I. Answer any ten of the following each in a paragraph. Each Question carries 2 marks (10 x 2=20 marks)
1. What is Ionization radiation?
2. Give the uses of Electrophoresis
3. Mention the scope of Nuclear Medicine
4. Define the phenomenon of Fluorescence
5. What are Nanosensors? List its uses
6. What is MRI?
7. What is principle behind AAS?
8. Explain Single neuron recording and Patch clamping
9. Comment on PET
10. What is meant by Free Energy?
11. Write a few sentences on e-mail
12. What are the advantages of Radio waves?
13. What are the prospects of Artificial Intelligence?
14. Explain ROM & RAM
15. Write a very brief note on I.P/O.P. Devices

II. Answer any six of the following each not exceeding a page Each Question carries 4 marks (6 x 4=24 marks)
16. What are radioisotopes? Comment on their uses
17. Elaborate on different Electrophoresis methods
18. Briefly describe about Ultracentrifugation and its application
19. Differentiate between freeze fracture and freeze etching techniques
20. Briefly describe the laser scanning confocal microscopy and its advantages
21. Write a note on the density gradient centrifugation
22. “Life as an auto catalytic system” – Explain
23. Discuss the laws of thermodynamics
24. Prepare a short note on the application of X-rays in biological studies
25. Explain programming language C++

III. Write short essay not exceeding two pages on any three of the following. Each question carries seven marks. (3x7=21 Marks)
26. Explain number system with example
27. Give an account on computer programme
28. Discuss the principle and working of high speed and ultra-centrifuges. Mention their applications
29. Write a short essay on principles of NMR and EMR spectroscopy and their application in biological science
30. Elaborate on Detection & measurement of radiation

IV. Answer any one of the following not exceeding four pages. The question carries ten marks. (1x10=10 Marks)
31. Describe cellular and molecular effects of ionizing radiation
32. Write an essay on the principle and functioning of TEM and SEM and comment on their applications