

26/8/22

M.Sc. Biotechnology Semester II
Examination 2022
Paper Code: MBT-OE205
Paper Title: BIOSTATISTICS

Time: 3 Hours

Max. Marks: 75

Note: Attempt all the questions as directed. Question No.1 is compulsory. All questions carry equal marks. Use of calculator for only mathematical calculations is allowed.

Q.1 Attempt all the parts of the given sections**(15 Marks)****(A) Write TRUE or FALSE to the following statements.****(1×5)**

- (1) When the upper limit of one class is included in that class itself. The method is known as exclusive method.
- (2) The curve obtained by plotting frequencies is called an Ogive.
- (3) An average is referred as a Measure of Central Tendency.
- (4) Correlation Coefficient is a measure of degree of co variability between two variables.
- (5) The series for which Coefficient of Variation is less is said to be more variable.

(B) Fill in the Blanks:**(1×5)**

- (1) When the Mode is ill defined
Mode =
- (2) Chi Square is the measure of ----- between the Observed and Expected Frequencies.
- (3) Regression analysis is to study the ----- between the variables.
- (4) Type I Error is committed when a ----- hypothesis is rejected.
- (5) Student's - t - Test is known as Test of Significance between two -----.

(C) Define the following.**(1×5)**

- (1) Null Hypothesis
- (2) Correlation
- (3) Standard Error
- (4) Chi Square
- (5) F- Test.

Q.2 Attempt any TWO of the following**(15 Marks)****A. Find Arithmetic Mean, and Mode for the following data****(7.5)**

Classes:	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40
Freq. :	5	7	12	15	20	10	8	4

B. Calculate Standard Deviation and Variance of the Following Data**(7.5)**

X :	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
F :	3	8	10	13	9	6	5	2

C. Compute Spearman's rank correlation for the following observation: (7.5)

Candidate:	1	2	3	4	5	6	7	8
Judge X:	20	22	28	23	30	30	23	24
Judge Y:	28	24	24	25	26	27	32	30

Marks are awarded out of 35.

Q.3 Attempt any ONE of the following (15 marks)

A. A departmental store gives in service training to its salesmen, which is followed by a test. It is Considering, whether it should terminate the service of any salesman who does not do well in the test. The following data gives the test scores and sales made by nine salesmen during a certain period.

Test Scores :	14	19	24	21	26	22	15	20	19
Sales(000Rs.):	31	36	48	37	50	45	33	41	39

Calculate the Correlation Coefficient between the Test Scores and Sales. Does it indicate the termination of services of low-test scores is justified?

B. Find the Two Regression equations from the data given below.

X :	18	19	20	21	22	23	24	25	26	27
Y :	17	17	18	18	19	19	19	20	21	22

Q.4 Attempt any ONE of the following (15 marks)

A. A manufacturer claims that only 4% of his products are defective. A random sample of 500 were taken among which 100 were defective. Test the hypothesis at 0.05 level. Given Z_{α} is 1.645.

B. Out of a sample of 120 persons in a village, 76 persons were administered new drug for preventing Influenza and out of them 24 persons were attacked by influenza. Out of those who were administered

The new drug, 12 persons were not affected by influenza. Prepare

(i) 2×2 table showing Observed Frequencies.

(ii) Use Chi Square Test to find out whether the new drug is effective in preventing Influenza.

(Given Table Value of Chi Square for 1 degree of freedom at 5% level of significance is 3.84)

Q.5

Write Short Notes on any FIVE of the following

(3 marks each)

- (a) Measures of Variation.
- (b) Tests of Significance
- (c) Soft wares used in plotting and representation of statistical data.
- (d) Mean, Mode and Median
- (e) Difference between diagrams and graphs
- (f) Comparison between SPSS and R
- (g) Different types of graphical presentations of data

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