25047321

QP CODE: 25047321

Reg No : .....

Name : .....

M.Sc DEGREE (CSS) EXAMINATION, NOVEMBER 2025

Third Semester

M Sc ZOOLOGY

Core Course - ZL010303 - BIOPHYSICS,INSTRUMENTATION AND BIOLOGICAL TECHNIQUES

2019 ADMISSION ONWARDS

745CCFED

Time: 3 Hours Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

*Weight **1** each.*

1. Write on the biological significance of osmosis in animals.
2. What is Redox Couple?
3. Explain how ionization and excitation can cause damages in biomolecules.
4. What is the principle of electron microscope?
5. Give a brief note on freeze etching.
6. Comment on Gel permeation chromatography.
7. Mention the significance of high voltage electrophoresis.
8. What are the various applications of Flame emission spectroscopy?
9. Comment on MALDI-TOF.
10. What are biochips?

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

*Weight **2** each.*

11. Describe the different internally administered radioisotopes and their uses.
12. Briefly explain the working of Fluorescence microscope.

13. Give a brief note on whole mounts and smears.

14. Discuss about Differential Centrifugation.

15. Discuss about the working and applications of affinity chromatography.

16. Comment on the principle and Instrumentation of FTIR.

17. Comment on the Instrumentation of ESR spectroscopy.

18. Briefly write on autoradiography? Mention its applications.

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

*Weight **5** each.*

19. Explain chemiosmotic theory and binding change mechanism of ATP synthesis.

20. Describe the various techniques in histology.

21. Explain the principle, working and applications of capillary gel electrophoresis.

22. Explain the principle, instrumentation and uses of spectrophotometry with a neat labelled diagram. Add a note on Beer Lambert's law.

(2×5=10 weightage)