

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⁺ 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 _____

Period _____

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?
- Anton van Leeuwenhoek
 - Robert Hooke
 - Matthias Schleiden
 - Rudolf Virchow
- _____ 2. The work of Schleiden and Schwann can be summarized by saying that
- all plants are made of cells.
 - all animals are made of cells.
 - plants and animals have specialized cells.
 - all plants and animals are made of cells.
- _____ 3. Which of the following is NOT a principle of the cell theory?
- Cells are the basic units of life.
 - All living things are made of cells.
 - Very few cells reproduce.
 - All cells are produced by existing cells.
- _____ 4. The cell theory applies to
- bacteria.
 - plants and animals.
 - multicellular organisms.
 - all of the above
- _____ 5. Looking at a cell under a microscope, you note that it is a prokaryote. How do you know?
- The cell lacks cytoplasm.
 - The cell lacks a cell membrane.
 - The cell lacks a nucleus.
 - The cell lacks genetic material.
- _____ 6. Eukaryotes usually contain
- a nucleus.
 - specialized organelles.
 - genetic material.
 - 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