

Living Environment – Topic 1 Practice

1) The calcium concentration in the root cells of certain plants is higher than in the surrounding soil. Calcium may continue to enter the root cells of the plant by the process of

- A) protein synthesis
- B) respiration
- C) diffusion
- D) active transport

2) Specialized cells and organs are necessary in multicellular organisms because in these organisms

- A) a body type evolved that required larger sized cells
- B) a body type evolved that relied on fewer body cells
- C) all cells are in direct contact with the external environment
- D) fewer cells are in direct contact with the external environment

3) Some human structures and their functions are listed below.

Human Structures	Functions
alveoli	absorption of oxygen, excretion of carbon dioxide
kidney	excretion of salts and nitrogenous wastes
large intestine	absorption of water

In a single-celled organism such as an amoeba, all these functions can be performed by the

- A) cell membrane
- B) ribosomes
- C) nucleus
- D) mitochondria

4) 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

- A) Row 4
- B) Row 2
- C) Row 1
- D) Row 3

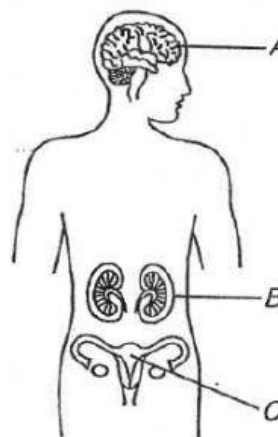
5) Which statement concerning cell communication is correct?

- A) Cells build new cell parts, which function as communication genes.
- B) DNA codes for certain molecules that become cell receptors involved in cell communication.
- C) Certain proteins use cell communication to build new cell parts made of DNA.
- D) Cells produce ATP molecules, which become cell receptors for communication.

6) A pesticide that kills an insect by interfering with the production of proteins in the insect would most directly affect the activity of

- A) minerals
- B) mitochondria
- C) chloroplasts
- D) ribosomes

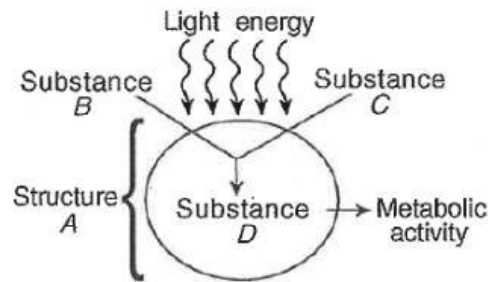
7)



Structure B in the given diagram represents

- A) a complete system with organs, tissues, and cells
- B) cells, only
- C) an organ with cells and tissues
- D) cells and tissues, only

- 8) The diagram below represents a process that occurs in a structure of a specialized cell.



Which one of the following rows in the chart correctly identifies the letters in the diagram?

Row	A	B	C	D
(1)	ribosome	oxygen	carbon dioxide	water
(2)	mitochondrion	water	oxygen	protein
(3)	nucleus	nitrogen	carbon	starch
(4)	chloroplast	carbon dioxide	water	glucose

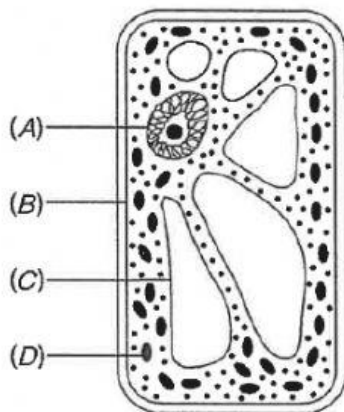
A) 1

B) 2

C) 3

D) 4

- 9) In the cell shown below, which lettered structure is responsible for the excretion of *most* cellular wastes?



A) A

B) B

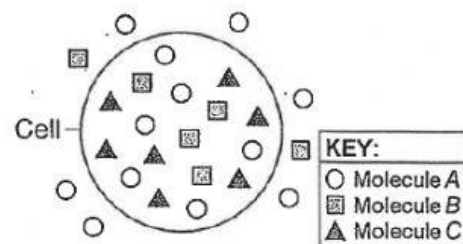
C) C

D) D

- 10) The cytoplasm in a cell carries out a function similar to a function of which human system?

