PG/IVS/ZOO/495(A)/24(Pr.)

M.Sc. 4th Semester Examination, 2024

ZOOLOGY

(*Special Paper : Fishery*)

(Practical)

PAPER – ZOO-495 (A)

Full Marks : 50

Time : 5 hours

Answer **all** questions

The figures in the right hand margin indicate marks

Answer the following questions :

1. Estimate the _____ from the given sample provided. And calculate the result. Justify your answer with the help of suitable interpretation. $5 + 3 + 2$

2. *Identify* the given sample with reasons. $2\frac{1}{2} \times 4$

(*a*) Marine fin fish
(*b*) Marine shell fish
(*c*) Aquatic weed
(*d*) Aquatic insect

3. Model Demonstration of the following. 6×2

(*a*) Pituitary glands. (show the position in fish) [In vivo]
(*b*) Otolith

4. Demonstrate the fecundity of a gravid fish and comments on your answer. 8

5. Laboratory Note book. 5

6. Viva-Voce. 5

 PG/IVS/ZOO/495(B)/24(Pr.)

M.Sc. 4th Semester Examination, 2024

ZOOLOGY

(Special : *Ecology*)

(Practical)

PAPER – ZOO-495(B)

Full Marks : 50

Time : 5 hours

The figures in the right hand margin indicate marks

1. (*a*) Calculate alpha diversity, beta diversity, gamma diversity indices from the following/attached table (fill in the blank cells with the data provided and initiate your calculation).

Species	Habitat 1	Habitat 2	Habitat 3
O			
W			
C			
V			
N			
M			
D			
H			
Q			
S			

(*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. (*a*) Calculate the Importance Value index for the community providing respective formulae. Define IVI. Comment on your result. Fill in the blank cells of the table with the data provided and initiate your calculation.

	Number of individuals of species		
Sample Number	*P*	*q*	*r*
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

(*b*) Identify the given Vermicomposting related specimen. (4 + 2 + 2) + 4

3. (*a*) Calculate the micro-distribution of individuals in a subpopulation given below and infer on the dispersion pattern. Fill in the blank cells of the table with the data provided and initiate your calculation.

Sample plant : 1 2 3 4 5 6 7 8 9 10

No. of Pests :

(*b*) Identify the given apparatus ; provide its characteristics and usage. *Estimate the water holding capacity of soil sample as per instructions.* 8 + 4

4. Laboratory Note Book. 5

5. Viva voce. 5

M.Sc. 4th Semester Examination, 2024

ZOOLOGY

(*Cytogenetics and Molecular Biology*)(Special paper)

(Practical)

PAPER—ZOO-495(C)

Full Marks : 50

Time : 3 hours

Answer **all** questions

The figures in the right hand margin indicate marks

1. Isolate the protein from the tissue provided by a standard protocol. Characterize the protein through SDS-PAGE and show under epi-luminance. Write down the procedure and make a comment. 5 + 5 + 5 + 5

2. Isolate DNA from memmalian liver tissue and characterize through 1% Agarose gel electrophoresis. Comment on observation under U-V transilluminator. Write the procedure in brief. 8 + 8 + 4

3. Submission of laboratory note book. 5

4. Viva-voce. 5

PG/IVS/ZOO/495(D)/24(Pr.)

M.Sc. 4th Semester Examination, 2024

ZOOLOGY

(*Special Paper : Parasitology*)

(Practical)

PAPER – ZOO-495 (D)

Full Marks : 50

Time : 5 hours

Answer **all** questions

The figures in the right hand margin indicate marks

1. Prepare smear from the sample provided, stain the smear for observation. Write the procedure comment on your observation. 10 + 3 + 3

Or

Dissect the mouth parts of the mosquito and make a whale mount of the mouth parts. Draw, label and write the function of each part. 8 + 4 + 4

2. Identify the specimens provided (A, B, C, D). Write the genus characters and mention the systematic position and medical importance. 4 × 4

3. Submission of prepared slides 8

4. Laboratory Note book. 5

5. Viva-Voce. 5