Name: _____

UNIT: CELLS

TOPIC: LEVELS OF ORGANIZATION

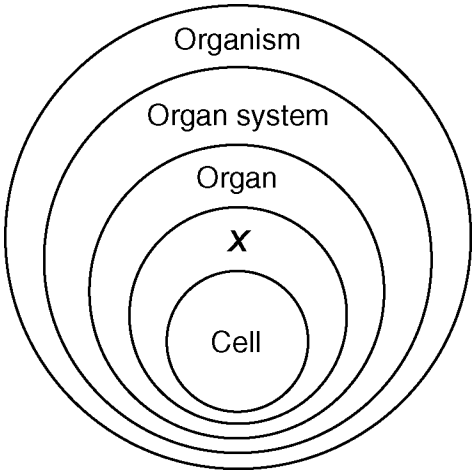
1) Which sequence illustrates the increasing complexity of levels of organization in multicellular organisms?
   1) organelle ⟶ tissue ⟶ cell ⟶ organ ⟶ organ system ⟶ organism
   2) organelle ⟶ cell ⟶ tissue ⟶ organ ⟶ organ system ⟶ organism
   3) cell ⟶ organism ⟶ organ system ⟶ organ ⟶ tissue ⟶ organelle
   4) cell ⟶ organelle ⟶ tissue ⟶ organ ⟶ organ system ⟶ organism

2) The levels of organization for structure and function in the human body from *least* complex to *most* complex are
   1) systems ⟶ organs ⟶ tissues ⟶ cells
   2) tissues ⟶ systems ⟶ cells ⟶ organs
   3) cells ⟶ tissues ⟶ organs ⟶ systems
   4) cells ⟶ organs ⟶ tissues ⟶ systems

3) Which of the following sequences represents the correct order of organization in complex organisms?
   1) organs ⟶ tissues ⟶ systems ⟶ cells
   2) systems ⟶ organs ⟶ cells ⟶ tissues
   3) tissues ⟶ organs ⟶ systems ⟶ cells
   4) cells ⟶ tissues ⟶ organs ⟶ systems

4) Which of the following sequences shows a decreasing level of complexity?
   1) organs ⟶ organism ⟶ cells ⟶ tissues
   2) organism ⟶ organs ⟶ tissues ⟶ cells
   3) organism ⟶ cells ⟶ organs ⟶ tissues
   4) cells ⟶ tissues ⟶ organs ⟶ organism

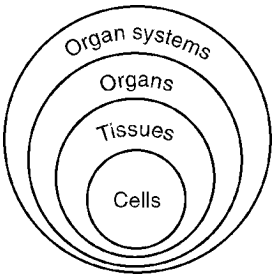
5) The diagram below represents levels of organization in living things.



Which term would *best* represent *X*?

1) human
2) tissue
3) organelle
4) stomach

6) Which diagram *best* represents the levels of organization in the human body?

1)


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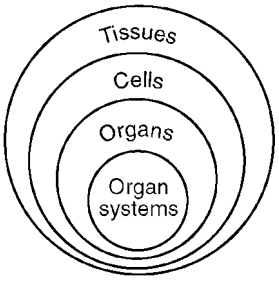

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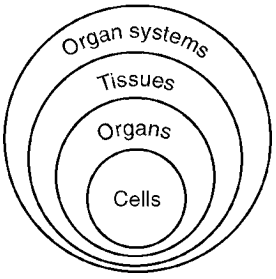

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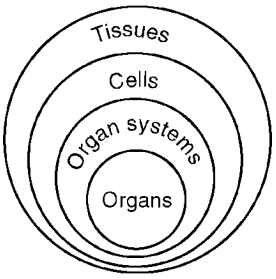


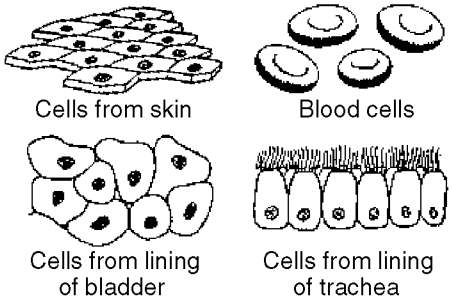
7) The table below provides some information concerning organelles and organs.

Function	Organelle	Organ
gas exchange	cell membrane	lung
nutrition	food vacuole	stomach

Based on this information, which statement accurately compares organelles to organs?

