

CBSE Test Paper 05
Chapter 06 Tissues

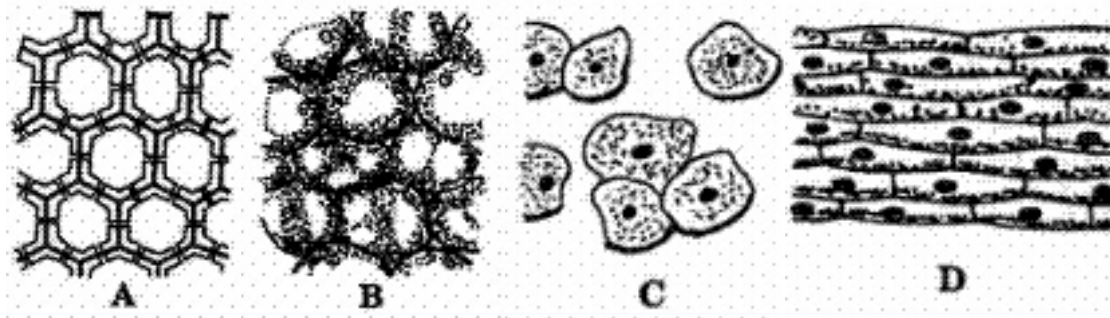
1. Which of these types of cells is most likely to divide? **(1)**
 - a. Meristem
 - b. Epidermis
 - c. Xylem
 - d. Parenchyma

2. If the tip of sugarcane plant is removed from the field, even then it keeps on growing in length. It is due to the presence of **(1)**
 - a. lateral meristem
 - b. intercalary meristem
 - c. cambium
 - d. apical meristem

3. Branched involuntary muscles fibres are found in **(1)**
 - a. ureters
 - b. limbs
 - c. heart
 - d. tongue

4. How many types of elements together make up the xylem tissue? **(1)**
 - a. Two
 - b. Three
 - c. One
 - d. Four

5. Identify the tissues in given diagrams and choose the correct sequence **(1)**



- a. A : Sclerenchyma, B : Parenchyma, C : Cheek cells, D : Onion Peel
- b. A : Sclerenchyma, B : Parenchyma, C : Onion peel, D : Cheek cells
- c. A : Parenchyma, B : Sclerenchyma, C : Cheek cells, D : Onion peel
- d. A : Parenchyma, B : Sclerenchyma, C : Onion peel, D : Cheek cells

6. What is the composition of the cartilage matrix? **(1)**
7. What stimulates the movement of muscles? **(1)**
8. What is meristematic tissue? **(1)**
9. Name the muscle, which gets fatigued very soon. **(1)**
10. Which chemical in cork cell makes them impervious to water and gases. **(1)**
11. Why are plants and animals made of different types of tissue? **(3)**
12. Write about the functions of: **(3)**
 - a. Epidermis
 - b. Cork
 - c. Stomata
13. The root tips of a plant were cut and the plant was replanted. What will happen to the plant and why? **(3)**
14. Describe the functions of epithelium tissue. **(3)**
15. Briefly describe striated and smooth muscles with their functions. **(5)**

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Answers

1. a. Meristem

Explanation: meristmatic tissue is of three types 1. apical meristem (responsible for vertical growth of root and shoot) 2. lateral meristem (responsible for the increase in girth of a stem and 3. intercalary meristem (responsible for the branching in a plant) .the three types of growth take place due to division in tissues.

2. b. intercalary meristem

Explanation: If the tip of sugarcane plant is removed the apical meristem is also removed as it is situated in the apices of growing roots and stem. Intercalary meristem are located at the base of leaves or nodes and leads to the increase in the length of an organ such as leaves and internodes.

3. c. heart

Explanation: Involuntary muscles are found in walls of hollow tubular organs like alimentary canal, ducts of glands, urogenital ducts and blood vessels except heart. They show slow contractions but remain contracted for a long period of time.

4. d. Four

Explanation: Xylem tissue consists of tracheids, vessels, xylem parenchyma and xylem fibres. The cells have thick walls, and many of them are dead cells. Tracheids and vessels are tubular structures. This allows them to transport water and minerals vertically. The parenchyma stores food and helps in the sideways conduction of water. Fibres are mainly supportive in function.

5. a. A : Sclerenchyma, B : Parenchyma, C : Cheek cells, D : Onion Peel

Explanation:

A. Sclerenchyma: Sclerenchyma cells are the permanent tissues present in the plants. They provide hardness and stiffness to the plant and are composed of dead cells.

B. Parenchyma: Parenchyma serves as a packing tissue in plants therefore they

do not have intercellular spaces.

