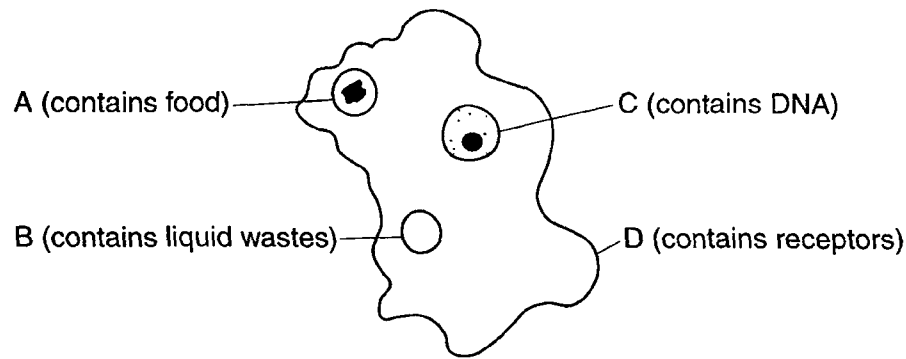


Life Functions and Cells Exam Practice

1. Which statement best describes respiration within a cell?
 - 1) It occurs in animal cells but not in plant cells.
 - 2) It converts the food into energy for the cell
 - 3) It uses carbon dioxide and produces oxygen.
 - 4) It stores energy in food molecules.
2. Every single-celled organism is able to survive because it carries out
 - 1) metabolic activities
 - 2) autotrophic nutrition
 - 3) heterotrophic nutrition
 - 4) sexual reproduction
3. Which organism is considered an exception to the cell theory because it has a noncellular structure?
 - 1) alga
 - 2) bacterium
 - 3) virus
 - 4) moss
4. The development of the cell theory was most directly related to the
 - 1) improvement of the microscope and microscopic techniques
 - 2) use of a five-kingdom classification system
 - 3) development of the gene-chromosome theory
 - 4) discovery of bacteria and viruses

Life Functions and Cells

5. Base your answer to the following question on the diagram below, which shows some of the specialized organelles in a single-celled organism.

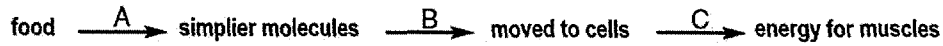


- a* Write the letter of *one* of the labeled organelles and state the name of that organelle.
b Explain how the function of the organelle you selected in part *a* assists in the maintenance of homeostasis.
c Identify a system in the human body that performs a function similar to that of the organelle you selected in part *a*.

- | | |
|--|--|
| <p>6. In which process are simple materials chemically combined to form more complex materials?</p> <ol style="list-style-type: none">1) synthesis2) pinocytosis3) hydrolysis4) cyclosis <p>7. Transport of molecules within animal cells is assisted by a system of internal membranes that make up the</p> <ol style="list-style-type: none">1) endoplasmic reticulum2) mitochondria3) ribosomes4) chloroplast | <p>8. Which sequence represents the levels of biological organization from smallest to largest?</p> <ol style="list-style-type: none">1) organism → cell → tissue → organelle → organ system → organ2) organ system → organ → organism → cell → tissue → organelle3) organelle → organ system → cell → organism → tissue → organ4) organelle → cell → tissue → organ → organ system → organism <p>9. What would most likely happen if the ribosomes in a cell were not functioning?</p> <ol style="list-style-type: none">1) The cell would undergo uncontrolled mitotic cell division.2) The synthesis of proteins would stop.3) The cell would produce antibodies.4) The rate of transport of glucose in the cytoplasm would increase. |
|--|--|

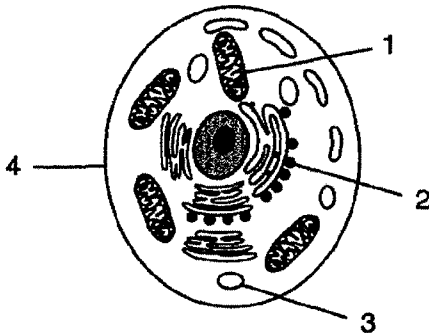
Life Functions and Cells

10. Arrows *A*, *B*, and *C* in the diagram below represent the processes necessary to make the energy stored in food available for muscle activity.



