Reg. No ..... Name **22P1025**

M. Sc. DEGREE END SEMESTER EXAMINATION : OCTOBER 2022

SEMESTER 1 : AQUACULTURE AND FISH PROCESSING

COURSE : **21P1AQCT02: BIOPHYSICS, INSTRUMENTATION, MICRO TECHNIQUES AND RESEARCH METHODOLOGY**

(For Regular - 2022 Admission and Supplementary - 2021 Admission)

Duration : Three Hours Max. Weights: 30

PART A

Answer any 8 questions **Weight: 1**

1.	Role of urea in elasmobranchs	(U, CO 4)
2.	Why do lipophilic compounds easily pass through plasma membrane?	(An, CO 4)
3.	Photodiode.	(U, CO 1)
4.	Applications of Affinity chromatography.	(A, CO 1, CO 2)
5.	Capillary electrophoresis.	(A, CO 2)
6.	Cryostat	(An, CO 3)
7.	What is pure research?	(An, CO 5)
8.	What is primary data collection in research?	(U, CO 5)
9.	What are the characteristics of a good research report?	(An, CO 5)
10.	What are the characteristics of popular report?	(An, CO 5)

(1 x 8 = 8)

PART B

Answer any 6 questions **Weights: 2**

11.	What is Gibbs – Donnan membrane equilibrium . Explain its significance ?	(U, CO 1)
12.	Distinguish between passive transport and active transport.	(E, CO 4)
13.	Explain the applications of spectrophotometers.	(An, CO 1, CO 2)
14.	Explain the principle and applications of paper chromatography.	(U, CO 2)
15.	Outline the procedure for SDS-PAGE.	(A, CO 2)
16.	Explain how ultrastructures are studied using electron microscopy.	(An, CO 1, CO 2, CO 3)
17.	Describe the process of preparing a whole mount.	(An, CO 2, CO 3)
18.	What are the objectives of research?	(A, CO 5)

(2 x 6 = 12)

PART C

Answer any 2 questions **Weights: 5**

19.	Explain the working and application of an Atomic Absorption spectrophotometer.	(A, CO 2)
20.	Explain the principle and applications of Affinity chromatography.	(R, CO 1, CO 2)
21.	Explain separation of proteins using a suitable electrophoretic technique in a biological sample	(E, CO 1, CO 2)
22.	Explain the processing of tissues for electron microscopy studies.	(Cr, CO 3)

(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	3, 4, 11, 13, 16, 20, 21	18
CO 2	Create information on biophysics and instrumentation as applied to aquaculture	A	4, 5, 13, 14, 15, 16, 17, 19, 20, 21	27
CO 3	Evaluate detailed anatomic studies with the help of micro techniques	E	6, 16, 17, 22	10
CO 4	Understand the basic principles of physiology as applied to aquaculture systems	U	1, 2, 12	4
CO 5	Understand introduction to research methods as a prelude to research work at higher level.	U	7, 8, 9, 10, 18	6

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