1. What features characterise chordates? Which are the hypotheses on the origin of chordates from non-chordates? (5 Marks)

2. Explain accessory respiratory organs in percomorph (perciform) and siluriform fishes distributed in India. (5 Marks)

3. Explain the needs of wildlife conservation (any five points). (5 Marks)

4. Name four organizations involved in wildlife conservation and explain their roles. (5 Marks)

5. What is in situ conservation of wildlife? Explain three types with one example of each. (5 Marks)

6. Describe five major threats to wildlife. (5 Marks)

7. Write the full forms of KFRI, KSBB, IIFM, SACON and explain their roles in wildlife conservation. (5 Marks)

8. Explain the importance of conserving Wildlife (any five points). (5 Marks)

9. Discuss five methods of chemical communication used by animals. (5 Marks)

10. What are protected areas? Describe three types of protected areas, providing one example of each. (5 Marks)

11. How can the spread of diseases among wild animals be controlled? (5 Marks)

12. Briefly describe five factors that contribute to a species becoming endangered. (5 Marks)

13. Differentiate between Substrate-level phosphorylation and Oxidative phosphorylation with suitable examples. (5 Marks)

14. Classify enzymes based on type of chemical reactions they catalyze citing proper examples. (5 Marks)

15. Explain Hardy-Weinberg equilibrium with suitable examples and comment on its significance. (5 Marks)

16. Give an account on Operant conditioning and explain how it differ from classical conditioning. (5 Marks)

17. Light is the most powerful zeitgeber. Justify the statement. (5 Marks)

18. Explain the role of hormones in the functions of stomach and intestine. (5 Marks)

19. Describe the endocrine function of mammalian Kidney. (5 Marks)

20. Discuss the role of various factors in oxygen dissociation curve. (5 Marks)

21. Explain how the structure of internal ear helping in hearing of sound. (5 Marks)

22. Describe how the structure of a cardiac muscle helping heart function. (5 Marks)

23. Describe monoclonal antibody production using hybridoma technology and list its clinical applications. (5 Marks)

24. Explain structure, types and functions of immunoglobulins. (5 Marks)

25. Explain stem cell concept and types of stem cells. (5 Marks)

26. Explain cleavage and blastula formation during early embryonic development. (5 Marks)

27. Differentiate structural and numerical chromosomal aberrations, with brief note on different types. (5 Marks)

28. How do pattern of baldness and milk production in humans related to sex difference? (5 Marks)

29. Differentiate the steps involved in Southern and Western Blotting techniques. Mention the etymology. (5 Marks)

30. How do CRISPR-Cas9 technology revolutionised gene editing? (5 Marks)

31. Differentiate between characteristics of r- and K- selected species with suitable examples. (5 Marks)

32. Give an account on ecotypes. (5 Marks)

33. Explain how green audit promote sustainable development. (5 Marks)

34. Write a short note on man-made disasters. (5 Marks)

35. Analyzing Kerala flood 2018, explain the need of robust disaster management in the state. (5 Marks)

36. Outline the phases of the cell cycle and explain how cell-cycle checkpoints ensure proper cell division. (5 Marks)

37. Describe the structural organization of chromatin and distinguish between euchromatin and heterochromatin. (5 Marks)

38. Explain the mechanism of the MAPK (Mitogen-Activated Protein Kinase) signalling pathway and highlight its biological significance. (5 Marks)

39. Explain the structure of a typical DNA molecule. Mention any two alternative forms of DNA and their significance. (5 Marks)

40. Describe the mechanism of translation in prokaryotes. In what ways does it differ from translation in eukaryotic cells? (5 Marks)