

Name \_\_\_\_\_

Date \_\_\_\_\_

Period \_\_\_\_\_

Score \_\_\_\_\_

**Honors Biology**  
**Test # 2**  
**Cell Structure and Function**

**Multiple Choice.** Write the capital letter of the correct answer on the space provided. (3-pts. Each)

- \_\_\_1. The first person to see a "cell" was
  - a. Anton van Leewenhoek.
  - b. Robert Hooke.
  - c. Matthew Schleiden
  - d. Rudolph Virchow
  
- \_\_\_2. The part of the cell that regulates what enters and leaves the cell is the
  - a. nucleus.
  - b. cytoplasm.
  - c. nuclear envelope.
  - d. cell membrane.
  
- \_\_\_3. The following are steps that occur during endocytosis. Which is the first step that is out of order?
  - a. material is taken into the cell by infolding of cell membrane.
  - b. the infolding forms a pocket.
  - c. the pocket breaks loose from the cell membrane.
  - d. the pocket forms a vacuole/vesicle in the cytoplasm.
  
- \_\_\_4. Which term includes the other three?
  - a. nucleolus
  - b. organelle
  - c. nucleus
  - d. chloroplast
  
- \_\_\_5. Proteins are assembled at the
  - a. mitochondria.
  - b. cytoskeleton.
  - c. golgi apparatus.
  - d. ribosomes.
  
- \_\_\_6. The process by which molecules of a substance move from an area of higher concentration to an area of lower concentration is known as
  - a. exocytosis.
  - b. pinocytosis.
  - c. endocytosis.
  - d. diffusion.
  
- \_\_\_7. The force that moves water across membranes from a more dilute solution into a more concentrated solution in animal cells is called
  - a. equilibrium
  - b. osmotic pressure
  - c. turgor pressure

- d. active transport
- \_\_\_8. The small membrane-bordered structures that contain substances necessary for the digestion of some cellular materials are
- a. lysosomes.
  - b. vacuoles
  - c. mitochondria.
  - d. nucleoli.
- \_\_\_9. Na<sup>+</sup> ions are transported across cell membranes of body cells (somatic cells) by
- a. Sodium-potassium pumps
  - b. facilitated diffusion
  - c. simple diffusion
  - d. passive transport
- \_\_\_10. An organ is made up of
- a. groups of tissue.
  - b. groups of cells
  - c. several different systems.
  - d. only one system.
- \_\_\_11. Most biological membranes are
- a. impermeable.
  - b. selectively permeable
  - c. slightly permeable
  - d. highly permeable
- \_\_\_12. A process that requires the addition of energy is
- a. osmosis
  - b. diffusion
  - c. active transport
  - d. facilitated diffusion
- \_\_\_13. In plant cells, the single large central saclike structure that is filled with liquid is known as the
- a. plastid.
  - b. central vacuole.
  - c. chloroplast.
  - d. golgi apparatus.
- \_\_\_14. In animal cells, the chemical energy stored in food is changed into compounds the cell can use by the
- a. ribosomes
  - b. mitochondria
  - c. smooth endoplasmic reticulum
  - d. rough endoplasmic reticulum
- \_\_\_15. Cells that do not have a nucleus are said to be
- a. selectively permeable

- b. osmotic
- c. eukaryotic
- d. prokaryotic

- \_\_\_ 16. Which process transports molecules across a membrane by means of a carrier protein?
- a. facilitated diffusion
  - b. simple diffusion
  - c. osmosis
  - d. phagocytosis
- \_\_\_ 17. If two substances of different concentrations are present on either side of a semipermeable membrane, the substances move
- a. away from the areas of lower concentration.
  - b. toward the area of lower concentration
  - c. until equilibrium is reached.
  - d. until all molecular motion ceases.
- \_\_\_ 18. Which of the following is not part of the cell theory?
- a. All living things are composed of cells.
  - b. Cells are the basic unit of structure and function.
  - c. There is a high degree of cell specialization.
  - d. All cells come from other cells.
- \_\_\_ 19. A tissue is composed of a group of similar
- a. organs.
  - b. organelles.
  - c. cells.
  - d. organ systems.
- \_\_\_ 20. The basic units from which cell membranes are constructed are
- a. phospholipid bilayers.
  - b. free-moving proteins.
  - c. protein pumps.
  - d. carbohydrate gates.

