



PG (CBCS)
M.Sc. Semester- IV Examination, 2023
FISHERIES SCIENCE
PAPER: FSC 402

**(FISHERIES STATISTICS AND RESEARCH METHODOLOGY & FISHERIES
 LEGISLATION, COMPUTER AND BIOINFORMATICS)**

Full Marks: 40

Time: 2 Hours

Write the answer for each unit in separate sheet

The figures in the right-hand margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

UNIT: 402.1

FISHERIES STATISTICS AND RESEARCH METHODOLOGY

F.M. - 20

GROUP-A

1. Answer any **TWO** of the following questions: 2×2=4
- Distinguish between continuous and discrete variables with examples.
 - What is the basic difference between student's t-test and paired t-test?
 - Cite a situation when the study of correlation between 2 variables has no practical significance.
 - What is hypothesis? Mention its importance.

GROUP-B

2. Answer any **TWO** from the following questions: 2×4=8
- Determine correlation coefficient between 'x' and 'y' from the following data and state whether the data indicate that 'x' and 'y' are independent of each other.

x_i	-3	-2	-1	1	2	3
y_i	9	4	1	1	4	9

- Some students collected earthworms from 10 different, small plots of uniform size, of a grassland. The number of earthworms obtained from those plots are shown in the table below. Examine the distribution pattern of earthworms. [Given that $\chi^2(0.05)(9)=16.92$].

Plot No.	1	2	3	4	5	6	7	8	9	10
Earthworms	25	32	17	23	15	34	27	19	22	26



- c) The average of marks obtained by some boys in an examination is 65 while that of marks obtained by some girls in the same examination is 80. The average of marks obtained by boys and girls together is 70. Find out the ratio of boys and girls in the class.
- d) The mean weight (g) of a group of 100 *Labeo rohita* fishes 9.35 g. The mean weight of 25 of them was 8.75 g and other 65 is 10.51 g. What is the mean weight of remaining fish?

GROUP-C

3. Answer any **ONE** of the following questions:

1×8=8

- a) **IS**) State the salient properties of normal distribution. Draw a normal distribution curve and indicate how much areas of the curve are occupied by mean $\pm \sigma$ and mean $\pm 2\sigma$ of the values, respectively. 2+2
- ii) The students of Fishery Science of Midnapore City College cultured different carps in a large tank. After a year, they captured all the fishes from the tank by netting and found 385 Rohu fish, 110 Katla fish, 44 Silver carp and 11 Grass carp. Construct a pie chart to indicate the exact proportions of different fishes grown by them.
- b) Mention important characteristics of a good research. How to write a review of literature in your thesis? Differentiate between references and bibliography. 2+4+2

UNIT: 402.2

FISHERIES LEGISLATION, COMPUTER AND BIOINFORMATICS

F.M. - 20

GROUP-A

4. Answer any **TWO** from the following questions:

2×2=4

- a) What are the enforcement mechanisms and authorities responsible for implementing the Indian Fisheries Act of 1897?
- b) State the basic concept of CPU.
- c) Write a note on potential benefits of incorporating AI in smart aquaculture.
- d) What is computer terminal?

GROUP-B



5. Answer any **TWO** from the following questions:
- a) Illustrate briefly the major application area of bioinformatics in fisheries sector
- b) Briefly explain administrative setup of fisheries in west Bengal.
- c) How does the Marine Fisheries Policy, 2004 aim to promote sustainable development in marine fisheries?
- d) How does the Code of Conduct address issues of illegal, unreported, and unregulated (IUU) fishing?

GROUP-C

6. Answer any **ONE** from the following questions:

1×8=8

- a) What is an operating system (OS)? What are the major objectives of OS? How does an operating system manage computer hardware resources? 2+3+3
- b) What certification services does MPEDA provide to exporters? What is the significance of MPEDA in the overall promotion and development of marine products exports from India? 4+4
