**Doon University, Dehradun**
End Semester Examination, 1st Semester, 2023
Academic Year 2023-24, School of Management
Programme Name: BBA
Course Code with Title: DSC-3, Business Statistics — BAC-103

15/12/23

Time allowed: 2:00 Hours

Maximum Marks :50

***Attempt any Five***

Q1. a. How will you define "Measures of Central Tendency" and "Dispersion" What are the utilities of Measures of Central Tendency and Dispersion in Business Research.

**OR**

Q1. b) Calculate the arithmetic mean using step deviation and median of the following series:

| Daily earnings in Rupees | 24.5-34.5 | 34.5-44.5 | 44.5-54.5 | 54.5-64.5 | 64.5-74.5 | 74.5-84.5 |
|---|---|---|---|---|---|---|
| No. of Days | 04 | 20 | 38 | 24 | 10 | 04 |

Q2. a. Define Correlation and Regression. Discuss the various types and methods of correlation and regression.

**OR**

Q2.b. Making use of the data summarized below calculate the coefficient of correlation:

| Case | A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|---|
| X1 | 10 | 6 | 9 | 10 | 12 | 13 | 11 | 9 |
| X2 | 9 | 4 | 6 | 9 | 11 | 13 | 8 | 4 |

Q3.a. The daily earnings of a vendor for a period of 40 days are given below:

| Daily earnings in Rupees | 118-126 | 127-135 | 136-144 | 145-153 | 154-162 | 163-171 | 172-180 |
|---|---|---|---|---|---|---|---|
| No. of Days | 03 | 08 | 09 | 12 | 05 | 04 | 02 |

Calculate the standard deviation using step deviation method.

**OR**

Q3b. What is Hypothesis. Discuss in detail with examples the types of Hypotheses. Also, elaborate on the Type I and Type II errors.

Q4.a. The Following table gives the data obtained during the epidemic of cholera. Test the effectiveness of inoculation preventing the attack of cholera.

| | Attacked | Not Attacked | Total |
|---|---|---|---|
| **Innoculated** | 50 | 290 | 340 |
| **Not inoculated** | 300 | 780 | 1080 |
| **Total** | 350 | 1070 | 1420 |

The total value of chi-square at 5% level of significance is 3.84.

**OR**

Q4b. What do you mean by Skewness & Kurtosis? State the different types of Kurtoses and Skewness with the help of diagram.

Q5a. The heights of a sample of 10 fathers and their eldest sons are given below (nearest cm):

| Height of Father (X) | 170 | 167 | 162 | 193 | 167 | 166 | 169 | 171 | 164 | 165 |
|---|---|---|---|---|---|---|---|---|---|---|
| Height of Son (Y) | 168 | 167 | 166 | 166 | 168 | 165 | 168 | 170 | 165 | 168 |

Find the regression of Y on X.

**OR**

Q5b. Define probability and explain the importance of this concept in statistics. Also, explain the salient features of Poisson, Binomial and Normal distribution with suitable illustrations.