**Matching.** Choose from the following words to complete the statements below.  
Selections may be used more than once or not at all. (3-pts each)

- a. Exocytosis      b. Endocytosis      c. Phagocytosis      d. Pinocytosis  
e. Bulk Flow      f. Osmosis      g. Diffusion      h. Facilitated Diffusion  
i. Active Transport      j. Isotonic      k. Hypotonic      l. Hypertonic

- \_\_\_ 21. Process where a cell takes in a liquid via a membrane bound vesicle
- \_\_\_ 22. A solution where the solute concentration is equal inside and outside a cell.
- \_\_\_ 23. Movement across a cell membrane with the help a sodium-potassium pump.
- \_\_\_ 24. Movement of water to an area with a higher concentration of solute.
- \_\_\_ 25. This describes large molecules *entering or exiting* the cell through vesicles.
- \_\_\_ 26. This describes a *solution* with a higher concentration of solute than the corresponding cell in it.
- \_\_\_ 27. This describe a *cell* in a solution that has a higher concentration of solute than the cell in the solution.
- \_\_\_ 28. This type of bulk flow includes phagocytosis and pinocytosis.
- \_\_\_ 29. The type of flow *against* the concentration gradient.
- \_\_\_ 30. Passive transport that move molecules from a higher concentration to a lower concentration.

**Essay.** Answer the following in complete sentence. (10-pts)

31. Describe the process of how a protein would be assembled and transported out of a cell. Include the structures needed and what type of transport would be used.  
\*\*\* (Remember that proteins are very LARGE molecules) \*\*\*

Name \_\_\_\_\_

Date \_\_\_\_\_

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Score \_\_\_\_\_

**Biology**  
**Test #3**  
**Cells Structure and Transport**

**Version A**

**Multiple Choice.** Write your answer on the line next to the statement or question.  
Use capital letters. (3pts each)

- \_\_\_\_\_ 1. Who was one of the first people to identify and see cork cells?
- a. Anton van Leeuwenhoek
  - b. Robert Hooke
  - c. Matthias Schleiden
  - d. Rudolf Virchow
- \_\_\_\_\_ 2. The work of Schleiden and Schwann can be summarized by saying that
- a. all plants are made of cells.
  - b. all animals are made of cells.
  - c. plants and animals have specialized cells.
  - d. all plants and animals are made of cells.
- \_\_\_\_\_ 3. 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 are produced by existing cells.
- \_\_\_\_\_ 4. The cell theory applies to
- a. bacteria.
  - b. plants and animals.
  - c. multicellular organisms.
  - d. all of the above
- \_\_\_\_\_ 5. 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.
- \_\_\_\_\_ 6. Eukaryotes usually contain
- a. a nucleus.
  - b. specialized organelles.
  - c. genetic material.
  - d. all of the above

- \_\_\_ 7. Which of the following organisms are prokaryotes?
- plants
  - animals
  - bacteria
  - all of the above
- \_\_\_ 8. Which organelle breaks down food into molecules the cell can use?
- Golgi apparatus
  - lysosome
  - endoplasmic reticulum
  - mitochondrion
- \_\_\_ 9. Which structure makes proteins using coded instructions that come from the nucleus?
- Golgi apparatus
  - mitochondrion
  - vacuole
  - ribosome
- \_\_\_ 10. Which organelle converts the chemical energy stored in food into compounds that are more convenient for the cell to use?
- chloroplast
  - Golgi apparatus
  - endoplasmic reticulum
  - mitochondrion
- \_\_\_ 11. Which organelles help provide cells with energy?
- mitochondria and chloroplasts
  - rough endoplasmic reticulum
  - smooth endoplasmic reticulum
  - Golgi apparatus and ribosomes
- \_\_\_ 12. Which organelle would you expect to find in plant cells but not animal cells?
- mitochondrion
  - ribosome
  - chloroplast
  - smooth endoplasmic reticulum
- \_\_\_ 13. Which structures carry out cell movement?
- cytoplasm and ribosomes
  - nucleolus and nucleus
  - microtubules and microfilaments
  - chromosomes
- \_\_\_ 14. Which of the following is NOT a function of the cytoskeleton?
- helps the cell maintain its shape
  - helps the cell move
  - prevents chromosomes from separating
  - helps organelles within the cell move
- \_\_\_ 15. The main function of the cell wall is to
- support and protect the cell.
  - store DNA.
  - direct the activities of the cell.
  - help the cell move.