The correct sequence of processes represented by *A*, *B*, and *C* is

- | | |
|--|--|
| 1) excretion → digestion → growth | 3) digestion → excretion → respiration |
| 2) digestion → circulation → respiration | 4) growth → circulation → excretion |
-
11. After a cell was treated with a certain chemical, the ribosomes stopped functioning. Which cell activity was immediately affected by this change in ribosome function?
- 1) intracellular transport
 - 2) protein synthesis
 - 3) aerobic respiration
 - 4) excretion of metabolic wastes
12. One difference between plant and animal cells is that animal cells do *not* have
- | | |
|-----------------|--------------------|
| 1) a nucleus | 3) a cell membrane |
| 2) chloroplasts | 4) centrioles |
13. The cytoplasm is to the cell as
- 1) rocks are to the ocean
 - 2) fish are to the ocean
 - 3) water is to the ocean
 - 4) the coral reef is to the ocean
- 14.



Within which structure shown in the diagram below are energy-rich organic compounds used to produce ATP?

- | | |
|------|------|
| 1) 1 | 3) 3 |
| 2) 2 | 4) 4 |

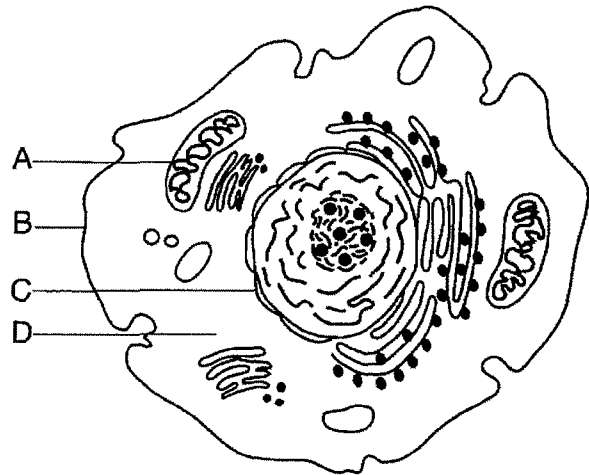
15. The chloroplast is to a plant as

- 1) a window is to a building
- 2) a solar cell is to a building
- 3) a room is to a building
- 4) the roof is to a building

16. Which statement is *not* a part of the cell theory?

- 1) Cells are the basic unit of structure of living things.
- 2) Cells are the basic unit of function of living things.
- 3) Cell parts such as chloroplasts are self-replicating.
- 4) Cells come from preexisting cells.

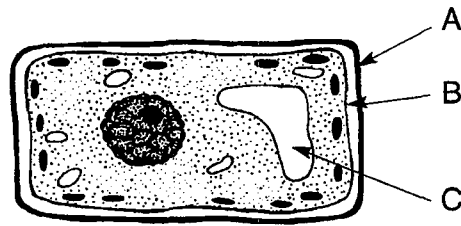
17. In the diagram below, which letter indicates the part of the cell that carries out a function most similar to a function of the human excretory system?



- | | |
|-------------|-------------|
| 1) <i>A</i> | 3) <i>C</i> |
| 2) <i>B</i> | 4) <i>D</i> |

Life Functions and Cells

18. The respiratory system includes a layer of cells in the air passages that clean the air before it gets to the lungs. This layer of cells is best classified as
- 1) a tissue
 - 2) an organ
 - 3) an organelle
 - 4) an organ system
19. Which life activity is *not* required for the survival of an individual organism
- 1) obtain materials or energy
 - 2) response to the environment
 - 3) reproduction
 - 4) growth and development
20. The absorption of fluids by various cells of the human body is part of the life function known as
- 1) excretion
 - 2) transport
 - 3) respiration
 - 4) growth
21. Homeostasis is maintained in a single-celled organism by the interaction of
- 1) organs
 - 2) systems
 - 3) tissues
 - 4) organelles
22. A plant cell is represented in the diagram below.



Name each of the following structures.

A =

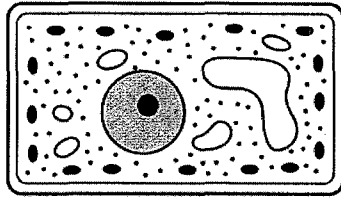
B =

C =

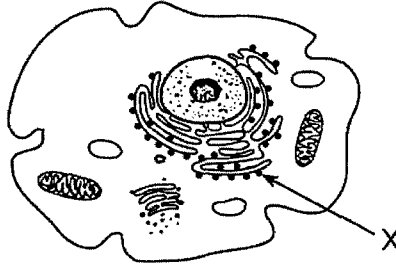
Explain the function of letter C. Write at least one complete sentence.

