

**Honors Biology-CW/HW Cell Biology 2018****Multiple Choice**

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

- Hooke's discovery of cells was made observing
  - living algal cells.
  - living human blood cells.
  - dead plant cells.
  - dead protist cells.
- The smallest units of life in all living things are
  - cells.
  - mitochondria.
  - cytoplasm.
  - Golgi apparatus.
- When the volume of a cell increases, its surface area
  - increases at the same rate.
  - remains the same.
  - increases at a faster rate.
  - increases at a slower rate.
- Surface area is an important factor in limiting cell growth because
  - the cell can burst if the membrane becomes too large.
  - materials cannot enter the cell if the surface is too large.
  - the cell may become too large to take in enough food and to remove enough wastes.
  - waste products cannot leave the cell if the cell is too small.
- The size to which a cell can grow is limited by its
  - location.
  - structure.
  - function.
  - surface area.
- One difference between prokaryotes and eukaryotes is that
  - nucleic acids are found only in prokaryotes.
  - mitochondria are found in larger quantities in eukaryotes.
  - the Golgi apparatus is found only in prokaryotes.
  - prokaryotes have no nuclear membrane.
- Which of the following is characteristic of prokaryotes?
  - They have a nucleus.
  - They existed on Earth before eukaryotes.
  - The organelles in their cytoplasm are surrounded by membranes.
  - None of the above
- Only eukaryotic cells have
  - DNA.
  - membrane-bound organelles.
  - ribosomes.
  - cytoplasm.
- Studying a picture of a cell taken with an electron microscope, you find that the cell has no nucleus and no mitochondria, but it does have a plasma membrane and a cell wall. You conclude that the cell is probably from a(n)
  - animal.
  - plant.
  - prokaryote.
  - extinct organism.
- Plasma membranes
  - are part of only a small number of cells.
  - contain genes.
  - are made of DNA.
  - are thin coverings that surround cells.
- The structure that regulates what enters and leaves the cell is called the
  - nucleus.
  - cell wall.
  - nuclear membrane.
  - plasma membrane.
- A particularly active cell might contain large numbers of
  - chromosomes.
  - vacuoles.
  - mitochondria.
  - walls.

13. The Golgi apparatus is an organelle that
  - a. receives proteins and lipids from the endoplasmic reticulum.
  - b. labels the molecules made in the endoplasmic reticulum with tags that specify their destination.
  - c. releases molecules in vesicles.
  - d. All of the above
14. One important organelle that helps maintain homeostasis by moving supplies from one part of the cell to the other is the
  - a. endoplasmic reticulum.
  - b. mitochondrion.
  - c. nucleus.
  - d. cytoplasm.
15. In which of the following organelles is a cell's ATP produced?
  - a. mitochondrion
  - b. endoplasmic reticulum
  - c. Golgi apparatus
  - d. lysosome
16. Numerous hairlike organelles that protrude from the surface of a cell and are packed in tight rows are called
  - a. flagella.
  - b. microtubules.
  - c. actin filaments.
  - d. cilia.
17. Proteins are made on the
  - a. mitochondria.
  - b. ribosomes.
  - c. nucleus.
  - d. plasma membrane.
18. The packaging and distribution center of the cell is the
  - a. nucleus.
  - b. Golgi apparatus.
  - c. central vacuole.
  - d. nuclear envelope.
19. The double membrane surrounding the nucleus is called the
  - a. nucleolus.
  - b. nuclear wall.
  - c. nucleoplasm.
  - d. nuclear envelope.
20. All of the following are found in both plant and animal cells, *except*
  - a. a cell wall.
  - b. a plasma membrane.
  - c. mitochondria.
  - d. the endoplasmic reticulum.
21. How are chloroplasts like mitochondria?
  - a. They can both use energy from sunlight.
  - b. They look alike.
  - c. They both contain DNA.
  - d. They are both found in animal cells.
22. The organelles in plant cells that contain a green pigment are the
  - a. mitochondria.
  - b. bilayer lipids.
  - c. chloroplasts.
  - d. Golgi apparatus.
23. Plant cells have a large membrane-bound space in which water, waste products, and nutrients are stored. This place is known as a
  - a. mitochondrion.
  - b. chloroplast.
  - c. Golgi apparatus.
  - d. central vacuole.
24. Which of the following pairs contains unrelated items?
  - a. eukaryote–amoeba
  - b. ribosomes–protein
  - c. cell wall–animal cell
  - d. mitochondria–energy
25. Plant cells
  - a. do not contain mitochondria.
  - b. have a cell wall instead of a plasma membrane.
  - c. have a large central vacuole instead of a Golgi apparatus.
  - d. have chloroplasts and a cell wall.
26. Which of the following is the correct order of organization of structures in living things, from simplest to most complex?
  - a. organ systems, organs, tissues, cells
  - b. tissues, cells, organs, organ systems
  - c. cells, tissues, organ systems, organs
  - d. cells, tissues, organs, organ systems

