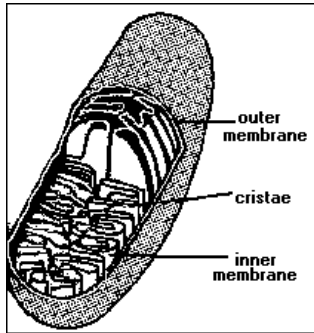


Cells: Practice Questions #1

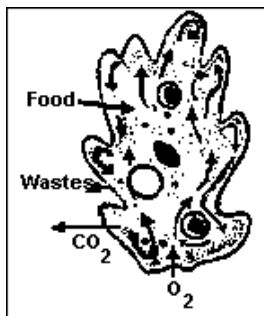
1.



Which metabolic process is most closely associated with the organelle represented in the diagram?

- A. intracellular digestion
- B. cellular respiration
- C. synthesis of glycogen
- D. hydrolysis of lipid

2.



In the diagram, the arrows show the direction of movement of various substances. Which of the cell's life activities are represented by the arrows?

- A. nutrition, reproduction, and regulation
  - B. excretion, transport, and respiration
  - C. growth, digestion, and locomotion
  - D. ingestion, regulation, and synthesis
3. Which is the correct sequence of historical developments leading to our present knowledge of cells?
- A. electron microscope – cell theory – compound light microscope
  - B. compound light microscope – cell theory – electron microscope
  - C. cell theory – electron microscope – compound light microscope
  - D. electron microscope – compound light microscope – cell theory

4. Which statement best describes the plasma membrane of a living plant cell?
- A. It selectively regulates the passage of substances into and out of the cell.
  - B. It is composed of proteins and carbohydrates only.
  - C. It has the same permeability to all substances found inside or outside the cell.
  - D. It is a double protein layer with floating lipid molecules.
5. Most of the reactions of aerobic cellular respiration occur within the organelle known as the
- A. lysosome
  - B. nucleus
  - C. mitochondrion
  - D. vacuole
6. What is the basic unit of structure and function in all living things?
- A. cell
  - B. tissue
  - C. organ
  - D. system

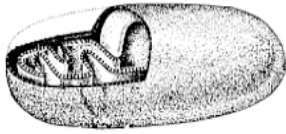
7.



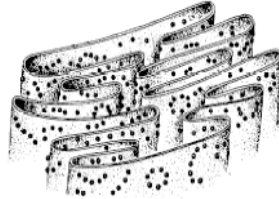
The diagram represents a white blood cell engulfing some bacteria. The structure labeled *X* is most likely a

- A. nucleus
- B. centriole
- C. ribosome
- D. vacuole

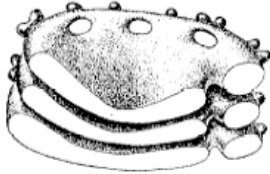
8. Which diagram represents an organelle that contains the enzymes needed to synthesize ATP in the presence of oxygen?



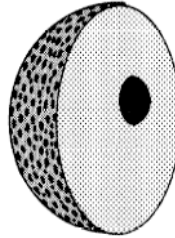
A.



C.

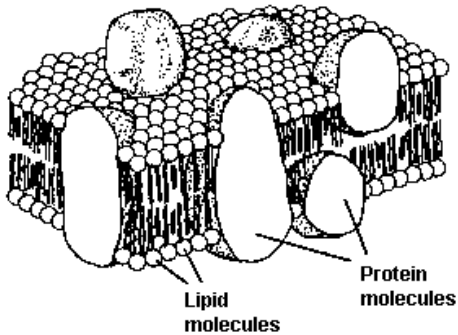


B.



D.

9.



Which cell structure is represented by the three-dimensional diagram?

- A. chloroplast
- B. mitochondrion
- C. plasma membrane
- D. replicated chromosome

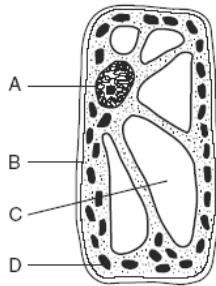
10. Which statement describing the cells in a body system is correct?

- A. Each cell in the system is identical to the other cells in the system, and each cell works independently of the other cells.
- B. Some cells in the system may be different from the other cells in the system, but all cells are coordinated and work together.
- C. Each cell in the system is different from the other cells in the system, and each cell works independently of the other cells.
- D. All cells in the system are identical to each other and work together.