Life Functions and Cells

Base your answers to questions 23 and 24 on the information 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.



Cell A



Cell B

23. Identify the organelle labeled X in cell B.
24. Identify an organelle in cell A that is the site of autotrophic nutrition.

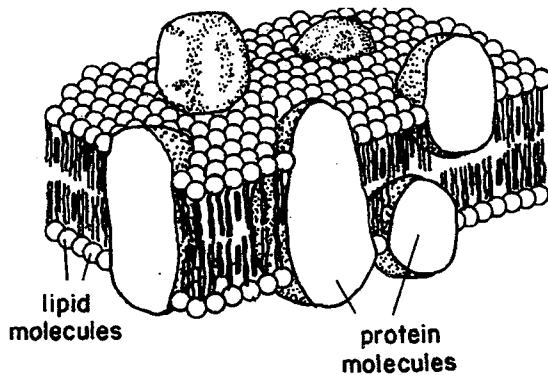
25. What is the main function of a vacuole in a cell?

- 1) storage
- 2) protection
- 3) reproduction
- 4) release of energy

26. Microscopic examination of an animal cell reveals the presence of a plasma membrane but no cell wall. Which additional structures would normally be present within this cell?

- 1) starch grains
- 2) centrioles
- 3) chloroplasts
- 4) large vacuoles

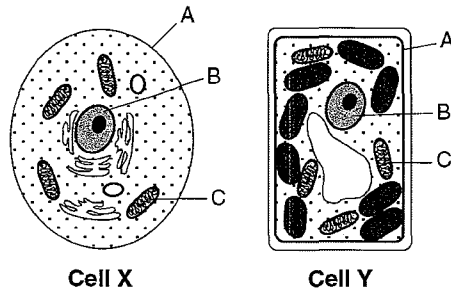
27. Which cellular organelle is represented by diagram below?



- 1) protein
- 2) molecules
- 3) cell membrane
- 4) cell wall

Life Functions and Cells

Base your answers to questions 28 and 29 on the diagrams below of two cells, *X* and *Y*, and on your knowledge of biology.

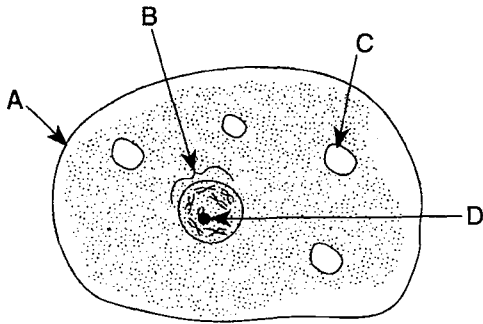


28. State one function of the organelle that you identified in the previous question.
29. Select one lettered organelle and write the letter of that organelle in the space below. Identify the organelle you selected.

- | | | | | | |
|---|---|--------------|--------------|--------------------|----------------|
| <p>30. The nucleus is the cell as</p> <ol style="list-style-type: none"> 1) the bones are to a human 2) the heart is to human 3) the muscles are to a human 4) the brain is to a human <p>31. The ability of the human body to keep blood-sugar levels within a fairly narrow range, despite the intake of meals high in carbohydrates, is an example of</p> <ol style="list-style-type: none"> 1) active transport 2) genetic recombination 3) homeostasis 4) digestion <p>32. During an experiment you want to view the nucleus of a cell. How would you most easily view this organelle?</p> <ol style="list-style-type: none"> 1) With a microscope 2) With the naked eye 3) Using a magnifying glass 4) You could not see the nucleus with any of this instruments | <p>33. Nutrition involves those activities by which organisms</p> <ol style="list-style-type: none"> 1) remove cellular waste products 2) obtain and process materials needed for other activities 3) exchange gases with their environment 4) absorb and circulate materials <p>34. Within a cell, DNA is chiefly found in the</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">1) cell wall</td> <td style="width: 50%;">3) ribosomes</td> </tr> <tr> <td>2) plasma membrane</td> <td>4) chromosomes</td> </tr> </table> | 1) cell wall | 3) ribosomes | 2) plasma membrane | 4) chromosomes |
| 1) cell wall | 3) ribosomes | | | | |
| 2) plasma membrane | 4) chromosomes | | | | |

Life Functions and Cells

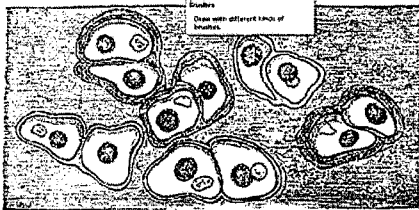
35. A cell is represented in the diagram shown below.