C. Figure show Cheek cells.

D. Figure show Onion peel.

6. The collagenous matrix of cartilage is composed of proteins and sugars.
7. The nerve impulses stimulate the movement of muscles. Nerve impulses allow us to move our muscles when we want to. The functional combination of nerve and muscle tissue enables us to move rapidly in response to stimuli.
8. Meristematic tissue is capable of dividing and is found in the developing regions of the plant.
9. Skeletal muscle gets fatigued very soon.
10. Cells of cork have a chemical called suberin in their walls that makes them impervious to water and gases.
11. Plants and animals are two different types of organisms. Plants are autotrophic organisms. They prepare their own food by photosynthesis. Since plants are stationary or fixed organisms, they do not require as much energy as is required by animals. Most of the tissues in plants are therefore supportive in nature. Most of these tissues such as xylem, phloem, sclerenchyma and cork are dead tissues i.e., they do not contain living protoplasm. There are some tissues in plants which divide throughout life. They divide for the growth and reproduction of the plants. Animals on the other hand, are heterotrophic organisms (depend directly or indirectly on autotrophs for their nutrition) and use locomotion. They have to move in search of food, mate and shelter. They need more energy as compared to that required by plants. Most of the tissues in animals contain living protoplasm. In contrast to plants, growth in animals is uniform.
12. a. **Epidermis** - Epidermis is the outermost continuous layer of cells without intercellular spaces. Its main function is protection against water loss. In some plants like desert plants, epidermal cells secrete a waxy, water-resistant layer of cutin on the outer surface of the plants which reduces loss of water. It also aids against mechanical injury and invasion by parasitic fungi. Function of the

epidermal cells of the roots is water absorption from the soil.

- b. **Cork** – Cork or bark of the tree is protective in function. Cells of cork are dead and compactly arranged without intercellular spaces. They also have a chemical called suberin in their walls that makes them impervious to gases and water. It prevents desiccation, by preventing loss of water from the plant body. It also prevents infection and mechanical injury.

- c. **Stomata** - Stomata are small openings in the epidermis of the leaves of a plant. Stomata help in the exchange of gases (CO_2 and O_2) with the atmosphere.

Transpiration (loss of excess water in the form of water vapour) also takes place through the stomata.

- 13. The plant will die within a few days of re-plantation. Since the root tips of the plant have been cut, the roots will not grow because of the absence of meristematic tissue. When the roots of the plant do not grow, proper absorption of water and minerals will not occur.

- 14. Functions of the various epithelial tissues are as follows:

- i. Epithelial cells protect the underlying cells from drying, injury and chemical effects. They also protect the body from viral or bacterial infections. E.g. Skin epithelial cells which are arranged in many layers prevent wear and tear.
- ii. They help in the absorption of water, nutrients and gases. E.g. Inner lining of the small intestine, lung alveoli, blood vessels, etc.
- iii. Columnar epithelium facilitates movement across the epithelial barrier.
- iv. Cuboidal epithelium provides mechanical support to the kidney tubules and ducts of the salivary glands.
- v. Glandular epithelium secretes useful chemicals like sweat, saliva, enzymes from the food, etc. in the body.

- 15. The cells of striated muscle fibres are long or elongated, non-tapering and cylindrical and unbranched. These cells have a number of nuclei. These muscle fibres show alternate dark and light bands or striations (under the microscope) and hence, they are called striated muscles. Striated muscles occur in muscles of limbs, body wall, face, neck, etc.

Functions of striated muscles are as follows:

- i. Striated muscles are powerful and undergo rapid contraction. They are also called skeletal muscles.
- ii. Striated muscles provide the force for locomotion and all other voluntary movements of the body. Hence, they are also called voluntary muscles.

On the other hand, some muscles do not bear any bands, stripes or striations across them (under the microscope) and hence, they are called smooth or unstriated muscles. The cells of these muscle fibres are uninucleate. Smooth muscles occur as bundles or sheets of elongated fusiform or spindle-shaped cells or fibre. They are held together by loose connective tissues. These muscles are found in the walls of internal organs such as the alimentary canal, stomach, intestine, ureters, bronchi, iris of the eye, ducts of glands and blood vessels.

Functions of unstriated or smooth muscles are as follows:

- i. Smooth muscles do not work according to our will, so they are also called involuntary muscles. Movement of food in the alimentary canal or the contraction and relaxation of blood vessels are involuntary movements.
- ii. Smooth muscles contract slowly but can remain contracted for a long period of time. The ingested food passes to the next step of digestion in the alimentary canal due to this characteristic.