

**M. Sc. DEGREE END SEMESTER EXAMINATION : NOVEMBER 2023****SEMESTER 1 : AQUACULTURE AND FISH PROCESSING****COURSE : 21P1AQCT03 : BIOSTATISTICS AND COMPUTER APPLICATION***(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. Explain the conditions of using secondary data. (U, CO 1, CO 2)
2. Explain the term Software Packages (A, CO 4, CO 5)
3. Distinguish between sampling study and census study (U, CO 1, CO 2, CO 6)
4. Explain Global Positioning System (U, CO 3, CO 4, CO 5)
5. Define correlation. How it is measured? (An, CO 1, CO 2)
6. What is mouse? (U, CO 4, CO 5)
7. Write short note on two storage devices used in computers (U, CO 4, CO 5)
8. When do you say two variables are correlated? Explain how will you measure the correlation between two variables (E, CO 1, CO 2)
9. Explain axiomatic approach to probability (E, CO 1, CO 2)
10. Define fraction defective charts (U, CO 1, CO 2, CO 3)  
**(1 x 8 = 8)**

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

11. Write an account of measures of dispersion (U, CO 1, CO 2)
12. Distinguish between MS Office and MS-Excel and explain the application of each in statistical computation (U, CO 4, CO 5)
13. Calculate the standard deviation and coefficient of variation for the following data on a length of 100 fishes (An, CO 1, CO 2)

Class length in cm	5-15	15-25	25-35	35-45	45-55
Frequency	9	21	40	22	8

14. Twenty, half liter water filled bottles are taken at random for dissolved oxygen determination. The number of air bubbles (defects) from the bottles is given in the table. Draw a control chart for this data

Bottle no	1	2	3	4	5	6	7	8	9	10
Defects (c)	4	5	7	3	3	5	6	2	4	8
Bottle no	11	12	13	14	15	16	17	18	19	20
Defects (c)	3	5	4	3	4	5	3	7	6	6

15. Define t-test and its applications (U, CO 1, CO 2)
16. Find Karl Pearson's coefficient of correlation for the following data (An, CO 1, CO 2)

X	15	17	10	18	8	7	13	11
Y	5	9	13	9	15	16	10	17

17. What do you mean by memory in a computer? Explain three types of memory (A, CO 4, CO 5)  
 18. Define addition and multiplication theorems in probability (U, CO 1, CO 2)  
**(2 x 6 = 12)**

**PART C**  
**Answer any 2 questions**

**Weights: 5**

19. Explain different types of sampling methods used in statistics (U, CO 1, CO 2, CO 6)  
 20. Explain commonly used storage devices in computer (U, CO 4, CO 5)  
 21. What do you mean by protocol? Explain the different types of internet protocols (U, CO 4, CO 5)  
 22. Following data given the measurements of serum cholesterol (Y) and arterial calcium deposition (X) made on 10 animals  
 (a). Calculate regression equation on Y on X  
 (b). Regression equation of X on Y  
 (c). Hence find out the regression coefficient

Calcium	Cholesterol
59	296
52	301
57	290
25	234
40	266
36	266
32	233
59	285
65	292
24	238

(An, CO 1, CO 2)

**(5 x 2 = 10)**

**OBE: Questions to Course Outcome Mapping**

CO	Course Outcome Description	CL	Questions	Total Wt.
CO 1	Application of statistical tools for experimental practices	An	1, 3, 5, 8, 9, 10, 11, 13, 14, 15, 16, 18, 19, 22	28
CO 2	Basic awareness on statistical tools in research and analysis of biological phenomenon	An	1, 3, 5, 8, 9, 10, 11, 13, 14, 15, 16, 18, 19, 22	28
CO 3	Computer knowledge are imparted as applicable to aquaculture practices	An	4, 10	2
CO 4	Computer knowledge at preliminary level for further studies	U	2, 4, 6, 7, 12, 17, 20, 21	18
CO 5	Appropriate use of internet and communication system	U	2, 4, 6, 7, 12, 17, 20, 21	18
CO 6	Sampling methods useful in estimation of marine fish landings	U	3, 19	6

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