the main events of the cell cycle. Illustrate your description with a diagram of the cell cycle.
Biology Practice Test #10 Answer Key

1. Mitosis
2. Mitosis
3. Cytokinesis
4. Centromere
5. Spindle fiber
6. Cyclins
7. Cancer
8. Interphase
9. Chromatid
10. Interphase
11. Metaphase
12. Telophase
13. Prophase
14. Anaphase
15. A. G1 phase (cell growth)
   B. S phase (DNA replication)
   C. G2 phase (preparation for mitosis)
   D. cell division (mitosis and cytokinesis)
16. mitosis
17. animal, It does not have a cell wall and in telophase the cell wall is starting to pinch and there is no sign of a cell plate being formed.
18. centriole
19. spindle fiber
20. D, A, C, B
21. A. centromere
   B. chromatid
22. A. volume increases faster than its surface area
23. B. cell division increases the mass of the original cell
24. C. only during the M phase
25. B. G2 phase, preparation for mitosis
26. C. S phase
27. A. prophase, metaphase, anaphase, telophase
28. A. it helps separate the chromosomes
29. D. mitosis and cytokinesis
30. A. contact with other cells
31. C. contact with other cells stops growth
32. A. regulate the cell cycle
33. C. growth rate
34. D. mitosis
35. D. all of the above
36. A. a series of events that cells go through as they grow and divide
37. B. a mass of cancer cells
39. As a cell grows, it functions less efficiently because it places more demands on its DNA and it is less able to move materials to their proper destinations quickly. Cell division results in two daughter cells. Each cell has its own copy of the parent cell’s DNA and has a size that allows it to efficiently exchange materials.

40. Chromosomes aren’t visible because the DNA and protein molecules that make up the chromosomes are spread throughout the nucleus.

41. During the G1 phase, the cell grows. During the S phase, the DNA replicates. During the G2 phase, the cell prepares for mitosis. The M phase, or cell division, includes mitosis and cytokinesis. In mitosis, the cell divides chromosomes and organelles evenly between two daughter cells who are attached with incomplete membranes until cytokinesis separates them. Mitosis includes prophase, metaphase, anaphase, and telophase.

Use the diagram on page 245 of the textbook to see the diagram that should be drawn.