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BT-5 / D-19

STATISTICAL ANALYSIS

Paper- TT-309A

Time allowed : 3 hours] [Maximum marks : 100
Note : Attempt five questions in total by selecting at least one question from each unit.

Unit-I

1. (a) Explain the various kinds of classification of data. Also state the advantages of classification.

(b) Calculate mode from the following data :

Table with 10 columns: Variabl, 1-5, 6-10, 11-15, 16-20, 21-25, 26-30, 31-35, 36-40, 41-45

10,10

2. (a) Write a short note on :

(1) Simple Random Sampling

(ii) Stratified Random Sampling

(iii) Systematic Sampling

(b) Describe how a control chart is constructed and interpreted.

Unit-II

3. (a) Calculate the standard deviation from the following services:

16, 20, 18, 19, 20, 20, 28, 17, 22, 20

(b) Define moments. Establish the relation between the moments about the mean in terms of moments about any arbitrary point 10,10

4. (a) A purse contains 4 copper coins and 3 silver coins, the second purse contains 6 copper coins and 2 silver coins. A coin is drawn from any purse. Find the probability that it is a copper coin.

(b) A manufacturer firm produces steel pipes in three plants with daily production volumes of 500, 1000 and 2000 units respectively. According to past experience, it is known that the fraction of defective output produced by three plants are respectively 0.005, 0.008, 0.010. If a pipe is selected from a day's total production and found to be defective, find the probability that it comes from the first plant. 1

Unit-m

5. (a) Write a short note on :

(1) Standard error

(ii) Level of significance

(iii) Critical Region

(b) A company has been producing tubes of mean inner diameter 2.00 cms. A sample of 10 tubes gives a mean inner diameter of 2.01 cms. and a variance of 0.004 sq cm. Is the difference in the value of mean significant.

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6. (a) How is  $\chi^2$ -test used to test the goodness of fit?

(b) Set-up one-way ANOVA for the following data :

A	B	C	D
58	56	64	70
59	58	62	72
61	60	68	75
62	54	59	73

Unit-IV

7. (a) Find Karl Pearson's coefficient of correlation between X and Y from the following data :

(b) In Fancy-Dress competition two-judges accorded the following rank to eight participants :

J-X	8	7	6	3	2	1	5	4
J-Y	7	5	4	1	3	2	6	8

following rank to eight participants :

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(a) Obtain the regression equation of Y on X from the following data :

X	78	89	97	69	59	79	68	61
Y	125	137	156	112	107	136	124	108

(b) Discuss how the factorial experiments are more beneficial than simple experiments.