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| **Name:**<br>**Enrolment No:** | |

**UPES**

**End Semester Examination, December 2023**

**Course: Business Statistics** **Semester: V**

**Program: BBA LLB** **Time: 03 hrs.**

**Course Code: DSQT2008** **Max. Marks: 100**

**SECTION A**
**(5Qx2M=10Marks)**

| S. No. | | Marks | CO |
|---|---|---|---|
| Q 1 | The variance of a sample of 24 observations equals 25. The standard deviation of the sample equals<br>(a) 0<br>(b) 5<br>(c) 6<br>(d) 9 | **2** | **CO1** |
| Q 2 | Data represented through a histogram can help in finding graphically the<br>(a) mean<br>(b) mode<br>(c) median<br>(d) all the above | **2** | **CO1** |
| Q 3 | If P (A ∩ B) = 0.2 and P(A ∪ B) = 0.70 for two events A and B, then P(A) + P(B) is<br>(a) 0.10<br>(b) 0.90<br>(c) 1.00<br>(d) 0.75 | **2** | **CO1** |
| Q 4 | Which of the following correlation coefficients represents a perfect positive linear relationship between two variables?<br>(a) 0.5<br>(b) 0<br>(c) 1<br>(d) -1 | **2** | **CO1** |
| Q 5 | The ratio of the standard deviation to the arithmetic mean expressed as a percentage is called: | **2** | **CO1** |

| | | | |
|---|---|---|---|
| | (a) Coefficient of standard deviation<br>(b) Coefficient of skewness<br>(c) Coefficient of kurtosis<br>(d) Coefficient of variation | | |
| **SECTION B<br>(4Qx5M= 20 Marks)** | | | |
| Q 6 | What is Spearman's rank correlation coefficient? How does it differ from Karl Pearson's coefficient of correlation? | **5** | **CO2** |
| Q7 | A bag contains 7 red balls and 5 white balls. 2 Balls are drawn at random without replacement. What is the probability that all of them are red? | **5** | **CO2** |
| Q8 | The following distribution gives the pattern of overtime work per week done by 100 employees of a company. Calculate first quartile, third quartile.<br><br>Overtime hours: 10-15 \| 15-20 \| 20-25 \| 25-30 \| 30-35 \| 35-40<br>No. of employees: 11 \| 20 \| 35 \| 20 \| 8 \| 6 | **5** | **CO2** |
| Q9 | Give a brief note of the measures of central tendency together with their merits and demerits. Which is the best measure of central tendency and why? | **5** | **CO2** |
| **SECTION-C<br>(2Qx10M=20 Marks)** | | | |
| Q 10 | In a single throw of two dice, find the probability of getting.<br>(a) a total of 11, (b) a total of 8 or 11, and (c) same number on both the dice. | **10** | **CO3** |
| Q11 | A researcher wishes to determine if a person's age is related to the number of hours he or she exercises per week. The data obtained from a sample is given below:<br><br>Age (X): 18 \| 26 \| 32 \| 38 \| 52 \| 59<br>Hours (Y): 10 \| 5 \| 2 \| 3 \| 1.5 \| 1<br><br>Calculate Karl Pearson's coefficient of correlation and comment on the result. | **10** | **CO3** |
| **SECTION-D<br>(2Qx25M=50 Marks)** | | | |
| Q12 | The following data gives the number of finished articles turned out per day by different number of workers in a factory.<br><br>No. of articles: 18 \| 19 \| 20 \| 21 \| 22 \| 23 \| 24 \| 25 \| 26 \| 27<br>No. of workers: 3 \| 7 \| 11 \| 14 \| 18 \| 17 \| 13 \| 8 \| 5 \| 4 | **25** | **CO4** |

<table>
<tr><td></td><td>Find the mean, standard deviation, and coefficient of variation of daily output of finished articles.</td><td></td><td></td></tr>
<tr><td>Q13</td><td>A panel of men and a panel of women were asked by a consumer testing organization to rank 8 brands of tea according to taste. A rank of 1 was given to the best tasting tea and a rank of 8 to the worst.
<table>
<tr><td>Brand</td><td>A</td><td>B</td><td>C</td><td>D</td><td>E</td><td>F</td><td>G</td><td>H</td></tr>
<tr><td>Panel of Women (X)</td><td>5</td><td>4</td><td>3</td><td>6</td><td>7</td><td>8</td><td>1</td><td>2</td></tr>
<tr><td>Panel of Men (Y)</td><td>4</td><td>5</td><td>6</td><td>3</td><td>8</td><td>7</td><td>2</td><td>1</td></tr>
</table>
Determine rank correlation coefficient, how closely men’s and women’s tastes in tea are related.</td><td>25</td><td>CO4</td></tr>
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