FYCS/SEM I/REG/DS

Time: 2½ hrs. **Marks:75**

Note:
1. All questions are compulsory with internal choice.
2. Draw neat diagrams wherever necessary.
3. Figures to the right indicate full marks.
4. Use of scientific calculator fx 82 series and below is only allowed.

Q.1 **Answer the following (any Four)** **(20)**

(a) Find 3rd quartile for the following data.

Class	0-10	10-20	20-30	30-40	40-50
Frequency	7	10	17	11	5

(b) Find median for the following data.

Time taken (in min)	0-4	4-8	8-12	12-16	16-20
Frequency	1	4	8	4	3

(c) Find out the mean in a moderately skewed distribution, where you are given that median=52 and mode =58.

(d) Find the mean for the following data.

Class	5-15	15-25	25-35	35-45	45-55
Frequency	4	8	13	10	5

(e) Find mode of the following data graphically.

Class	0-10	10-20	20-30	30-40	40-50
Frequency	15	30	50	40	20

(f) Define the following types of scales with examples:
- i) Nominal
- ii) Ordinal
- iii) Interval
- iv) Ratio

Q.2 **Answer the following (any Four)** **(20)**

(a) Explain skewness.

(b) Find quartile deviation for the following data:

x	7	8	9	10	11	12	13
f	3	7	15	20	13	8	5

(c) The first four raw moment of a distribution are -1, 17, -35 and 110. Obtain the first four central moments. Also, find coefficient of skewness and kurtosis.

(d) Find mean deviation about mean.

Class	0-20	20-40	40-60	60-80	80-100
Frequency	5	12	17	10	6

(e) Find the standard deviation.

No. of unit	0-6	6-12	12-18	18-24	24-30
No. of consumers	4	7	12	5	2

(f) Explain moments and types of moments.

Q.3 **Answer the following (any Four)** **(20)**

(a) Draw a scatter diagram for the following data and comment on it.

x	5	8	10	12	15	18	21	24	25	6
y	25	21	20	18	16	15	14	12	11	24

(b) Find the coefficient of correlation for the following data.

x	1	3	5	7	9	11	13	15	17	19
y	2	3	5	6	10	12	16	14	18	24

(c) Find the Spearman's rank correlation coefficient for the following data:

x	10	20	20	30	50	60	60	80
y	15	10	20	10	25	25	30	40

(d) Explain linear regression.

(e) From the following data, obtain multiple correlation $R_{1.23}$

X_1	2	5	7	11
X_2	3	6	9	12
X_3	1	3	6	10

(f) From the following data, find regression equation of y on x and hence estimate y when $x = 2.4$.

X	1	2	3	4	5
Y	1	8	27	64	125

Q.4 Answer the following (any Five) **(15)**

(a) Explain scatter diagram.

(b) Draw histogram for the following data given below.

Class	20-30	30-40	40-50	50-60	60-70	70-80	80-90
Frequency	1	10	15	11	7	5	1

(c) Write a short on coefficient of determination.

(d) Find the variance for the following data.

x	7	8	9	10	11	12	13
f	3	7	15	20	13	8	5

(e) An analysis of monthly wages paid to the workers in two firms A and B belonging to an industry gives the following results.

	Firm A	Firm B
Average monthly wage	Rs. 500	Rs. 450
S.D of wage	Rs. 9.5	Rs. 11

Discuss the consistency of firm.

(f) Using the following summations, find coefficient of correlation.

$n = 10, \quad \sum x = 30, \sum y = 410, \sum x^2 = 150, \sum y^2 = 35000, \sum xy = 2000$

---X---X---