- \_\_\_ 16. Unlike the cell membrane, the cell wall is
- found in all organisms.
  - composed of a lipid bilayer.
  - a flexible barrier.
  - usually made of tough fibers.
- \_\_\_ 17. Which of the following structures serves as the cell's boundary from its environment?
- mitochondrion
  - cell membrane
  - chloroplast
  - channel proteins
- \_\_\_ 18. Which of the following is a function of the cell membrane?
- breaks down lipids, carbohydrates, and proteins from foods
  - stores water, salt, proteins, and carbohydrates
  - keeps the cell wall in place
  - regulates which materials enter and leave the cell
- \_\_\_ 19. 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?
- carbohydrates
  - lipids
  - bilipids
  - proteins
- \_\_\_ 20. Diffusion is the movement of molecules from
- an area of low concentration to an area of high concentration.
  - an area of high concentration to an area of low concentration.
  - an area of equilibrium to an area of high concentration.
  - all of the above
- \_\_\_ 21. Diffusion occurs because
- molecules constantly move and collide with each other.
  - the concentration of a solution is never the same throughout a solution.
  - the concentration of a solution is always the same throughout a solution.
  - molecules never move or collide with each other.
- \_\_\_ 22. When the concentration of molecules on both sides of a membrane is the same, the molecules will
- move across the membrane to the outside of the cell.
  - stop moving across the membrane.
  - move across the membrane in both directions.
  - move across the membrane to the inside of the cell.
- \_\_\_ 23. Which means of particle transport requires input of energy from the cell?
- diffusion
  - osmosis
  - facilitated diffusion
  - active transport
- \_\_\_ 24. The diffusion of water across a selectively permeable membrane is called
- osmotic pressure.
  - osmosis.
  - facilitated diffusion.
  - active transport.

- \_\_\_\_\_ 25. An animal cell that is surrounded by fresh water will burst because the osmotic pressure causes
- water to move into the cell.
  - water to move out of the cell.
  - solutes to move into the cell.
  - solutes to move out of the cell.
- \_\_\_\_\_ 26. Which term refers to cells having different jobs in an organism?
- multicellular
  - cell specialization
  - levels of organization
  - unicellular
- \_\_\_\_\_ 27. Which of the following is an example of an organ?
- heart
  - epithelial tissue
  - digestive system
  - nerve cell
- \_\_\_\_\_ 28. A group of similar cells that perform a particular function is called a(an)
- organ.
  - organ system.
  - tissue.
  - division of labor.
- \_\_\_\_\_ 29. An organ system is a group of organs that
- are made up of similar cells.
  - are made up of similar tissues.
  - work together to perform a specific function.
  - work together to perform all the functions in a multicellular organism.
- \_\_\_\_\_ 30. Which list represents the levels of organization in a multicellular organism from the simplest level to the most complex level?
- cell, tissue, organ system
  - organ system, organ, tissue, cell
  - tissue, organ, organ system
  - cell, tissue, organ, organ system