1) Organs maintain homeostasis while organelles do not.
2) Organelles carry out functions similar to those of organs.
3) Organelles function in multicellular organisms while organs function in single-celled organisms.
4) Functions are carried out more efficiently by organs than by organelles.

8) Some human body cells are shown in the diagrams below.



These groups of cells represent different

1) systems that are responsible for a specific life activity
2) organs that help to carry out a specific life activity
3) tissues in which similar cells function together
4) organelles that carry out different functions

9) Write the structures listed in the box below in order from *least* complex to *most* complex.

STRUCTURES:

organ
cell
organism
organelle
tissue

LEAST COMPLEX _____

_____

_____

_____

MOST COMPLEX _____

TOPIC: CELL ORGANELLES IN PLANTS AND ANIMALS

10) Homeostasis in unicellular organisms depends on the proper functioning of

1) insulin
2) antibodies
3) guard cells
4) organelles

11) Which of the following organelles is correctly paired with its specific function?

1) ribosome — synthesis of proteins
2) chloroplast — transport of materials
3) vacuole — production of ATP
4) cell membrane — storage of hereditary information

12) Which sequence of terms represents a *decrease* from the greatest number of structures to the least number of structures present in a cell?

1) gene ⟶ chromosome ⟶ nucleus
2) nucleus ⟶ gene ⟶ chromosome
3) chromosome ⟶ gene ⟶ nucleus
4) gene ⟶ nucleus ⟶ chromosome

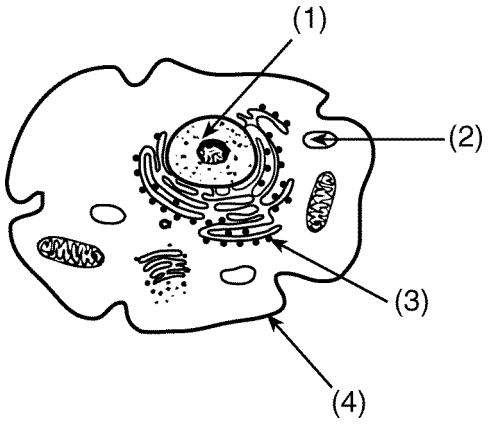
13) Most of the hereditary information that determines the traits of an organism is located in

1) the numerous ribosomes in certain cells
2) only those cells of an individual produced by meiosis
3) the nuclei of body cells of an individual
4) certain genes in the vacuoles of body cells

14) As a human red blood cell matures, it loses its nucleus. As a result of this loss, a mature red blood cell lacks the ability to

1) take in material from the blood
2) carry out cell division
3) pass through artery walls
4) release hormones to the blood

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



1) 1 2) 2 3) 3 4) 4

16) An organelle that releases energy for metabolic activity in a nerve cell is the

1) chloroplast
2) ribosome
3) mitochondrion
4) vacuole

17) 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 greater demand for energy than the muscle cells of nonathletes
2) have a smaller demand for cell proteins than the muscle cells of nonathletes
3) reproduce less frequently than the muscle cells of nonathletes
4) have nuclei containing more DNA than nuclei in the muscle cells of nonathletes

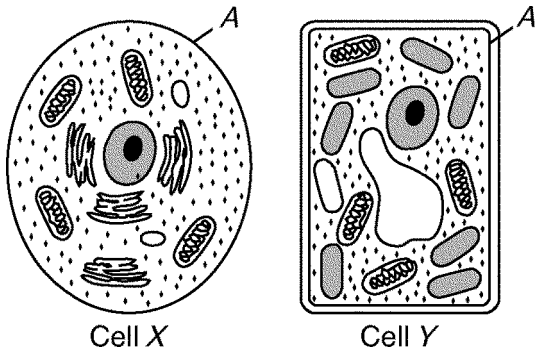
18) Certain poisons are toxic to organisms because they interfere with the function of enzymes in mitochondria. This results directly in the inability of the cell to

1) release energy from nutrients
2) dispose of metabolic wastes
3) build proteins
4) store information

19) Plants in areas with short growing seasons often have more chloroplasts in their cells than plants in areas with longer growing seasons. Compared to plants in areas with longer growing seasons, plants in areas with shorter growing seasons most likely

1) have a different method of respiration
2) grow taller
3) have a higher rate of protein metabolism
4) make and store food more quickly

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

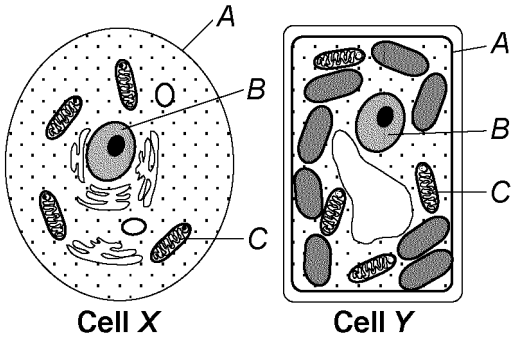


Which statement is correct concerning the structure labeled *A*?

