10/12/19 M

[This question paper contains 7 printed pages]

Your Roll No. : .....

Sl. No. of Q. Paper : **8006** **J**

Unique Paper Code : 32167502

Name of the Course : **B.Sc.(Hons.) Botany : DSE - 2**

Name of the Paper : Biostatistics

Semester : V

Time : 3 Hours ***Maximum Marks : 75***

Instructions for candidates :

(i) Write your Roll No. on the top immediately on receipt of this question paper.

(ii) Attempt any **five** questions in all.

(iii) Question **NO.1** is compulsory.

(iv) Nonscientific calculator allowed. Statistical tables provided by the college may be used if required.

1. (a) Define (any **five**) : 1×5=5

(i) Mode

(ii) Null hypothesis

P.T.O.

(iii) Central tendency

(iv) Quartile

(v) Frequency polygon

(vi) Normal distribution curve

(b) **True** and **false** (any **five**) : 1×5=5

(i) The father of Biostatistics is Francis Galton.

(ii) Range is not represented as difference between highest and lowest value of the variable.

(iii) Relative frequency is percentage of each specific frequency out of the total frequency.

(iv) The variable which influences the values is called as an independent variable.

(v) Standard deviation was first suggested by Karl Pearson.

(vi) The conclusions obtained statistically are universally true.

(c) Identify the symbol and abbreviations used in statistics (any **five**) : 1×5=5

(i) σ

(ii) f_o

(iii) U

(iv) ρ

(v) Q_2

(vi) SE_M

2. (a) What do you mean by sampling ? What are the different types of sampling ? Point out the merits and demerits of sampling techniques. 2+3+2=7

(b) What do you understand by data ? Describe various methods of classification of data with suitable examples. 2+6=8

3. Differentiate between (any **five**) :

3×5 =15

(a) Mean deviation and quartile deviation

(b) Diagram and Graph

(c) Linear and Non-linear correlation

(d) Paired and Unpaired t test

(e) Class interval and Class frequency

(f) Sampling and Non-sampling error

4. (a) What do you understand by Standard deviation ? How to calculate S.D ? Discuss its merits and demerits.

1+2+2=5

(b) Calculate the standard deviation and mean deviation and interpret results of the given data : 2+2+1=5

X= 10, 13, 17, 22, 27, 30, 31, 32

(c) Calculate the median from the given data :

5

Yield (kg)	0-3	3-6	6-9	9-12	12-15
No. of Plants	4	8	22	10	4

5. (a) Following results obtained in a dihybrid cross, involving shape and color of the seeds

Round/ yellow	Round/ Green	Wrinkled/ Yellow	Wrinkled/ Green
317	109	102	32

If the dihybrid ratio is 9:3:3:1, the plants should have been 315 Round/Yellow, 105 Round/Green, 105 Wrinkled/Yellow, 35 wrinkled/green. Calculate χ^2 (Chi-square) value and draw your conclusion.

5+2=7

(b) Calculate regression coefficient of the following data. Find out the regression equation : 8

X	16.5	11.6	11.4	14.3	14.0	12.2	9.8	14.0	3.5	8.0	12.6	14.4
Y	6.4	6.5	6.6	8.7	6.5	5.9	3.9	3.4	3.0	5.7	4.5	6.5

6. (a) The body weight (kg) of 8 adult males & of 8 adult females is presented in the given table. Find out whether or not the mean weight of males is significantly higher than that of females. Calculate student's t-test at 5% level of significance. 6

Males wt. (kg)	50	58	60	55	59	56	54	64
Females wt. (kg)	49	52	51	56	55	53	52	48

(b) Calculate the Karl Pearson's correlation coefficient of the given data : 4

X	57	42	40	38	42	45	42	44	40	46	44	43
Y	10	26	30	41	29	27	27	19	18	19	31	29

(c) Write short note (any **two**) : 2.5×2=5

(i) Scatter method of studying correlation

(ii) Regression lines

(iii) Questionnaire with suitable example