

**General Instructions:-**

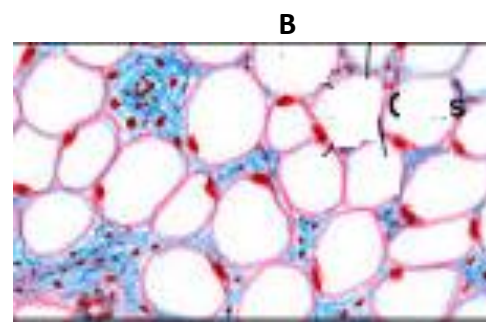
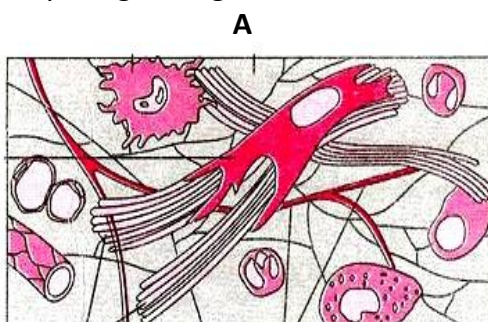
- This question paper consists of four sections **A, B, C & D**. Section **A** contains **5** questions of **1** mark each, section **B** is of **7** questions of **2** marks each, section **C** is of **12** questions of **3** marks each and section **D** is **3** questions of **5** marks each.
- All questions are compulsory.
- There is no overall choice. However, an internal choice is provided in one question of **2** marks, one question of **3** marks and all questions of **5** marks weightage. Attempt only **one** of the choices in such questions.
- Questions of section **A** are to be answered in one word or **one sentence** each, section **B** in approximately **20-30** words each, section **C** in **30-50** words each and section **D** in **80-120** words each.
- Wherever necessary, the diagrams drawn should be neat and properly labeled.

SECTION-A

1. Most fungi live as parasites and symbionts. Give two examples of fungi that can live as symbionts. 1
2. Name the modification found in (a) Mangrove trees and (b) Australian acacia. 1
3. The development of *Periplanata americana* is parametabolous. Justify. 1
4. State the contribution of Rudolf Virchow to the Cell theory. 1
5. Name the following: 1
 - a) The most abundant protein in the whole biosphere.
 - b) Store house of energy in animal tissues.

SECTION-B

6. Write one important feature that assigns the following organisms to its phylum.
 a) *Limulus* b) *Taenia* c) *Asterias* d) *Gorgonia*. 2
7. How does inflorescence in gulmohar differ from that of jasmine? 2
8. You are observing a permanent slide of a transverse section of a young plant stem. How would you ascertain that it is a dicot stem? (Any four points) 2
9. Study the given figures and answer the questions:



- a) Give a common term for the figures A and B shown above and identify them.
- b) Mention the role played by the fibers of structural protein. 2
10. In a plant the cell wall has a primary and secondary wall. Mention the role played by the middle lamellae and the plasmodesmata associated with the cell wall. 2

11. How does the position of the centromere form the basis of classification of chromosomes?
Support your answer with a diagram. 2

OR

Name two organelles that are said to be semiautonomous organelle. Justify.

12. Give one point difference between: 2
(a) Saturated fatty acid unsaturated fatty acid (b) Nucleotide and nucleoside.

SECTION-C

13. Plastids are found in all plant cells and in euglenoides. How are plastids classified based on the type of pigments? 3

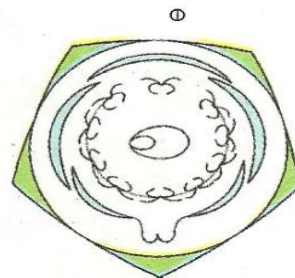
14. How does the ultrastructure of the flagella differ from that of centrosome? 3

15. Nucleic acids exhibit wide range of secondary structures. Explain the secondary structure exhibited by DNA. 3

16. The sequence of events by which the cell divides into two daughter cells is termed as cell cycle. Diagrammatically represent the cell cycle indicating the different stages. 3

17. Describe the arrangement of the floral members in relation to their insertion on thalamus. 3

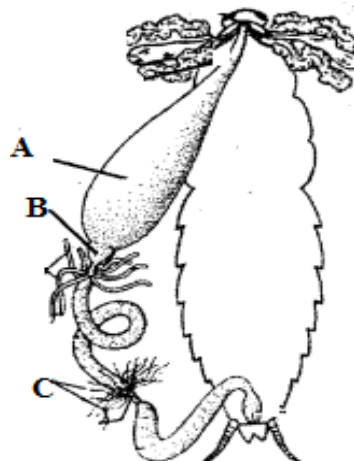
18. Given below is the floral diagram of *Pisum sativum* belonging to family Leguminosae. 3



- a) What was this family now known as?
- b) Comment on the aestivation.
- c) Describe the reproductive parts using technical terms.

19. Meiosis occurs during gametogenesis in plants and animals. Enumerate the key features of Meiosis and mention its significance. 3

20. Label the parts marked A, B and C in the given figure and mention its role in digestion. 3



21. Differentiate between the different types of simple tissues found in plants based on the cell wall composition and function. 3

OR

Muscles play an active role in all the movements of the body. How are muscular tissues classified based on their structure and function?

22. Draw a neat labeled diagram of a monocotyledonous seed. 3

23. Unlike bryophytes and pteridophytes, in gymnosperms the male and female gametophytes do not have an independent existence. Briefly, explain the alternation of generation in gymnosperms. 3

24. Both *Petromyzon* and *Exocoetus* are vertebrates found in marine and fresh water habitat. How would you differentiate between the two groups? (Any three points) 3

SECTION-D

25. Kingdom Fungi shows great diversity in morphology and habitat. Give a comparative account of the classes of Kingdom Fungi based on:
(a) Mycelium.
(b) Mode of reproduction and the nature of fruiting body. 5

OR

Give a comparative account of different characteristics of the five kingdoms based on the criteria proposed by R. H. Whittaker.

26. (a) How does periderm formation take place in the dicot stem?
(b) What are annual rings? Give its significance. 5

OR

Where do you find the following tissues in the animal body? Mention the role played by them.

- (a) Neuroglial cells, (b) Cuboidal epithelium, (c) Adipose tissue
(d) Tendons (e) Compound epithelium.

27. a) Which is the most accepted model of the plasma membrane and who proposed it?
Explain the ultrastructure of plasma membrane.
b) How is the quasi- fluid nature important? 5

OR

- a) Cell division is a progressive process. Explain the key events of the different stages of mitosis.
b) How does cytokinesis in plant cells differ from that of an animal cell?