Which statement about the cell is correct?

- 1) Structure *A* synthesizes and secretes cellular products.
- 2) Structure *B* contains DNA nucleotides involved in transmitting genetic information.
- 3) Structure *C* utilizes carbon dioxide in the process of photosynthesis.
- 4) Structure *D* is the site of aerobic respiration.

36.



What is true of the above picture?

- 1) The cells are dead
 - 2) The cells can be seen with a naked eye
 - 3) The cells are rapidly growing
 - 4) The cells are viewed under a microscope
37. Within which structure of an animal cell does DNA replication take place?
- 1) vacuole
 - 2) cell membrane
 - 3) nucleus
 - 4) ribosome
38. The process that removes metabolic waste products from an organism is known as
- 1) egestion
 - 2) secretion
 - 3) excretion
 - 4) oxidation

39. The energy an organism requires to transport materials and eliminate wastes is obtained directly from

- 1) DNA
- 2) starch
- 3) hormones
- 4) ATP

40. The data table below shows the presence or absence of DNA in four different cell organelles.

Data Table

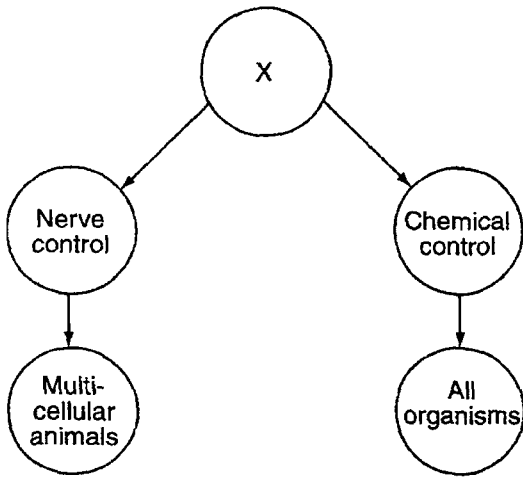
Organelle	DNA
cell membrane	absent
cell wall	absent
mitochondrion	present
nucleus	present

Information in the table suggests that DNA functions

- 1) within cytoplasm and outside of the cell membrane
 - 2) both inside and outside of the nucleus
 - 3) only within energy-releasing structures
 - 4) within cell vacuoles
41. Muscle cells in athletes often have more mitochondria than muscle cells in nonathletes. Based on this observation, it can be inferred that the muscle cells in athletes
- 1) have a smaller demand for cell proteins than the muscle cells of nonathletes
 - 2) reproduce less frequently than the muscle cells of nonathletes
 - 3) have nuclei containing more DNA than nuclei in the muscle cells of nonathletes
 - 4) have a greater demand for energy than the muscle cells of nonathletes

Life Functions and Cells

42. A graphic organizer is represented in the diagram below.



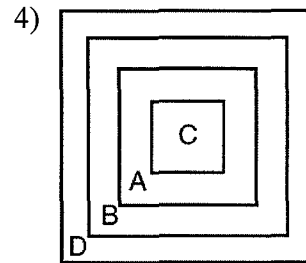
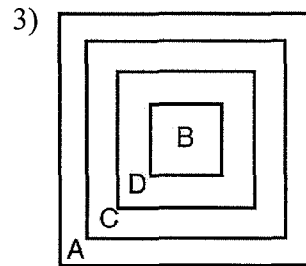
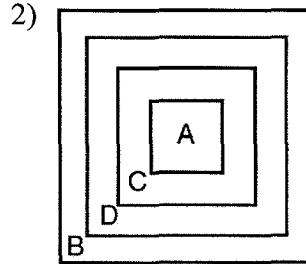
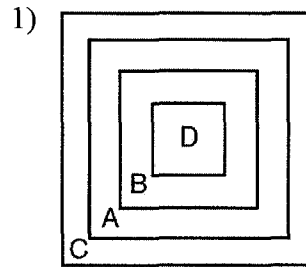
The letter *X* most likely represents the term

