

Cell Practice

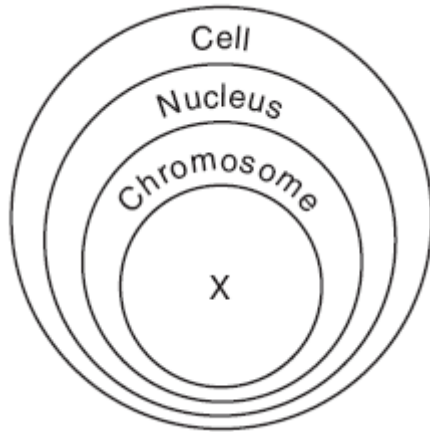
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STATION 1

1. Unlike prokaryotic cells, eukaryotic cells have the capacity to
 - a. assemble into multicellular organisms
 - b. establish symbiotic relationships with other organisms
 - c. obtain energy from the Sun
 - d. store genetic information in the form of DNA

The diagram below represents levels of organization within a cell of a multicellular organism.



2. Which statement is correct regarding the structure represented by X?
 - a. Structure X is composed of many different amino acids that determine the type of cell it will become in the organism.
 - b. Structure X has the same DNA in all the body cells of the organism.
 - c. Structure X is a folded chain arrangement of carbohydrate found in all the body cells of the organism.
 - d. Structure X contains 20 different kinds of subunits that are present in all the cells of the organism.
3. 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. nuclei
 - b. chromosomes
 - c. chloroplasts
 - d. mitochondria
4. Cell differentiation is critical during embryonic development. The process of cell differentiation results in the production of many types of cells, including germ, somatic, and stem cells. Cell differentiation is most directly regulated by –
 - a. ATP
 - b. DNA
 - c. Lipids
 - d. sugars



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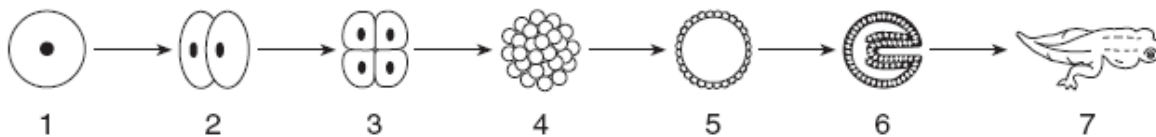
STATION 2

5. The human heart and lungs contain cells that . . .
 - a. produce a hormone involved in respiration
 - b. have the same genetic information but perform different specialized functions
 - c. use one part of the genetic code to synthesize all enzymes needed by the cell
 - d. contain different numbers of DNA molecules

6. Compared to a skin cell, a muscle cell is likely to have more —
 - a. Golgi bodies
 - b. mitochondria
 - c. cell membranes
 - d. chloroplast

7. A cell with numerous ribosomes is probably specialized for —
 - a. enzyme storage
 - b. energy production
 - c. cell division
 - d. protein synthesis

Some stages in the development of an organism are represented in the diagram below.



8. Which levels of biological organization do stages 2 and 7 have in common?
 - a. cells and organs
 - b. tissues and organelles
 - c. cells and tissues
 - d. organelles and cells



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STATION 3

9. Which pair of structures best shows that plant cells have functions different from animal cells?
- Cytoplasm and mitochondria
 - Chloroplasts and cell walls
 - Nuclei and centrioles
 - Ribosomes and cell membranes
10. When an animal eats, food stays in the stomach for a period of time. When a unicellular organism, such as Paramecium, takes in food, the food is contained in which organelle?
- Chloroplast
 - Mitochondrion
 - Nucleus
 - Vacuole
11. The main difference between prokaryotic and eukaryotic cells is that —
- prokaryotic cells are always much larger
 - prokaryotic cells do not have a plasma (cell) membrane
 - eukaryotic cells have a smaller cell nucleus
 - eukaryotic cells have a more advanced cellular organization
12. Which structures are listed in order from the least complex to the most complex?
- plant cell, leaf, chloroplast, rose bush
 - chloroplast, plant cell, leaf, rose bush
 - chloroplast, leaf, plant cell, rose bush
 - rose bush, leaf, plant cell, chloroplast



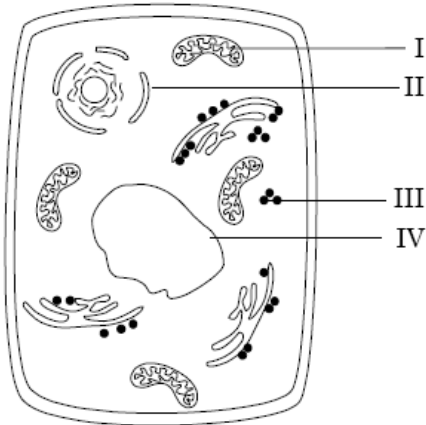
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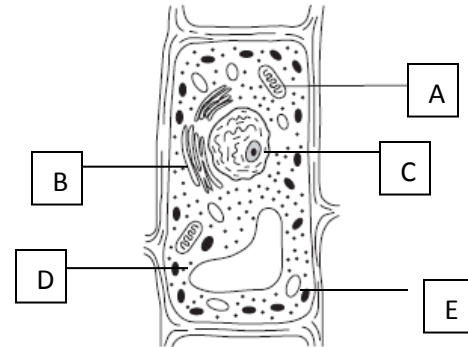
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STATION 4

