Name:

Enrolment No:

UPES

End Semester Examination, December 2025

Course: Business Statistics **Semester:** V

Program: BBA-LLB, BCOM-LLB **Time:** 03 hrs.

Course Code: DSQT3004 **Max. Marks:** 100

Instructions:

1. Attempt all questions.
2. Answer all questions in the order.
3. Calculator is allowed.

SECTION A
(5Qx2M=10Marks)

S. No.		Marks	CO
Q1	Which of the following graphs is best for showing *continuous* data? a) Bar diagram b) Line graph c) Histogram d) Pie chart	**2**	**CO1**
Q2	A company collects employees' salary information from its HR department. This data is: a) Primary data b) Secondary data c) Qualitative data d) Experimental data	**2**	**CO1**
Q3	A distribution with more frequency on the right side is: a) Positively skewed b) Negatively skewed c) Symmetrical d) Uniform	**2**	**CO1**
Q4	To predict Y from X, the correct regression line is: a) X on Y b) Y on X c) Both give same result d) Neither	**2**	**CO1**
Q5	If two events A and B are independent, then: a) $P(A \cap B) = P(A) + P(B)$ b) $P(A \cap B) = P(A)P(B)$ c) $P(A \cup B) = 0$ d) $P(A) = P(B)$	**2**	**CO1**

<table>
<tr><td colspan="4">SECTION B
(4Qx5M= 20 Marks)</td></tr>
<tr><td>Q6</td><td>The population of India in 1951 and 1961 was 361 million and 439 million respectively. Calculate the average percentage increase per year during this 10-year period.</td><td>5</td><td>CO2</td></tr>
<tr><td>Q7</td><td>A customer service desk recorded the number of visitors arriving during 260 successive one-minute intervals. The following table shows the frequency distribution of visitors per minute:
<table><tr><td>Number of Calls : 0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr><tr><td>Frequency :</td><td>16</td><td>22</td><td>28</td><td>47</td><td>55</td><td>44</td><td>36</td><td>12</td></tr></table></td><td>5</td><td>CO2</td></tr>
<tr><td>Q8</td><td>Calculate Karl Pearson’s coefficient of skewness from the following data:
• Arithmetic Mean = 65
• Mode = 55
• Variance = 25</td><td>5</td><td>CO2</td></tr>
<tr><td>Q9</td><td>What is correlation coefficient How do you interpret the strength of a correlation?</td><td>5</td><td>CO2</td></tr>
<tr><td colspan="4">SECTION-C
(2Qx10M=20 Marks)</td></tr>
<tr><td>Q10</td><td>From the prices X and Y of shares A and B respectively given below, state which share is the most stable in value.

<table><tr><td>Price of Share A (X)</td><td>55</td><td>54</td><td>52</td><td>53</td><td>56</td><td>58</td><td>52</td><td>50</td><td>51</td><td>49</td></tr><tr><td>Price of Share B (Y)</td><td>108</td><td>107</td><td>105</td><td>105</td><td>106</td><td>107</td><td>104</td><td>103</td><td>104</td><td>101</td></tr></table>
Using appropriate statistical measures of dispersion, analyze the variability in the prices of both shares. Based on your analysis, determine which share is more stable in value.

Justify your conclusion by comparing the measures used and interpreting their relevance for financial decision-making.</td><td>10</td><td>CO3</td></tr>
<tr><td>Q11</td><td>Rahul receives a monthly travel allowance of ₹2,500. Feeling that his allowance is lower than what other employees typically receive, he collected the following data (in ₹) on the monthly travel allowances of 25 employees:
1500, 1500, 1500, 1500, 1500, 1500,1800, 1800, 1800, 1800, 1800, 1800, 2000, 2000, 2000, 2000, 2000, 2000, 3000, 3000, 5000, 5000, 8000, 8000, 8000.
Rahul claims that his allowance is less than the average allowance in the group. His manager, however, argues that Rahul’s allowance is higher than what a typical employee receives.
Analyse the data using appropriate measures of central tendency. Identify which measure is most suitable for determining the “typical” allowance in this situation and determine whether Rahul’s claim is justified. Clearly</td><td>10</td><td>CO3</td></tr>
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<tr><td></td><td>explain how both statements may appear correct depending on the measure used.</td><td></td><td></td></tr>
<tr><td colspan="4">SECTION-D
(2Qx25M=50 Marks)</td></tr>
<tr><td>Q12</td><td>A committee of four members is to be formed from the following groups of professionals: 3 Economists, 4 Engineers, 2 Statisticians and 1 Doctor. Using principles of combinations and probability along with logical case analysis, determine:
a) The probability that the committee includes one member from each profession, ensuring full representation.
b) The probability that the committee is formed including the doctor and at least one economist, taking into account all valid combinations that satisfy these conditions.</td><td>25</td><td>CO4</td></tr>
<tr><td>Q13</td><td>Using the following paired data on ages of husbands and wives, apply regression analysis to determine the relationship between the two variables. Construct the regression line of Husband’s Age on Wife’s Age, and use it to estimate the husband’s age when the wife’s age is 16 years.
<table><tr><td>Husband’s age :</td><td>36</td><td>23</td><td>27</td><td>28</td><td>28</td><td>29</td><td>30</td><td>31</td><td>33</td><td>35</td></tr><tr><td>Wife’s age :</td><td>29</td><td>18</td><td>20</td><td>22</td><td>27</td><td>21</td><td>29</td><td>27</td><td>29</td><td>28</td></tr></table>Interpret your result in the context of the problem.</td><td>25</td><td>CO4</td></tr>
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