

2023

BIOLOGY

(Theory)

Full Marks : 70

Pass Marks : 21

Time: Three hours

All the questions are compulsory.

The figures in the right margin indicate full marks for the questions.

For Question Nos. 1 to 4 select the most appropriate one from the given alternatives A, B, C and D and rewrite the same.

1. Bioluminescence is well marked in – 1
 - A. Phylum Arthropoda
 - B. Phylum Platyhelminthes
 - C. Phylum Annelida
 - D. Phylum Ctenophora

2. Fimbriae are present in – 1
 - A. Protozoans
 - B. Bacteria
 - C. Plasmids
 - D. Viruses

P.T.O.

3. Which of the following is not a photosynthetic pigment ? 1
- A. Carotene
 - B. Xanthophyll
 - C. Phycobillins
 - D. Anthocyanin
4. Common bile duct is formed by the combination of – 1
- A. Cystic duct + right hepatic duct
 - B. Cystic duct + left hepatic duct
 - C. Common hepatic duct + cystic duct
 - D. Common hepatic duct + common bile duct

Question Nos. 5 to 14 are very short answer type questions carrying 1 mark each.

5. The common name of man is simpler than its technical name Homo sapiens. What is the advantage of technical name ? 1
6. Recall the floral formula of brinjal plant. 1
7. How is the age of tree calculated ? 1
8. "Presence of air bladder is a common feature of bony fishes". Justify in one point. 1
9. Name the cell organelle rich in acid hydrolases. 1
10. Define transpiration pull. 1

11. Why is anaerobic respiration also known as fermentation ? 1
12. "There is always a decrease in the rate of photosynthesis at high light intensities."
Comment. 1
13. What is double circulation of blood in man ? 1
14. Why is the digestion of starch stops in the stomach ? 1

Question Nos. 15 to 24 are short answer type II questions carrying 2 marks each.

15. List two salient features of monocotyledonous plants. 2
16. What is metamerism? Give an example of an animal having this structure. 2
17. Why are neurons called excitable cells? 2
18. "Cockroaches are omnivores and nocturnal". Justify. 2
19. Differentiate between essential and non-essential amino acids by giving two points. 2
20. Enumerate the role of phosphorus and potassium in plants. 2
21. Why are C4 plants more efficient than C3 plants? Give two points. 2
22. Distinguish between photoperiodism and vernalisation by giving two points. 2
23. Explain the mechanism of hearing in human. 2
24. Why is closed circulatory system more efficient than the open system? 2

Question Nos. 25 to 31 are short answer type I questions carrying 3 marks each.

25. Why is *Ornithorhynchus* considered as an unfinished mammal? Give three points. 3
26. Stratified epithelial cells in our skin have many roles. Justify. 3
27. Differentiate between cytokinesis in plants and animals by giving three points. 3

28. Interphase or resting stage of cell is considered to be the most active phase of cell. Analyse. 3
29. "The role of ethylene is both positive and negative". Comment by giving suitable reasons. 3
30. Terrestrial animals are generally uricotelic or uricotelic but not ammonotelic. Explain. 3
31. Draw a neat diagram of the structure of a neuron and label the cyton and myelin sheath. 3

Question Nos. 32 to 34 are Essay type questions carrying 5 marks each.

32. Differentiate between mitosis and meiosis by giving five points. 5

OR

Distinguish between prokaryotic and Eukaryotic cells by giving five points. 5

33. Explain the events of cyclic photophosphorylation in leaves. Why this process called cyclic? 5

OR

The respiratory pathway is amphibolic. Explain. 5

34. "Catecholamines are commonly called as emergency hormones." Justify. 5

OR

"Hypothalamus is a super master endocrine gland". Analyse. 5