- | | |
|---------------|------------------|
| 1) regulation | 3) growth |
| 2) excretion | 4) transpiration |
43. What is common to all cells?
- 1) All cells have a cell wall
 - 2) All cells are photosynthetic
 - 3) All cells divide to form new cells
 - 4) All cells have a nucleus

44. Which diagram represents the relative sizes of the structures listed below?

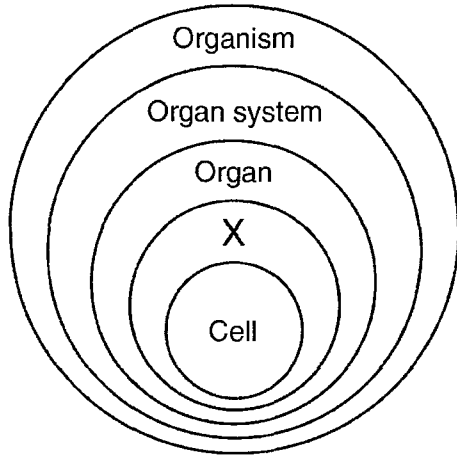
Structures

A	gene
B	cell
C	chromosome
D	nucleus



Life Functions and Cells

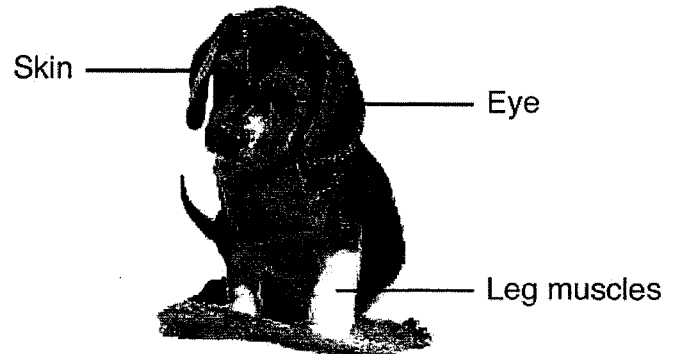
45. The diagram below represents levels of organization in living things.



Which term would best represent *X*?

- 1) human
 - 2) tissue
 - 3) stomach
 - 4) organelle
46. Which structures are listed in order from the least complex to the most complex?
- 1) plant cell, leaf, chloroplast, rose bush
 - 2) chloroplast, plant cell, leaf, rose bush
 - 3) chloroplast, leaf, plant cell, rose bush
 - 4) rose bush, leaf, plant cell, chloroplast

47. Several structures are labeled in the diagram of a puppy shown below.



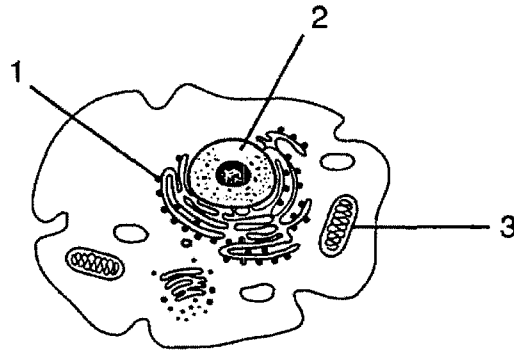
Every cell in each of these structures contains

- 1) equal amounts of cells
 - 2) identical genetic information
 - 3) proteins that are all identical
 - 4) cells that look alike
48. The mitochondria is to the cell as
- 1) the motor is to a car
 - 2) the windshield is to a car
 - 3) the door is to a car
 - 4) the seatbelt is to a car

Life Functions and Cells

49. Base your answer to question 56 on the diagram below and on your knowledge of biology.

In a cell, a variety of structures perform specific functions and interact to maintain homeostasis. The diagram below represents a typical cell with three cell structures labeled 1, 2, and 3.



Select *one* cell structure labeled in the diagram and write its number in the space below. Explain how the cell structure you selected helps maintain homeostasis in a cell.

In your answer, be sure to:

- identify the cell structure you selected
- state *one* function of this cell structure
- identify *one* substance that is often associated with the cell structure you selected and state how that substance is associated with the cell structure
- identify *one* other cell structure and explain how it interacts with the cell structure you selected to maintain homeostasis in the cell

50. Which row in the chart below contains a cell structure paired with its primary function?

Row	Cell Structure	Function
(1)	ribosome	protein synthesis
(2)	vacuole	production of genetic information
(3)	nucleus	carbohydrate synthesis
(4)	mitochondrion	waste disposal

1) 1

2) 2

3) 3

4) 4