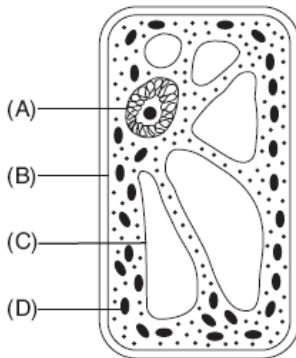
13. Protein synthesis occurs at which of the structures shown below? Write the correct Roman numeral as your answer.



15. In the cell shown below, which lettered structure is responsible for the excretion of most cellular wastes? Write the correct letter as your answer

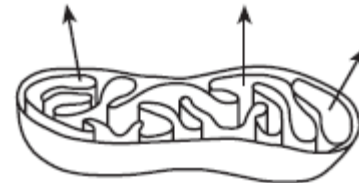


The diagram below represents a plant cell.



14. Which process takes place in structure D?
- cellular respiration
 - heterotrophic nutrition
 - digestion of fats
 - photosynthesis

The diagram below represents a cell organelle involved in the transfer of energy from organic compounds.



16. The arrows in the diagram could represent the release of
- ATP from a chloroplast carrying out photosynthesis
 - oxygen from a mitochondrion carrying out photosynthesis
 - glucose from a chloroplast carrying out respiration
 - carbon dioxide from a mitochondrion carrying out respiration



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STATION 5

17. In the human body, the circulatory system transports and delivers substances. Within the cell, which organelle performs a similar function?
- Nucleus
 - Golgi apparatus
 - Mitochondrion
 - Endoplasmic reticulum

18. Which of these statements is supported by the data shown in the table to the right?
- Most kingdoms are made up of prokaryotic cells.
 - All cells have nuclei for control of cell functions.
 - Eukaryotic cells vary in covering and in food production.
 - Each of the kingdoms has different organelles for metabolism.

Cell Organelles and Functions

Kingdom	Metabolism	Control	Covering	Food Production
Fungi	mitochondria	nucleus	cell wall	none
Animalia	mitochondria	nucleus	cell membrane	none
Plantae	mitochondria	nucleus	cell wall	chloroplasts
Protista	mitochondria	nucleus	cell membrane	some with chloroplasts
Monera	ribosomes	DNA strand	cell wall	none

19. Which of these statements best summarizes the cell theory?
- Cells contain a nucleus and other parts.
 - Cells come in different shapes and sizes.
 - Cells can be seen through a microscope.
 - Cells are the building blocks of living things.
20. A bacterium will construct different proteins to metabolize the sugars lactose or glucose, depending on which one it detects in the outside environment. What part of the bacterium allows it to recognize different substances in the outside environment?
- Endoplasmic reticulum
 - Cell membrane
 - Nucleus
 - Lysosomes



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STATION 6

21. Which characteristic of prokaryotic organisms makes them different from eukaryotes?
- Prokaryotic cells do not have membrane-bound organelles.
 - Prokaryotes do not have chromosomes.
 - Prokaryotes are made of cells.
 - Prokaryotes have DNA.

Cell Structures and Functions

Structure	Function
1	Protein synthesis
2	Support
3	Control of cell functions
4	Storage of water, wastes, and food

22. Which is the name of structure 4?
- Nucleus
 - Ribosome
 - Vacuole
 - Cell wall
23. These words were written by Robert Hooke in 1665. The pores or cells that Hooke described were really —
- cell walls
 - nuclei
 - cell membranes
 - mitochondria
24. Cells are the functional units that make up tissues. Tissues then become the functional units that make up —
- enzymes
 - organs
 - other cells
 - DNA



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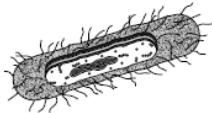
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STATION 7

25. Which of these is converted in both the mitochondria and the chloroplasts?
- DNA
 - energy
 - protein
 - nutrients
26. Tissue samples taken from the heart and stomach of a grasshopper would be expected to have the same —
- cell shape
 - cell size
 - metabolic rates
 - DNA
27. Some unicellular organisms are motile(have the ability to move) and some are nonmotile. Which cellular structures are associated with movement?
- Ribosomes
 - Flagella
 - Chloroplasts
 - Vacuoles
28. Which of these is the best model of a prokaryotic cell?

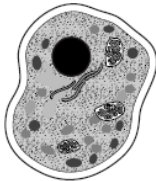
A



B



C



D

