Total No. of Questions : 07

Total No. of Pages : 02

B.Sc. (Data Analytic) (Sem.–2) PROBABILITY AND STATISTICS Subject Code : UGCA-1985 M.Code : 91981 Date of Examination : 13-12-22

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) Random experiment
 - b) Independent and dependent events
 - c) Discrete random variable
 - d) Probability mass function
 - e) Characteristics of a good average
 - f) Use of Statistics
 - g) Median
 - h) Harmonic mean
 - i) Range
 - j) Coefficient of variation.

SECTION-B

- 2. a) What do you understand by probability? Explain additional theorem of probability.
 - b) A class consists of 100 students. Out of these 25 are girls and 75 are boys. 10 of them are rich and remaining poor. 20 of them are fair complexion. What is the probability of selecting fair complexion rich girl?
- 3. A random variable has the following probability distribution

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

- a) Determine the value of a
- b) Find (i) P(x < 2) (ii) $P(x \le 4)$ (iii) P(x > 6) (iv) $P(3 \le x \le 6)$, (v) P(3 < x < 6)
- c) Find the cumulative distribution function of *x*.
- 4. Calculate mean, median and mode for the distribution from the data below:

Marks:	10-20	20-30	30-40	40-50	50-60	60-70
No .of students:	5	7	13	10	8	7

5. Write a note on :

- a) Probability density function with example
- b) Marginal density function with example
- 6. From the prices of shares of X and Y given below, state which share is more stable in value:

X:	41	44	43	48	45	46	49	50	42	40
Y:	91	93	96	92	90	97	99	94	98	95

7. In a bolt factory machines Al, A2, A3 manufacture respectively 25%, 35% and 40% of the total output. Of these 5, 4, and 2 percent are defective bolts. A bolt is drawn at random from the product and is found to be defective. What is the probability that it was manufactured by machine A2?

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.