

Reg. No .....

Name .....

24P2024

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

**SEMESTER 2 - AQUACULTURE AND FISH PROCESSING**

**COURSE : 21P2AQCT06 - BIOCHEMISTRY AND NUTRITION OF FIN FISH AND SHELL FISH**

*(For Regular - 2023 Admission and Improvement/Supplementary 2022/2021 Admissions)*

Duration : Three Hours

Max. Weights: 30

**PART A**

**Answer any 8 questions**

**Weight: 1**

1. What is Carboxymethyl cellulose? Explain. (A, CO 5)
2. Explain Nitrogen fixation. (U, CO 2, CO 3)
3. Differentiate between anions and cations. (U, CO 1)
4. What is hyper vitaminosis? (A, CO 2)
5. What is protein sparing action? (An, CO 3)
6. Explain Semi-conservative method of DNA replication. (A, CO 1)
7. What is allosteric inhibition? (U, CO 1)
8. How NPR is calculated? (U, CO 5)
9. List out the advantages of feed binders. (E, CO 2)
10. Differentiate between essential and non essential fatty acids. (An, CO 1, CO 5)  
**(1 x 8 = 8)**

**PART B**

**Answer any 6 questions**

**Weights: 2**

11. Role of minerals in fish health. (An, CO 3, CO 8)
12. Why carbohydrates are necessary in shrimp diet? (An, CO 3)
13. Give an account on Miquel's media? (A, CO 4, CO 6)
14. Differentiate between saturated and unsaturated fatty acids. (E, CO 1, CO 3)
15. Briefly describe essential amino acids. (R, CO 1, CO 5)
16. What is Chitin? Explain its structure, function and sources . (An, CO 1)
17. Describe types of enzyme inhibition. (A, CO 1)
18. Describe the process of DNA replication. (R, CO 1)  
**(2 x 6 = 12)**

**PART C**

**Answer any 2 questions**

**Weights: 5**

19. Give an account on the classification of lipids and its role in aquaculture. (A, CO 1, CO 3)
20. Discuss the various factors that influence enzyme activity. (U, CO 1)
21. Briefly describe the common feed ingredients used as protein supplement in shrimp feeds. (U, CO 4, CO 5)
22. Detail the methods for studying feed digestibility. (E, CO 7)  
**(5 x 2 = 10)**

OBE: Questions to Course Outcome Mapping

CO	Course Outcome Description	CL	Questions	Total Wt.
CO 1	CO 1 Understand the basic principles of biochemistry as applied to aquaculture organisms in relation with environmental factors	U	3, 6, 7, 10, 14, 15, 16, 17, 18, 19, 20	24
CO 2	Understand the application of different additives in aquaculture feeds	U	2, 4, 9	3
CO 3	Describe the nutritional bioenergetics in fin fish and shell fish	U	2, 5, 11, 12, 14, 19	13
CO 4	Understand the classification of feed stuff and anti-nutritional factors present in its	U	13, 21	7
CO 5	Evaluation of quality of feed ingredients and finished feed	E	1, 8, 10, 15, 21	10
CO 6	Analyse the feed formulation strategies and methods	An	13	2
CO 7	Understand the management of feeding in aquaculture arms and hatcheries	U	22	5
CO 8	Understand the nutritional requirements of finfishes and shell fishes under culture condition	U	11	2

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