

Time: 2 ½ Hrs

Marks: 75 Marks

N.B.

- 1) All questions are compulsory.
- 2) Figures to the right indicate marks.
- 3) Illustrations, in-depth answers and diagrams will be appreciated.
- 4) Mixing of sub-questions is not allowed.
- 5) Each question carries 5 Marks.

**Q.1 Attempt any four of the following:****20 Marks**

- a) Following data gives marks scored by students in a test of 10 marks. Prepare frequency distribution table. 2, 4, 8, 6, 3, 4, 5, 4, 8, 6, 5, 3, 2, 0, 3, 5, 8, 9, 8, 3

- b) Plot Histogram and find Mode for following:

CI	0-5	5-10	10-15	15-20	20-25	25-30
f	20	30	40	50	30	20

- c) What is a Stem and Leaf display? Display the given data as stem and leaf 42, 53, 65, 63, 61, 77, 47, 56, 74, 60, 64, 68, 45, 55, 57, 82, 42, 35, 39, 51, 65, 55, 33, 76, 70, 50, 52, 54, 45, 46, 25, 36, 59, 63, 83.

- d) List down Merits and Demerits of AM. And Find Arithmetic Mean (AM) of following:

Class Interval	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60
f	4	5	11	6	5	8	9	6	4

- e) Write a short note on MODE.
- f) Distinguish between Discrete and Continuous random variables.

**Q.2 Attempt any four of the following:****20 Marks**

- a) Find Variance of :

X	0-4	4-8	8-12	12-16
F	12	24	23	18

- b) Define variance standard deviation and coefficient of variation. Find standard deviation of 3, 6, 8, 1, 3
- c) Find Combined Mean and Combined Standard Deviation :

	Group 1	Group 2
No. of observations	32	25
Mean	12	14
SD	3	4

- d) Find Coefficient of Quartile Deviation (QD):

Class Interval	0-2	2-4	4-6	6-8	8-10
f	14	18	21	20	12

- e) What is a Moment? Find first four raw moments of following data :

X	2	3	4	5
f	12	15	18	15

- f) Find Karl Pearson's coefficient of Skewness

Range	f
20-40	15
40-60	20
60-80	35
80-100	12
100-120	5

**Q.3 Attempt any four of the following:**

**20 Marks**

- a) List down the Merits and Demerits of Scatter Graph.
- b) Form Regression Equation for the following data set, and hence estimate Y for X = 10 :

X	Y
1	25
3	18
4	12
6	5
9	1

- c) What is Significance of the coefficient of determination? Explain.
- d) In how many ways can a team of 2 red cards and 3 blue cards be made from 4 red cards and 10 blue cards?

- e) Three Unbiased coins are tossed. What is the probability of getting at least one Head.
- f) An urn contains 8 blue balls, 7 green balls and 5 red balls. One ball is drawn at random, what is the probability that it is  
(a) a red ball, (b) a blue ball.

**Q.4 Attempt any three of the following:**

**15 Marks**

- a) The following are the weights of 30 grain bags :

**132, 166, 134, 119, 151, 114, 138, 124, 130, 132,  
142, 121, 144, 147, 126, 104, 143, 129, 108, 111,  
155, 131, 157, 137, 145, 122, 148, 139, 135, 136.**

Arrange the data in a frequency table with class interval of 10 kg. each. The first interval being 100-110.  
Find Arithmetic Mean (AM), Median and Mode.

- b) Explain the types of Class Intervals.

- c) Write a short note on : KURTOSIS.

- d) Find Bowley's coefficient of Skewness for the following data.

Score	0-20	20-40	40-60	60-80	80-100
Number of student	15	25	32	35	16

- e) Explain following terms:

- 1) Outcome
- 2) Sample Space
- 3) Exhaustive outcomes
- 4) Event
- 5) Sample point

- f) How many ways are there for eight men and five women to stand in a row so that no two women stand next to each other.

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