Jaypee University of Information Technology, Waknaghat

Test-1 Examination - September 2023

B.Tech - III Semester (BI/BT)

Course Code/Credits: 18B11MA312/4 Max. Marks: 15
Course Title: Probability and Statistical Techniques
Course Instructor: RAD Max. Time: 1 hour

Instructions: All questions are compulsory. Marks are indicated against each question.

1. Consider the frequency distribution of data for the marks obtained in a test by 88 students.

Marks (x)	Frequency (f)
0-10	6
10-20	16
20-30	24
30-40	25
40-50	17

What is the mean of the marks obtained by these students? (4 Marks) [CO-1]

2. An analysis of monthly wages paid to workers in two firms A and B, belonging to the same industry, gives the following results: (3 Marks) [CO-1]

	Firm A	Firm B
No. of wage earners (n)	586	648
Mean of monthly wages ($\bar{x}$)	Rs.5253	Rs.5253
Variance of distribution of wages (s^2)	100	121

   (a) Calculate the coefficient of variance.

   (b) Which firm (A or B) shows greater variability in individual wages?

3. Consider the data relating to the height of the plants in a garden: (3 Marks) [CO-1]

Height (cm)	0-5	5-10	10-15	15-20	20-25	25-30
No. of plants	18	20	36	40	26	16

   (a) Determine the class interval containing 61^{st} percentile.

   (b) What height of the plants represent the 61^{st} percentile?

4. Suppose that midterm test scores for 100 students in a Statistics course had a mean of 70 and a std. deviation of 5, and the shape of the sample is unknown. (3 Marks) [CO-1]

   (a) How many students had test scores between 60 and 80?

   (b) How many students had test scores between 58 and 82?

5. In a class, there are 15 boys and 10 girls. Three students are selected at random. What is the probability that 1 girl and 2 boys are selected? (2 Marks) [CO-2]