

M. Sc. DEGREE END SEMESTER EXAMINATION - NOVEMBER 2025**SEMESTER 1 : AQUACULTURE AND FISH PROCESSING****COURSE : 24P1AQCT02: BIOPHYSICS, INSTRUMENTATION, MICRO TECHNIQUES AND RESEARCH
METHODOLOGY***(For Regular - 2025 Admission and Improvement/Supplementary 2024 Admission)*

Time : Three Hours

Max. Weights: 30

PART A**Answer any 8 questions****Weight: 1**

1. Define Graham's Law. (R, CO 2)
2. What is secondary data collection in research? (U, CO 5)
3. Principle of Mass Spectrometry (R, CO 3)
4. Structure of cell membrane (U, CO 3)
5. Principle of isoelectric focussing (A, CO 2)
6. What is a technical report? (R, CO 5)
7. Eluent and detection methods. (U, CO 2)
8. What is conclusion oriented research? (A, CO 5)
9. Stains used for proteins. (An, CO 3)
10. What is the primary purpose of fluorescence in fluorescence microscopy ()

(1 x 8 = 8)**PART B****Answer any 6 questions****Weights: 2**

11. What is case study method? Explain the characteristics of case study method. (An, CO 5)
12. What are the different types of reports. (An, CO 5)
13. Explain the principle and applications of paper chromatography. (U, CO 2)
14. Describe the UV-visible and visible spectrophotometers with emphasis on the parts of the instrument. (An, CO 2, CO 3)
15. What is research? Explain the characteristics of research? (R, CO 5)
16. Describe the process of preparing a whole mount. (An, CO 2, CO 3)
17. Outline the procedure for SDS-PAGE. (A, CO 2)
18. Compare electron microscope with optical microscope (An, CO 1, CO 2, CO 3)

(2 x 6 = 12)**PART C****Answer any 2 questions****Weights: 5**

19. Discuss a suitable electrophoretic technique for the separation of DNA molecules in a biological sample (A, CO 2)
20. Explain the role of HPLC in protein analysis, including its principles, types of column, detection methods and application. ()
21. Describe the principles of phase contrast microscopy, its components and its applications in observing live, unstained cells. ()

22. Explain data collection and analytical techniques in a research.

(Cr)

(5 x 2 = 10)

OBE: Questions to Course Outcome Mapping

CO	Course Outcome Description	CL	Questions	Total Wt.
CO 1	Understand the principles and operation of octoelectric equipment's in biological research	U	17	2
CO 2	Create information on biophysics and instrumentation as applied to aquaculture	A	1, 5, 7, 12, 13, 15, 16, 17, 18	18
CO 3	Evaluate detailed anatomic studies with the help of micro techniques	E	3, 4, 9, 13, 15, 17	9
CO 5	Understand introduction to research methods as a prelude to research work at higher level.	U	2, 6, 8, 10, 11, 14	9

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