

QP CODE: 24044701



24044701

Reg No : .....

Name : .....

**M.Sc DEGREE (CSS) EXAMINATION, OCTOBER 2024**

**Third Semester**

**M.Sc ZOOLOGY**

**CORE - ZL010303 - BIOPHYSICS, INSTRUMENTATION AND BIOLOGICAL  
TECHNIQUES**

2019 ADMISSION ONWARDS

6291F69A

Time: 3 Hours

Weightage: 30

**Part A (Short Answer Questions)**

Answer any **eight** questions.

Weight **1** each.

1. What is mean by Osmotic Concentration?
2. Compare the phenomena of photoelectric effect and ion pair production.
3. Give the names and uses of four radioisotopes used in medicine.
4. Mention the different parts of a Transmission electron microscope and their functions.
5. What is microphotography?
6. Comment on Relative centrifugal force.
7. Mention the function of isoelectric focusing.
8. Comment on various applications of Raman spectroscopy.
9. Write the principle of NMR spectroscopy.
10. What are multifunctional materials?

(8×1=8 weightage)

**Part B (Short Essay/Problems)**

Answer any **six** questions.

Weight **2** each.

11. Explain the kinetics of diffusion.
- 12.- Briefly explain the working of Fluorescence microscope.





13. Explain the importance of specimen preparation in electron microscopes. Describe any two methods.
14. Write down the basic principle behind Chromatography.
15. Discuss about the working of HPLC and FPLC.
16. Explain the Instrumentation of UV visible spectroscopy with help of diagram.
17. Comment on Tandem MS instrumentation.
18. Describe the types and mechanisms involved in working of scintillation counters.

(6×2=12 weightage)

### Part C (Essay Type Questions)

Answer any **two** questions.

Weight **5** each.

19. Write an account on Electron transport chain complexes and events in oxidative phosphorylation.
20. Explain in detail the histochemistry of macromolecules.
21. Explain the principle, working and applications of capillary gel electrophoresis.
22. Write an essay on principle, instrumentation and applications of Flame emission and Atomic absorption Spectroscopy.

(2×5=10 weightage)

