

Duration: - 2 ½ Hours

H716NDS

Marks :- 75

Note:-

1. Use of Non-programmable scientific calculator is allowed.
2. Each Questions carry's 5 marks in question 1 to 3.
3. Each sub-question carry 3 marks in question No. 4.

Q.1 Attempt any 4 questions.

(20M)

- (a) Explain the merits and demerits of arithmetic mean.
- (b) Calculate the first four moments of the following distribution about the mean
And hence find B_1 and B_2 .

X	0	1	2	3	4	5	6	7	8
F	1	8	28	56	70	56	28	8	1

- (c) Calculate the Karl Pearson's coefficient of the correlations between X and Y

X	35	34	40	43	56	20	38
F	32	30	31	32	53	20	33

- (d) Find the regression equation and hence estimate y when x = 56 and x when y = 45
Given S.D of x = 5.3, S.D of y = 2.8, $r = 0.85$, $\bar{x} = 54$ and $\bar{y} = 40$
- (e) Write short note on skewness and kurtosis.
- (f) Obtain the multiple Regressions from the following data:

Y	6	5	13	3	20	16
X₁	1	2	3	4	5	6
X₂	2	1	3	-1	4	2

Q.2 Attempt any 4 questions.

(20M)

(a) Define the following:

- | | |
|------------------------------------|-------------------------------------|
| (i) Absolute measure of dispersion | (ii) Relative measure of dispersion |
| (iii) Quartile deviation | (iv) Standard deviation |
| (v) Raw moments | (vi) Central moments |

(b) Define Quartile, Decile and Percentile.

(c) Calculate rank correlation coefficient for the following data representing marks in two test for a group of eight students

Marks in test I	52	34	47	65	43	34	54
Marks in test II	65	59	65	68	82	60	57

(d) Calculate the Karl Pearson's coefficient from the following data:

X	17	8	12	13	10	12
Y	13	7	10	11	8	9

(e) Calculate the spearman's coefficient of correlation between X and Y.

X	12	15	13	20	15	14	19	13	21	18
Y	25	21	15	18	20	17	20	16	20	22

(f) Calculate the arithmetic mean for the following data.

Marks	0-10	10-20	20-30	30-40	40-50
No. of students	7	10	14	9	3

Q.3 Attempt any four questions:

(20M)

(a) Draw Histogram for the following data. Also draw/plot less them Ogive curve.

Income	20000-30000	30000-40000	40000-50000	50000-60000	60000-70000
No. of families	27	35	55	35	18

(b) Find the median for the following frequency distribution.

Class	10-19	20-29	30-39	40-49	50-59	60-69	70-79
Frequency	2	4	8	9	4	2	1

(c) Find semi Inter-Quartile Range, Quartile Deviation and coefficient of Quartile Deviation from table below.

Daily wages in Rs	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
No. of workers	10	15	28	30	30	25	15	16

(d) Find the standard Deviation, Variance and Coefficient of Variance of the following data.

Students	1-3	4-6	7-9	10-12
Frequency	335	457	549	392

(e) Calculate the standard Deviation, Variance and coefficient of variance for the following observation

X	12	14	16	18	20	22
F	6	9	14	11	9	3

(f) Find the coefficient of range, coefficient of quartile deviation and coefficient of variance of the given data.

X	5	6	7	8	9	10	11
F	11	15	20	16	12	9	4

Q.4 Attempt any 5 question (3 marks each)

(15M)

(a) Explain raw moments and central moments.

(b) Explain coefficient of Quartile deviation, Coefficient of range and semi inter Quartile Range.

(c) Define the following:

- | | | |
|--------------------|--------------------|---------------------|
| (i) Attribute | (ii) Variable | (iii) Nominal scale |
| (iv) Ordinal scale | (v) Interval scale | (vi) Ratio scale |