

Time: 1 Hour 30 Minutes

Max. Marks: 40

Instructions:

1. The question paper has 4 sections and 17 questions. Answer all the questions.
2. Section A: 10 multiple choice questions of 1 mark each.
3. Section B: 3 questions of 2 marks each. Section C: 2 questions of 4 marks each (Q 15 has a choice).
4. Section D: 2 questions of 8 marks each, with internal choice.
5. Draw neat, labelled diagrams wherever necessary.

SECTION – A

10 × 1 = 10

Choose the correct answer and write its letter.

1. The nucleus of the cell was discovered by
A) Robert Hooke B) Robert Brown C) Schleiden D) Virchow
2. The cell theory was proposed by
A) Schleiden and Schwann
B) Hooke and Brown
C) Leeuwenhoek and Purkinje
D) Darwin and Mendel
3. The site of protein synthesis in a cell is
A) ribosome B) lysosome C) centrosome D) vacuole
4. The jelly-like substance inside the plasma membrane, around the nucleus, is
A) protoplasm B) cytoplasm C) nucleoplasm D) cell sap
5. When a living plant cell loses water by osmosis and its contents shrink away from the cell wall, it is called
A) plasmolysis B) diffusion C) imbibition D) endosmosis
6. Free-living cells in pond water were first discovered by
A) Leeuwenhoek B) Robert Hooke C) Purkinje D) Robert Brown
7. The husk of a coconut is made of
A) parenchyma B) collenchyma C) sclerenchyma D) chlorenchyma
8. Which of the following is the only dead element of phloem?
A) sieve tubes B) companion cells C) phloem parenchyma D) phloem fibres
9. The blood cells that help in the clotting of blood are
A) red blood cells B) white blood cells C) platelets D) plasma
10. Two bones are connected to each other by
A) tendon B) ligament C) cartilage D) adipose tissue

SECTION – B

3 × 2 = 6

11. Why is the plasma membrane called a selectively permeable membrane?
12. Why are lysosomes known as the 'suicide bags' of the cell?
13. Write any two differences between xylem and phloem.

SECTION – C**2 × 4 = 8**

14. Write any four differences between meristematic tissue and permanent tissue.

15. Draw a neat labelled diagram of any one of the following:

A) An animal cell

(OR)

B) The three types of muscle fibres (striated, smooth and cardiac)

SECTION – D**2 × 8 = 16**

Each question has an internal choice. Answer either (A) or (B).

16. A) What are diffusion and osmosis? Describe one activity to show osmosis, using an egg or raisins. What is the difference between endosmosis and exosmosis?

(OR)

B) Explain the structure and functions of mitochondria and plastids. Why are they called semi-autonomous organelles?

17. A) Compare striated, smooth and cardiac muscles with respect to their structure, location and function. Draw diagrams.

(OR)

B) Describe the different types of connective tissue — blood, bone, cartilage, areolar tissue and adipose tissue — and write the function of each.

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