2022

M.Sc.

4th Semester Examination

ZOOLOGY

PAPER—ZOO-495

(*Practical*)

Full Marks : 50

Time : 5 Hours

The figures in the margin indicate full marks.

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

ZOO–495A

(SPECIAL PAPER : FISHERY)

1. Identify the following specimen (fresh water fish) as per the instruction given by the examiner :

(a) ..... (b) .....

(c) ..... (d) ..... $2\frac{1}{2} \times 4$

2. Demonstrate the ARO system in a model specimen provided. Draw a labelled diagram and state its significance. 3+2

3. Estimate the ..... of the specimen provided and make a comment on it. 5+2

4. Identify the following specimen as per the instruction given :

   (a) ..... (b) .....

   (c) ..... (d) ..... $2\frac{1}{2} \times 4$

5. Calculate the ..... from the provided water sample and stat its results and conclusion.4+2+2

6. Laboratory note book. 5

7. Viva-voce. 5

ZOO–495B

(SPECIAL PAPER : ECOLOGY)

1. (a) Calculate alpha diversity, heta diversity, gamma diversity indices from the following data :

Species	*Habitat 1*	*Habitat 2*	*Habitat 3*
Q	+		
S	+		
C	+	+	
V	+	+	
B	+	+	+
F	+	+	+
D		+	+
H			+
O			+
W			+

(b) Compute Sørenson's indices for the sites pairwise (above table) based on presence/ absence data ; mention the formula and comment on your result. 8+8

2. With the given data table below, calculate the relative abundance & Shannon-Weiner diversity index for the community providing respective

formulae. Define Importance Value index. Comment on your result.

Sample number	Number of individuals of species		
	p	q	r
1	2	0	3
2	1	1	1
3	2	0	2
4	2	0	0
5	3	0	0
6	1	1	1
7	2	1	0
8	1	0	1
9	3	0	1
10	2	1	0

3+3+2+2

3. Provide an illustrated account of the detailed methods of measuring Tree Height and DBH from a forest stand. 4+3

4. Calculate the micro-distribution of individuals in a subpopulation given below and infer on the dispersion pattern :

Sample plant :	1	2	3	4	5	6	7	8	9	10
No. of Pests :	2	4	5	4	1	3	5	3	0	3

5+2

5. Laboratory note book. 5

6. Viva-voce. 5

ZOO-495C

(SPECIAL PAPER : GENETICS & MOLECULAR BIOLOGY)

1. Prepare and display the mitotic chromosome from rat bone marrow. Describe the procedure. 15+5

2. Prepare SDS-PAGE and sample provided. Electrophorse the prepare sample in SDS-AAGE. Write down the procedure and reagents required. Comment on your result. 13+5+2

3. Laboratory note book. 5

4. Viva-voce. 5

ZOO–495D

(SPECIAL PAPER : PARASITOLOGY)

1. Prepare smear from the sample / specimens provided, stain the smear for observation. Write the procedure. Comment on your observation. 10+4+3

Or

Make a whole mount of the mosquito mouth parts. Draw, label and write the function of each part. 9+3+5

2. Identify the supplied specimen (A, B, C, D). Write the genus character and mention the systematic position and Medical importance. 4×4

3. Submission of prepared slides. 7

4. Laboratory note book. 5

5. Viva-voce. 5

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