**Essay.** Write your answer to the following question using complete sentences. (10 points)

31. How do facilitated diffusion and active transport differ?

**Version A****Answer Section****MULTIPLE CHOICE**

1. ANS: B PTS: 1 DIF: L1 REF: p. 169  
OBJ: 7.1.1 Explain what the cell theory is. NAT: C.1.a | G.3  
STA: 5.2.B.1 | 5.4.A.1 KEY: knowledge
2. ANS: D PTS: 1 DIF: L2 REF: p. 170  
OBJ: 7.1.1 Explain what the cell theory is. NAT: C.1.a | G.3  
STA: 5.2.B.1 | 5.2.B.3 | 5.4.A.1 KEY: application
3. ANS: C PTS: 1 DIF: L2 REF: p. 170  
OBJ: 7.1.1 Explain what the cell theory is. NAT: C.1.a | G.3  
STA: 5.2.B.1 | 5.2.B.3 | 5.4.A.1 KEY: comprehension
4. ANS: D PTS: 1 DIF: L3 REF: p. 170  
OBJ: 7.1.1 Explain what the cell theory is. NAT: C.1.a | G.3  
STA: 5.2.B.1 | 5.2.B.3 | 5.4.A.1 KEY: synthesis
5. ANS: C PTS: 1 DIF: L2 REF: p. 173  
OBJ: 7.1.3 Distinguish between eukaryotes and prokaryotes. NAT: C.1.a | G.3 | C.1.c  
KEY: application
6. ANS: D PTS: 1 DIF: L2 REF: p. 173  
OBJ: 7.1.3 Distinguish between eukaryotes and prokaryotes. NAT: C.1.a | G.3 | C.1.c  
KEY: comprehension
7. ANS: C PTS: 1 DIF: L2 REF: p. 173  
OBJ: 7.1.3 Distinguish between eukaryotes and prokaryotes. NAT: C.1.a | G.3 | C.1.c  
KEY: comprehension
8. ANS: B PTS: 1 DIF: L2 REF: p. 179  
OBJ: 7.2.2 Describe the functions of the major cell organelles. NAT: C.1.a | C.1.b | C.1.c | C.1.e  
KEY: comprehension
9. ANS: D PTS: 1 DIF: L2 REF: p. 177  
OBJ: 7.2.2 Describe the functions of the major cell organelles. NAT: C.1.a | C.1.b | C.1.c | C.1.e  
KEY: comprehension
10. ANS: D PTS: 1 DIF: L1 REF: p. 179  
OBJ: 7.2.2 Describe the functions of the major cell organelles. NAT: C.1.a | C.1.b | C.1.c | C.1.e  
KEY: knowledge
11. ANS: A PTS: 1 DIF: L3 REF: p. 179 | p. 180  
OBJ: 7.2.2 Describe the functions of the major cell organelles. NAT: C.1.a | C.1.b | C.1.c | C.1.e  
STA: 5.1.A.3 | 5.1.C.1 | 5.3.A.1 KEY: synthesis
12. ANS: C PTS: 1 DIF: L1 REF: p. 180  
OBJ: 7.2.2 Describe the functions of the major cell organelles. NAT: C.1.a | C.1.b | C.1.c | C.1.e  
STA: 5.1.A.3 | 5.1.C.1 | 5.3.A.1 KEY: knowledge
13. ANS: C PTS: 1 DIF: L2 REF: p. 181  
OBJ: 7.2.3 Identify the main roles of the cytoskeleton. NAT: C.1.a | C.1.b | C.1.d  
KEY: application
14. ANS: C PTS: 1 DIF: L3 REF: p. 181  
OBJ: 7.2.3 Identify the main roles of the cytoskeleton. NAT: C.1.a | C.1.b | C.1.d  
KEY: analysis
15. ANS: A PTS: 1 DIF: L1 REF: p. 183  
OBJ: 7.3.1 Identify the main functions of the cell membrane and the cell wall.  
NAT: B.4 | C.1.a KEY: knowledge
16. ANS: D PTS: 1 DIF: L2 REF: p. 183  
OBJ: 7.3.1 Identify the main functions of the cell membrane and the cell wall.  
NAT: B.4 | C.1.a KEY: knowledge
17. ANS: B PTS: 1 DIF: L1 REF: p. 182  
OBJ: 7.3.1 Identify the main functions of the cell membrane and the cell wall.  
NAT: B.4 | C.1.a KEY: knowledge