11. Every single-celled organism is able to survive because it carries out

- A. metabolic activities
- B. autotrophic nutrition
- C. heterotrophic nutrition
- D. sexual reproduction

12. Which letter indicates a cell structure that directly controls the movement of molecules into and out of the cell?

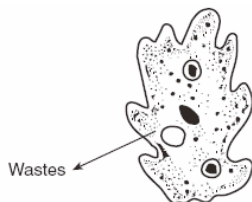


- A. *A*
- B. *B*
- C. *C*
- D. *D*

13. Which sequence represents the correct order of levels of organization found in a complex organism?

- A. cells → organelles → organs → organ systems → tissues
- B. tissues → organs → organ systems → organelles → cells
- C. organelles → cells → tissues → organs → organ systems
- D. organs → organ systems → cells → tissues → organelles

14. A single-celled organism is represented in the diagram below. An activity is indicated by the arrow.



If this activity requires the use of energy, which substance would be the source of this energy?

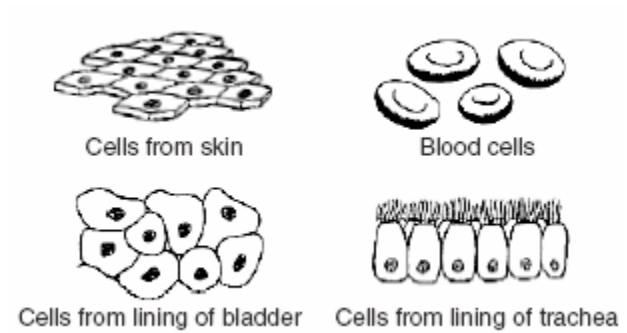
- A. DNA
- B. ATP
- C. a hormone
- D. an antibody

15. In a cell, information that controls the production of proteins must pass from the nucleus to the

- A. structure 1
- B. structure 2
- C. structure 3
- D. structure 4

- A. cell membrane
- B. chloroplasts
- C. mitochondria
- D. ribosomes

16. Some human body cells are shown in the diagrams below.



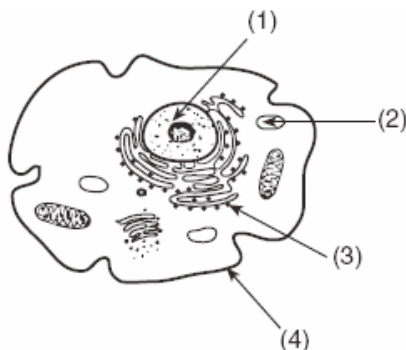
These groups of cells represent different

- A. tissues in which similar cells function together
- B. organs that help to carry out a specific life activity
- C. systems that are responsible for a specific life activity
- D. organelles that carry out different functions

17. The largest amount of DNA in a plant cell is contained in

- A. a nucleus
- B. a chromosome
- C. a protein molecule
- D. an enzyme molecule

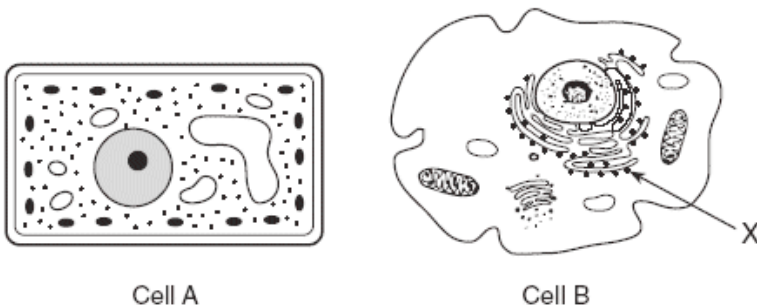
18. In the diagram below, which structure performs a function similar to a function of the human lungs?



19. Homeostasis in unicellular organisms depends on the proper functioning of

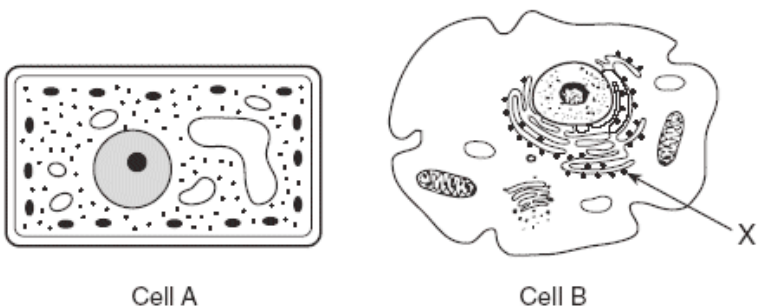
- A. organelles
- B. insulin
- C. guard cells
- D. antibodies

20. Base your answer to the question on the diagrams below and on your knowledge of biology. The diagrams represent two different cells and some of their parts. The diagrams are not drawn to scale.