- A) circulatory system
B) respiratory system
C) nervous system
D) reproductive system

- 11) The diagram below represents a cell and several molecules. The number of molecules shown represents the relative concentration of the molecules inside and outside of the cell.



Molecule B could enter the cell as a direct result of

- A) digestion
B) diffusion
C) enzyme production
D) active transport

- 12) In the human body, oxygen is absorbed by the lungs and nutrients are absorbed by the small intestine. In a single-celled organism, this absorption directly involves the

- A) chromosomes
B) nucleus
C) cell membrane
D) chloroplasts

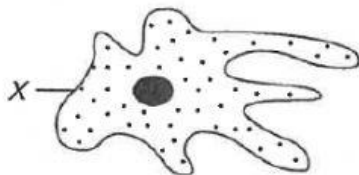
- 13) If the ribosomes of a cell were destroyed, what effect would this most likely have on the cell?

- A) The cell would be unable to synthesize proteins.
B) It would stimulate mitotic cell division.
C) Increased protein absorption would occur through the cell membrane.
D) Development of abnormal hereditary features would occur in the cell.

- 14) The swordfish contains a heat generating organ that warms its brain and eyes up to 14°C above the surrounding ocean water temperature. Which structures are most likely to be found at relatively high concentrations within the cells of this heat generating organ?

A) mitochondria C) chromosomes
B) chloroplasts D) nuclei

- 15) A single-celled organism is represented below.



Structure X carries out a function *most* similar to which structure in a human?

A) heart C) ovary
B) brain D) lung

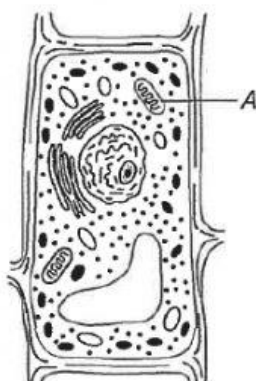
- 16) Homeostasis is maintained in a single-celled organism by the interaction of

A) organelles C) organs
B) tissues D) systems

- 17) One characteristic of *all* living things is that they

A) develop organ systems
B) maintain internal stability
C) produce identical offspring
D) synthesize only inorganic matter

- 18) The diagram below represents a plant cell.



What process takes place in structure A?

A) heterotrophic nutrition
B) cellular respiration
C) digestion of fats
D) protein synthesis

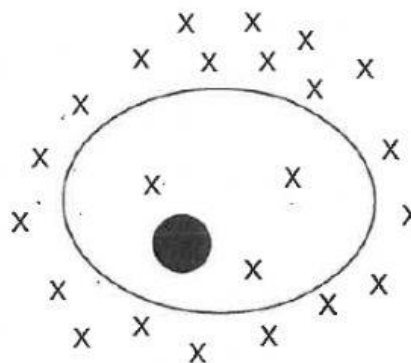
- 19) The virus that causes bird flu can attach to the cells of the lower part of the respiratory system in humans, but not to the cells of the upper part of the respiratory system. The most likely reason for this is that these two groups of cells have different

A) receptor molecules on their membranes
B) enzymes in their mitochondria
C) DNA codes in their nuclei
D) amounts of water in their cytoplasm

- 20) Which of the following sequences represents the levels of biological organization from *smallest* to *largest*?

A) organism → cell → tissue → organelle → organ system → organ
B) organelle → organ system → cell → organism → tissue → organ
C) organ system → organ → organism → cell → tissue → organelle
D) organelle → cell → tissue → organ → organ system → organism

- 21) The diagram below shows molecules represented by X both outside and inside of a cell.



A process that would result in the movement of these molecules out of the cell requires the use of

A) antibodies C) ATP
B) antigens D) DNA