1) It is involved in cell communication in cell *X*, but not in cell *Y*.
2) It prevents the absorption of CO_2 in cell *X* and O_2 in cell *Y*.
3) It aids in the removal of metabolic wastes in both cell *X* and cell *Y*.
4) It represents the cell wall in cell *X* and the cell membrane in cell *Y*.

Questions 21 and 22 refer to the following:

The diagrams below represent two cells, *X* and *Y*.



21) (a) Select *one* lettered organelle and write the letter of that organelle. Identify the organelle you selected.

(b) State *one* function of the organelle that you identified in *part (a)*.

22) Identify *one* process that is carried out in cell *Y* in the diagram that is *not* carried out in cell *X*.

23) Describe how *two* of the cell structures listed below interact to help maintain a balanced internal environment in a cell.

- mitochondrion
- ribosome
- cell membrane
- nucleus
- vacuole

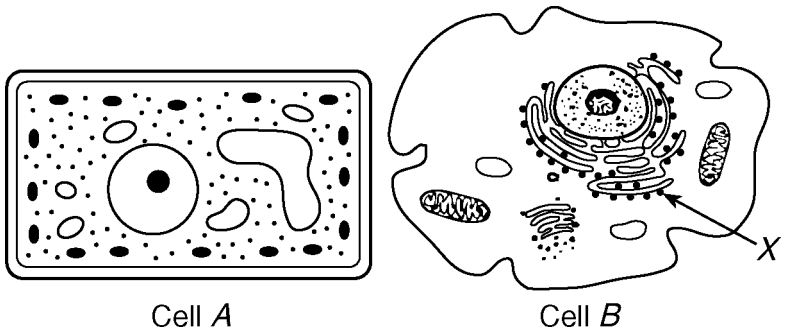
In your answer be sure to:

(1) Select *two* of these structures, write their names, and state *one* function of each.

(2) Describe how each structure you selected contributes to the functioning of the other.

Questions 24 through 26 refer to the following:

The diagrams below represent two different cells and some of their parts. The diagrams are not drawn to scale.



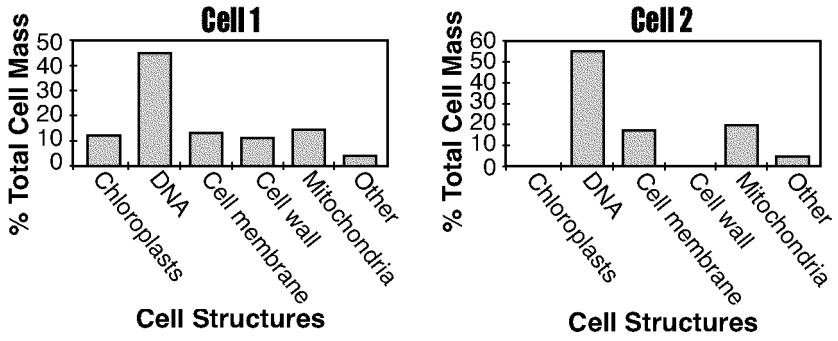
24) Which of the following statements *best* describes the cells shown?

1) Both cell *A* and cell *B* use energy released from ATP.
2) Both cell *A* and cell *B* produce antibiotics.
3) Cell *B* lacks vacuoles while cell *A* has them.
4) DNA would not be found in either cell *A* or cell *B*.

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

26) Identify the organelle labeled *X* in cell *B* shown.

27) Data from two different cells are shown in the graphs below.



Which of these cells is most likely a plant cell? [*Support your answer.*]

28) Organelles carry out specific processes involving chemical reactions. In the chart below, identify *two* organelles and, for each, identify a process involving chemical reactions that occurs there. Describe *one* specific way each process identified is important to the functioning of the organism.

Organelle	Process Involving Chemical Reactions that Occur in the Organelle	How the Process is Important to the Functioning of the Organism
(1) _____	_____	_____
_____	_____	_____
	_____	_____
(2) _____	_____	_____
_____	_____	_____
	_____	_____