

Reg. No .....

Name .....

24P1060

**M.Sc. DEGREE END SEMESTER EXAMINATION - NOVEMBER 2024**

**SEMESTER 1 : ENVIRONMENTAL SCIENCE**

**COURSE : 24P1EVST04 : TECHNIQUES IN RESEARCH**

*(For Regular - 2024 Admission)*

Duration : Three Hours

Max. Weights: 30

**PART A**

**Answer any 8 questions**

**Weight: 1**

1. Comment on Quantum Tunneling (U)
2. Comment on density gradient centrifugation. (U)
3. What is indirect ELISA? (U)
4. Briefly explain different types of pH meters. (R)
5. What are mordants? (R)
6. What do you mean by the processing of gel after electrophoresis? (R)
7. Explain the potential applications of Nano medicine. (U)
8. Why is it called gel permeation chromatography? (U)
9. Enumerate the methods for radio activity detection used in biological studies. (U)
10. State Beer Lambert's Law. (U)

**(1 x 8 = 8)**

**PART B**

**Answer any 6 questions**

**Weights: 2**

11. Explain the working principle of PAGE. (U)
12. Explain differential centrifugation. (U)
13. What are the advantages of using electrons in electron microscopes? (U)
14. Elaborate the procedure of specimen preparation for TEM. (U)
15. Distinguish between atomic absorption spectroscopy and flame emission spectroscopy. (An)
16. What are the applications of microphotography? (U)
17. Explain the principles and applications of RIA. (U)
18. Explain the principle and applications of GC. (U)

**(2 x 6 = 12)**

**PART C**

**Answer any 2 questions**

**Weights: 5**

19. How do you prepare permanent and temporary whole mounts of microscopic organisms? (A)
20. Differentiate between PAGE and agarose gel electrophoresis in detail. (An)
21. Explain the principle and working of phase contrast and differential interference contrast microscope. (R)
22. Give an account on the principle, working and applications of HPLC. (U, CO 2, CO 3)

**(5 x 2 = 10)**

OBE: Questions to Course Outcome Mapping

CO	Course Outcome Description	CL	Questions	Total Wt.
CO 2	Interpret the working and use of the laboratory equipment	U	19	5
CO 3	Demonstrate the theory and principle of laboratory equipment	U	19	5

Cognitive Level (CL): Cr - CREATE; E - EVALUATE; An - ANALYZE; A - APPLY; U - UNDERSTAND; R - REMEMBER;