27. The plasma membrane contains channels that help move materials from one side to the other. What are these channels made of?  
a. carbohydrates b. lipids c. bilipids d. proteins
28. When the concentration of molecules on both sides of a membrane is the same, the molecules will  
a. only move across the membrane to the outside of the cell. b. stop moving across the membrane. c. move across the membrane in both directions. d. only move across the membrane to the inside of the cell.
29. An animal cell that is surrounded by fresh water will burst because osmosis causes  
a. water to move into the cell. b. water to move out of the cell. c. solutes to move into the cell. d. solutes to move out of the cell.
30. Which organelle breaks down macromolecules into particles the cell can use?  
a. Golgi apparatus b. lysosome c. endoplasmic reticulum d. mitochondrion
31. Which sequence correctly traces the path of a protein in the cell?  
a. rough endoplasmic reticulum, Golgi apparatus, released from the cell b. ribosome, smooth endoplasmic reticulum, chloroplast c. smooth endoplasmic reticulum, lysosome, Golgi apparatus d. mitochondria, rough endoplasmic reticulum, plasma membrane
32. Which structures carry out cell movement?  
a. ribosomes b. nucleoli c. microfilaments d. chromosomes
33. Which of the following is NOT a principle of the cell theory?  
a. Cells are the basic units of life. b. All living things are made of cells. c. Very few cells reproduce. d. All cells come from existing cells.
34. Which cell structure contains the cell's genetic material?  
a. organelle b. nucleus c. cell envelope d. cytoplasm
35. The main function of the cell wall is to  
a. protect the cell and maintain its shape. b. store DNA. c. direct the activities of the cell. d. help the cell move.
36. Diffusion is the net movement of molecules from  
a. an area of low concentration to an area of high concentration. b. an area of high concentration to an area of low concentration. c. an area of equilibrium to an area of high concentration. d. all of the above
37. The passive transport of water across a selectively permeable membrane is called  
a. osmotic pressure. b. osmosis. c. facilitated diffusion. d. active transport.
38. Which means of particle transport requires input of energy from the cell?  
a. diffusion b. osmosis c. facilitated diffusion d. active transport
39. Which of the following is NOT a function of the cytoskeleton?  
a. helps the cell maintain its shape b. helps the cell move c. helps produce proteins d. helps organelles within the cell move

40. The stroma is the thick fluid within the inner membrane of a chloroplast that surrounds
  - a. thylakoids.
  - b. chloroplasts.
  - c. plant cells.
  - d. all of the above
41. Looking at a cell under a microscope, you note that it is a prokaryote. How do you know?
  - a. The cell lacks cytoplasm.
  - b. The cell lacks a cell membrane.
  - c. The cell lacks a nucleus.
  - d. The cell lacks genetic material.
42. Which of the following enclose their DNA in a nucleus?
  - a. prokaryotes
  - b. bacteria
  - c. eukaryotes
  - d. viruses
43. Not all cells are alike. Which of the following is NOT a true statement about differences between cells?
  - a. Cells come in many different shapes.
  - b. Different kinds of cells are different sizes.
  - c. Some cells have a nucleus, but others do not.
  - d. Most cells have a membrane, but some do not.
44. Which of the following organisms are prokaryotes?
  - a. plants
  - b. animals
  - c. bacteria
  - d. fungi
45. Which of the following is a function of the nucleus?
  - a. stores DNA
  - b. stores sugars
  - c. builds proteins
  - d. packages proteins
46. Which organelle breaks down organelles that are no longer useful?
  - a. Golgi apparatus
  - b. lysosome
  - c. endoplasmic reticulum
  - d. mitochondrion
47. Which structure makes proteins using coded instructions that come from the nucleus?
  - a. Golgi apparatus
  - b. mitochondrion
  - c. vacuole
  - d. ribosome
48. Which sequence correctly traces the path of a protein in the cell?
  - a. ribosome, endoplasmic reticulum, Golgi apparatus
  - b. ribosome, endoplasmic reticulum, chloroplast
  - c. endoplasmic reticulum, lysosome, Golgi apparatus
  - d. ribosome, Golgi apparatus, endoplasmic reticulum
49. Which organelle converts the chemical energy stored in food into compounds that are more convenient for the cell to use?
  - a. chloroplast
  - b. Golgi apparatus
  - c. endoplasmic reticulum
  - d. mitochondrion
50. Which organelle would you expect to find in plant cells but not animal cells?
  - a. mitochondrion
  - b. ribosome
  - c. chloroplast
  - d. smooth endoplasmic reticulum
51. The primary function of the cell wall is to
  - a. support and protect the cell.
  - b. store DNA.
  - c. direct the activities of the cell.
  - d. help the cell move.
52. Unlike the cell membrane, the cell wall is
  - a. found in all organisms.
  - b. composed of a lipid bilayer.
  - c. selectively permeable.
  - d. a rigid structure.
53. You will NOT find a cell wall in which of these kinds of organisms?
  - a. plants
  - b. animals
  - c. fungi
  - d. bacteria