Identify an organelle in cell *A* that is the site of autotrophic nutrition.

21. Base your answer to the question on the diagrams below and on your knowledge of biology. The diagrams represent two different cells and some of their parts. The diagrams are not drawn to scale.

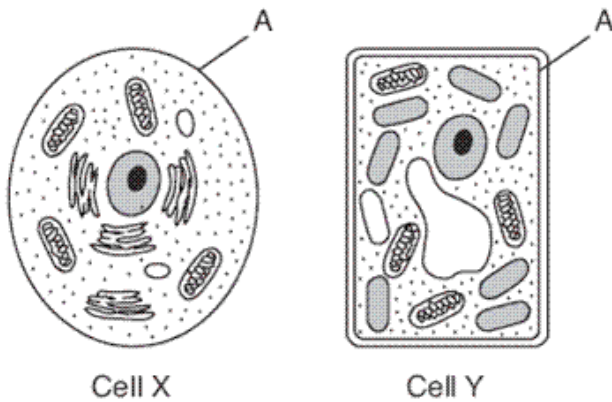


Identify the organelle labeled *X* in cell *B*.

22. Damage to which structure will most directly disrupt water balance within a single-celled organism?

- A. ribosome
- B. cell membrane
- C. nucleus
- D. chloroplast

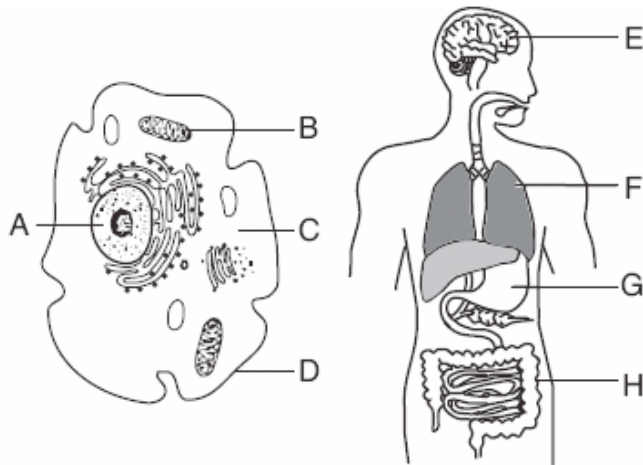
23. The diagram below represents two cells, *X* and *Y*.



Which statement is correct concerning the structure labeled *A*?

- A. It aids in the removal of metabolic wastes in both cell *X* and cell *Y*.
- B. It is involved in cell communication in cell *X*, but not in cell *Y*.
- C. It prevents the absorption of  $\text{CO}_2$  in cell *X* and  $\text{O}_2$  in cell *Y*.
- D. It represents the cell wall in cell *X* and the cell membrane in cell *Y*.

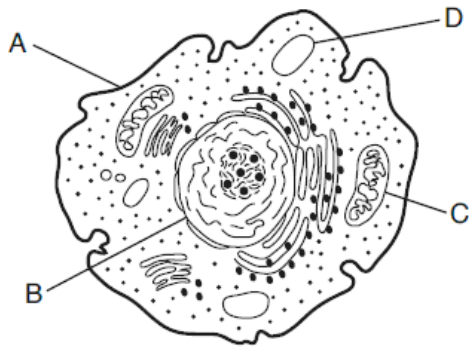
24. A single cell and a multicellular organism are represented below.



Which structures are correctly paired with their primary function?

- A. *A* and *G*—transmission of nerve impulses
- B. *B* and *E*—photosynthesis
- C. *C* and *H*—digestion of food
- D. *D* and *F*—gas exchange

25. The diagram below represents a cell.



Which statement concerning ATP and activity within the cell is correct?

- A. The absorption of ATP occurs at structure *A*.
- B. The synthesis of ATP occurs within structure *B*.
- C. ATP is produced most efficiently by structure *C*.
- D. The template for ATP is found in structure *D*.



## Answer Key

1. B      14. B

2. B      15. D

3. B      16. A

4. A      17. A

5. C      18. D

6. A      19. A

7. D      20. chloroplast

8. A      21. ribosome

9. C      22. B

10. B     23. A

11. A     24. D

12. B     25. C

13. C