M.Sc. 4th Semester Examination, 2025

ZOOLOGY

(Special : Ecology)

(Practical)

PAPER – ZOO-495(B)

Full Marks : 50

Time : 5 hours

Answer **all** questions

The figures in the right hand margin indicate marks

1. (a) Species A and B have the following presence data across 6 quadrats :

Quadrat	Species A	Species B
1	+	+
2	+	−
3	+	+
4	−	+
5	+	+
6	−	−

Calculate the index of association and interpret the relationship between the two species.   5

(b) Compute Sørenson's indices for the given species from two different forest ecosystems, Forest X and Forest Y (table below) based on presence/absence data; mention the formula and comment on your result.   5

Species	Occurrence in Forest X	Occurence in Forest Y
Acacia	+	+
Teak	+	−
Sal	+	+
Mahogany	+	−
Bamboo	+	+
Neem	+	+
Palm	−	+
Banyan	−	+
Jamun	−	+
Gulmohar	−	+

2. (a) Calculate Relative Density, Relative Frequency and Importance Value Index (IVI) from the given data. Comment on your result. 3 + 2

(b) Provide an illustrated account of the detailed methods of measuring Tree Height. 3 trees are located in a sample plot of 15m X 15m from a forest stand. Their DBH are : 25cm, 30cm, 38cm Find the basal area of each tree in standard units. 2 + 3

3. Note the different plant species present across three sample plots (I, II and III) within VU campus.

Plot	Species Present
I	A, B, C, D ..
II	B, C, D, E....
III	C, D, E, F ...

Using this data, calculate alpha, beta and gamma diversity indices and comment on your result. 8 + 2

(*Turn Over*)

4. (a) Identify the following samples, mention its two unique features. State its utility. (Any *two*) $2\frac{1}{2} \times 2$

    A   B   C   D

   (b) Calculate the water holding capacity of the provided oven dried soil sample *as per instructions*.   5

5. Laboratory note book.   5

6. Viva voce.   5