54. The cell membrane contains channels and pumps that help move materials from one side to the other. What are these channels and pumps made of?  
a. carbohydrates b. lipids c. bilipids d. proteins
55. Diffusion occurs because  
a. molecules are attracted to one another. b. molecules constantly move and collide with each other.  
c. cellular energy forces molecules to collide with each other. d. cellular energy pumps molecules across the cell membrane.
56. During diffusion, when the concentration of molecules on both sides of a membrane is the same, the molecules will  
a. move across the membrane to the outside of the cell. b. stop moving across the membrane. c. continue to move across the membrane in both directions. d. move across the membrane to the inside of the cell.
57. The diffusion of water across a selectively permeable membrane is called  
a. osmotic pressure. b. osmosis. c. pinocytosis. d. active transport.
58. An animal cell that is surrounded by fresh water will burst because the osmotic pressure causes  
a. water to move into the cell. b. water to move out of the cell. c. solutes to move into the cell. d. solutes to move out of the cell.
59. Which term describes the relatively constant internal physical conditions of an organism?  
a. cell specialization b. homeostasis c. organ system d. unicellularity
60. The cells of unicellular organisms are  
a. specialized to perform different tasks. b. larger than those of multicellular organisms. c. able to carry out all of the functions necessary for life. d. unable to respond to changes in their environment.
61. 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 its surface area stays the same. d. surface area stays the same, but its volume increases.
62. If the surface area of a cell that is shaped like a cube increases 100 times, its volume increases about  
a. 5 times. b. 10 times. c. 100 times. d. 1000 times.
63. The rate at which wastes are produced by a cell partially depends on the cell's  
a. ratio of surface area to volume. b. type of membrane. c. volume. d. surface area.
64. Compared to small cells, large cells have more trouble  
a. dividing. b. producing daughter cells. c. storing needed materials and waste products. d. moving needed materials in and waste products out.
65. After cell division, each daughter cell has  
a. a lower surface area/volume ratio than the parent cell. b. a higher surface area/volume ratio than the parent cell. c. more DNA in its nucleus than the parent cell. d. less DNA in its nucleus than the parent cell.

66. Which of the following happens when a cell divides?  
 a. The cell's volume increases. b. It becomes more difficult for the cell to get rid of wastes. c. Each daughter cell receives its own copy of the parent cell's DNA. d. It becomes more difficult for the cell to get enough oxygen and nutrients.
67. The process by which a cell divides into two daughter cells is called  
 a. cell division. b. metaphase. c. interphase. d. mitosis.

