

Time – 3 hr.

Marks - 100

- N.B.**
1. All questions are compulsory.
 2. Draw neat labelled diagrams wherever necessary.
 3. All questions carry equal marks.

Q.1 Answer the following (any two)

20

- a. Give the classification, distinguishing characters, floral formula of family Asclepiadaceae.
- b. State the distinguishing characters of Family Labiatae. Comment upon its economic importance.
- c. Give an outline of Hutchinson's system of classification. Add a note on its merits and demerits.
- d. Assign the plant *Quisqualis* to its respective family giving reasons and add a note on its morphological peculiarities.

Q.2 Answer the following (any two)

20

- a. What are Halophytes? Write a detailed note on their anatomical adaptations giving a suitable example.
- b. With suitable examples explain ecological characteristics of floating and rooted hydrophytes.
- c. Define Xerophytes? Write a note on ecological adaptations of succulent xerophytes.
- d. Write a note on the ecological aspects of mesophytes.

Q.3 Answer the following (any two)

20

- a. Describe in detail the structure of T.S of tetrasporangiate anther.
- b. With the help of suitable diagrams explain the developmental stages observed in *Capsella* type of embryo.
- c. Describe the structure of an angiospermic ovule and explain the process of double fertilization. Add a note on its significance.
- d. Elaborate on different types of tapetum. Add a note on functions of tapetum.

Q.4 Answer the following (any two)**20**

- a. In a nutritional study for a protein supplement, 13 children were given a usual diet plus Protein powder while the second comparable group of 12 children was taking the usual diet. After 12 months, the gain in weight in pounds was noted as given in the table.

Group A	5	3	4	3	2	6	3	2	3	6	7	5	3
Group B	1	3	2	4	2	1	3	4	3	2	2	3	--

Examine at 5% level whether the protein powder was responsible for this difference?

($t_{0.05,23} = 2.07$)

- b. Find the value of regression coefficient X on Y (b_{xy}) and Y on X (b_{yx}) from the following data: $\{(X,Y)\} : (5,2), (1,9), (5,4), (2,1), (2,4)$.
- c. Ten students were given intensive coaching in Biostatistics. The scores obtained in 1st & 5th test are given below:

Sr. No.	1	2	3	4	5	6	7	8	9	10
Marks in 1st test	50	52	53	60	65	67	48	69	72	80
Marks in 5th test	65	55	65	65	60	67	49	82	74	86

Does the score from test 1st to test 5th show an improvement? Test at 5% level of significance.

($t_{0.05,9} = 2.26$)

- d. Explain ANOVA (one way) with a suitable example.

Q.5 Write Short note on the following (any four)**20**

- NBRI
- Fruits of Cannaceae
- Pollen Tetrads
- Types of Ovule
- Ecological adaptations of Hygrophytes
- Application of T-test