18. ANS: D                   PTS: 1                   DIF: L2                   REF: p. 182  
 OBJ: 7.3.1 Identify the main functions of the cell membrane and the cell wall.  
 NAT: B.4 | C.1.a           KEY: comprehension
19. ANS: D                   PTS: 1                   DIF: L3                   REF: p. 182  
 OBJ: 7.3.1 Identify the main functions of the cell membrane and the cell wall.  
 NAT: B.4 | C.1.a           KEY: comprehension
20. ANS: B                   PTS: 1                   DIF: L1                   REF: p. 184  
 OBJ: 7.3.2 Describe what happens during diffusion.   NAT: C.1.a | C.1.d  
 KEY: knowledge
21. ANS: A                   PTS: 1                   DIF: L2                   REF: p. 184  
 OBJ: 7.3.2 Describe what happens during diffusion.   NAT: C.1.a | C.1.d  
 KEY: comprehension
22. ANS: C                   PTS: 1                   DIF: L2                   REF: p. 184  
 OBJ: 7.3.2 Describe what happens during diffusion.   NAT: C.1.a | C.1.d  
 KEY: comprehension
23. ANS: D                   PTS: 1                   DIF: L2                   REF: p. 188  
 OBJ: 7.3.3 Explain the processes of osmosis, facilitated diffusion, and active transport.  
 NAT: C.1.a | C.1.d | C.5.d                   STA: 5.5.A.1           KEY: comprehension
24. ANS: B                   PTS: 1                   DIF: L1                   REF: p. 185  
 OBJ: 7.3.3 Explain the processes of osmosis, facilitated diffusion, and active transport.  
 NAT: C.1.a | C.1.d | C.5.d                   STA: 5.5.A.1           KEY: knowledge
25. ANS: A                   PTS: 1                   DIF: L2                   REF: p. 186  
 OBJ: 7.3.3 Explain the processes of osmosis, facilitated diffusion, and active transport.  
 NAT: C.1.a | C.1.d | C.5.d                   STA: 5.5.A.1           KEY: comprehension
26. ANS: B                   PTS: 1                   DIF: L1                   REF: p. 190  
 OBJ: 7.4.1 Describe cell specialization.           NAT: C.1.f | C.5.a | C.5.d  
 KEY: knowledge
27. ANS: A                   PTS: 1                   DIF: L2                   REF: p. 193  
 OBJ: 7.4.2 Identify the organization levels in multicellular organisms.  
 NAT: C.1.f | C.5.a | C.5.d                   KEY: application
28. ANS: C                   PTS: 1                   DIF: L1                   REF: p. 192  
 OBJ: 7.4.2 Identify the organization levels in multicellular organisms.  
 NAT: C.1.f | C.5.a | C.5.d                   STA: 5.4.A.1           KEY: knowledge
29. ANS: C                   PTS: 1                   DIF: L2                   REF: p. 193  
 OBJ: 7.4.2 Identify the organization levels in multicellular organisms.  
 NAT: C.1.f | C.5.a | C.5.d                   KEY: comprehension
30. ANS: D                   PTS: 1                   DIF: L3                   REF: p. 192  
 OBJ: 7.4.2 Identify the organization levels in multicellular organisms.  
 NAT: C.1.f | C.5.a | C.5.d                   STA: 5.4.A.1           KEY: analysis

## ESSAY

31. ANS:  
 Facilitated diffusion is the movement through a protein channel of molecules that could not otherwise cross the membrane. Facilitated diffusion occurs only with a concentration difference and does not require additional energy. Active transport is the movement of materials across a cell membrane against a concentration difference and does require the addition of energy.
- PTS: 1                   DIF: L2                   REF: p. 187 | p. 188  
 OBJ: 7.3.3 Explain the processes of osmosis, facilitated diffusion, and active transport.  
 NAT: C.1.a | C.1.d | C.5.d                   STA: 5.1.C.1 | 5.5.A.1  
 KEY: analysis