

Roll No.

Total No. of Pages : 02

Total No. of Questions : 07

**B.Sc. (Data Analytic) (Sem.-2)**  
**PROBABILITY AND STATISTICS**

Subject Code : UGCA-1985

M.Code : 91981

Date of Examination : 04-07-22

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTIONS TO CANDIDATES :**

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

**SECTION-A**

1. Write briefly :

- a) Sample spaces
- b) Exhaustive events and favourable events
- c) Continuous random variables
- d) Marginal probability function
- e) Characteristics of a good average.
- f) Uses of Statistics.
- g) Mode
- h) Harmonic mean
- i) Range
- j) Coefficient of variation.

## SECTION-B

2. a) What do you understand by probability? Explain multiplication theorem of probability of independent events.
- b) A graduate applied for a job in two firms X and Y. He estimated that the probability of his being selected in a firm X is 0.7 and being rejected in Y is 0.5 and the probability that he will be selected in both the firms is 0.4, what is the probability that he will be selected in one of the firms?
3. A random variable has the following probability distribution :

Values of X :	0	1	2	3	4	5	6	7	8
P(x)	a	3a	5a	7a	9a	11a	13a	15a	17a

- 1) Determine the value of a
- 2) Find (i)  $P(x < 3)$  (ii)  $P(x \leq 3)$  (iii)  $P(x > 7)$  (iv)  $P(2 \leq x \leq 5)$ , (v)  $P(2 < x < 5)$
- 3) Find the cumulative distribution function of x.
4. Calculate mean, median and mode for the distribution from the data below:

Marks :	30-40	40-50	50-60	60-70	70-80	80-90
No of students :	18	37	45	27	15	8

5. Calculate Standard deviation and coefficient of variance for the following data:

X :	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
F :	5	10	20	40	30	20	10	4

6. What do you understand by measures of Central tendency? Briefly explain measures of Central tendency with their merits and demerits.
7. A company has two plants to manufacture motorbikes. Plant I manufactures 80 percent of motor bikes, and plant II manufactures 20 percent. At Plant I, 85 out of 100 motorbikes are rated standard quality or better. At plant II, only 65 out of 100 motorbikes are rated standard quality or better. What is the probability that the motorbike, selected at random came from plant I, if it is known that the motorbike is of standard quality?

**NOTE : Disclosure of Identity by writing Mobile No. or Marking of passing request on any paper of Answer Sheet will lead to UMC against the Student.**