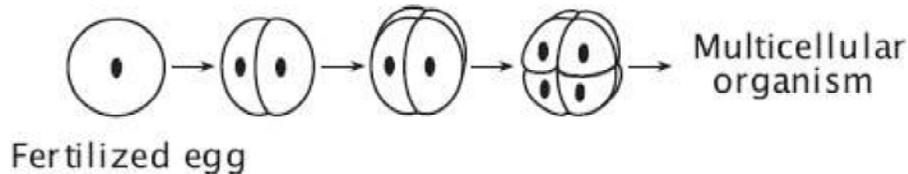


Figure 10–2

68. A multicellular organism begins life as a single cell—a fertilized egg with a complete set of chromosomes. The picture in Figure 10–2 above shows how the cell divides to become two cells, then four cells, eight cells, and so on. Which of the following statements best describes what happens during this process?  
 a. Chromosomes are duplicated before cell division so that each new daughter cell has a complete set.  
 b. Chromosomes are divided evenly during cell division so that each new daughter cell has an equal share of the original set. c. Chromosomes are stored in the original cell to direct the division of all daughter cells, which do not have their own chromosomes. d. Chromosomes are randomly distributed during cell division so that some new cells have partial sets while others have complete sets.
69. During which phase in the cell cycle does mitosis happen?  
 a. G<sub>1</sub> phase b. G<sub>2</sub> phase c. M phase d. S phase
70. Which pair includes a phase of the cell cycle and a cellular process that occurs during that phase?  
 a. G<sub>1</sub> phase, DNA replication b. G<sub>2</sub> phase, preparation for mitosis c. S phase, cell division d. M phase, cell growth
71. When during the cell cycle is a cell's DNA replicated?  
 a. G<sub>1</sub> phase b. G<sub>2</sub> phase c. S phase d. M phase
72. Which of the following is a correct statement about the events of the cell cycle?  
 a. Little happens during the G<sub>1</sub> and G<sub>2</sub> phases. b. DNA replicates during cytokinesis. c. The M phase is usually the longest phase. d. Interphase consists of the G<sub>1</sub>, S, and G<sub>2</sub> phases.

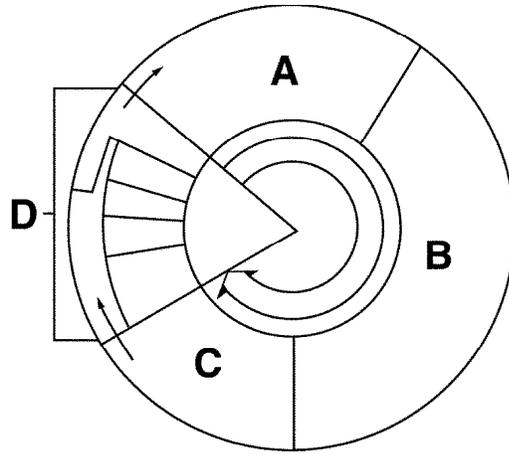


Figure 10-3

73. Cell division is represented in Figure 10-3 by the letter  
a. A. b. B. c. C. d. D.

### Animal Cell

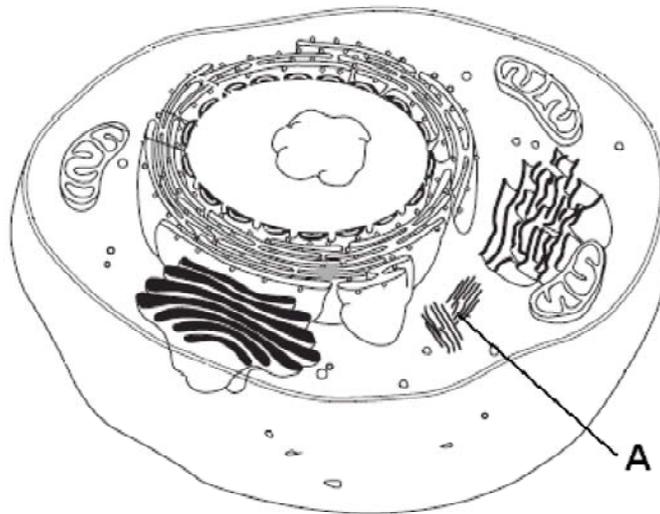


Figure 10-4

74. In Figure 10-4, what role does structure A play in mitosis?  
a. replicate DNA b. increase cell volume c. connect to spindle fibers d. dissolve nuclear envelope

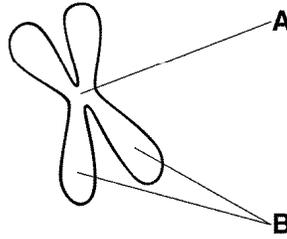


Figure 10–5

75. The structure labeled A in Figure 10–5 is called the  
 a. centromere. b. centriole. c. sister chromatid. d. spindle.
76. The structures labeled B in Figure 10–5 are called  
 a. centromeres. b. centrioles. c. sister chromatids. d. spindles.
77. The first phase of mitosis is called  
 a. prophase. b. anaphase. c. metaphase. d. interphase.
78. During which phase of mitosis do the chromosomes line up along the middle of the dividing cell?  
 a. prophase b. telophase c. metaphase d. anaphase
79. 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, anaphase, metaphase, telophase
80. What is the role of the spindle fibers during mitosis?  
 a. They help separate the chromosomes. b. They break down the nuclear membrane. c. They duplicate the DNA. d. They make the chromosomes visible.
81. 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.
82. During normal mitotic cell division, a parent cell that has four chromosomes will produce two daughter cells, each containing  
 a. two chromosomes. b. four chromosomes. c. eight chromosomes. d. sixteen chromosomes.
83. One difference between cell division in plant cells and in animal cells is that plant cells have  
 a. centrioles. b. centromeres. c. a cell plate. d. chromatin.
84. 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.
85. Cancer cells form masses of cells called  
 a. tumors. b. cyclins. c. growth factors. d. p53.