

**M. Sc. DEGREE END SEMESTER EXAMINATION - MARCH 2024**  
**SEMESTER 4 - AQUACULTURE AND FISH PROCESSING**  
**COURSE : 21P4AQCT14 - FISH MICROBIOLOGY AND QUALITY ASSURANCE**  
*(For Regular - 2022 Admission and Supplementary - 2021 Admission)*

Duration : Three Hours

Max. Weights: 30

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

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|-----|--|---------------------------------|
| 1.  | Comment on TMA formation in fish and its control.                          | (A, CO 4, CO 5)                 |
| 2.  | Inprocess quality control.   | (E, CO 1)                       |
| 3.  | Explain the term Flipper.  | (U, CO 6)                       |
| 4.  | Write the name of two gram negative and gram positive pathogenic bacteria. | (An, CO 3)                      |
| 5.  | BIS  | (An)                            |
| 6.  | Impotance of foot dip in processing plant.                                 | (A, CO 2)                       |
| 7.  | What is nisin?   | (An, CO 5, CO 6)                |
| 8.  | What is total residual chlorine?   | (A, CO 6, CO 7)                 |
| 9.  | What is meant by chlorin demand and residual chlorin?                      | (An, CO 6)                      |
| 10. | Give two examples of pathogenic strains of <i>E.coli</i> .                 | (A, CO 3)<br><b>(1 x 8 = 8)</b> |

**PART B****Answer any 6 questions****Weights: 2**

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|-----|---|----------------------------------|
| 11. | Disinfection methods used for treating waste water from processing plant. | (E, CO 5, CO 6, CO 7)            |
| 12. | Explain the growth curve of bacteria.                                     | (E, CO 1)                        |
| 13. | What is cross contamination? How it can be prevented?                     | (A, CO 5)                        |
| 14. | Elaborate on food intoxications.  | (A, CO 5)                        |
| 15. | Explain the microbial method to assess the quality of fish.               | (E, CO 4)                        |
| 16. | Sensory evaluation for prawn.   | (A, CO 4)                        |
| 17. | What is meant by food born infection? Give two examples.                  | (A, CO 5)                        |
| 18. | Classify hazards in seafoods. Give examples for each.                     | (A, CO 2)<br><b>(2 x 6 = 12)</b> |

**PART C****Answer any 2 questions****Weights: 5**

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|-----|--|-----------------------------|
| 19. | Describe the methods of isolation and identification of Salmonella in seafood. | (A, CO 3)                   |
| 20. | Write an essay on HACCP.   | (E, CO 7)                   |
| 21. | Write an essay on heavy metals associated with fish and its adverse affects.   | (An, CO 3)                  |
| 22. | Give an account on "seafood pathogens".  | (Cr)<br><b>(5 x 2 = 10)</b> |

OBE: Questions to Course Outcome Mapping

CO	Course Outcome Description	CL	Questions	Total Wt.
CO 1	Understand the trace metals in fins fish and shell fish	U	2, 12	3
CO 2	Understand the general aspects of seafood quality and quality problems	An	6, 18	3
CO 3	Understand the biological hazards in seafoods	U	4, 10, 19, 21	12
CO 4	Analyse the fish spoilage and quality assessments	An	1, 15, 16	5
CO 5	Understand the Good manufacturing practices in seafood processing	R	1, 7, 11, 13, 14, 17	10
CO 6	Understand the Hazard analysis and critical control points in seafood industry	A	3, 7, 8, 9, 11	6
CO 7	Understand the National and international standards for fish and fish products	R	8, 11, 20	8

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