UPES
End Semester Examination, December 2023

Course: QT for Managers	Semester: I
Program: MBA	Time: 03 hrs.
Course Code: DSQT7006	Max. Marks: 100

Instructions:

SECTION A
10Qx2M=20Marks

S. No.		Marks	CO
Q 1	Select the most appropriate		**CO1**

i. If there is a very strong correlation between two variables then the correlation coefficient must be
i. any value larger than 1
ii. much smaller than 0, if the correlation is negative
iii. much larger than 0, regardless of whether the correlation is negative or positive
iv. None of these alternatives is correct.

ii. In regression, the equation that describes how the response variable (y) is related to the explanatory variable (x) is:
i. the correlation model
ii. the regression model
iii. used to compute the correlation coefficient
iv. None of these alternatives is correct

iii. For comparison of two different series, the best measure of dispersion is:
i. Range
ii. Mean Deviation
iii. Standard Deviation
iv. None of them

iv. Which of the following is unitless measure of dispersion?
i. Standard Deviation
ii. Mean Deviation
iii. Range
iv. Coefficient of Variation

v. Which of the following graphical method is used in case of continuous data
i. Histogram
ii. Deviation bar diagram
iii. Pie chart
iv. both ii and iii

vi. A normal random variable has a distribution that is:
a. always symmetric
b. never symmetric
c. symmetric if the mean is positive

d. symmetric if the variance is negative

vii. The degree to which numerical data tend to spread out about an average value is called
a. Variation
b. Skewness
c. Constant
d. Mean

viii. The distribution is symmetrical if
a. Mean > Mode
b. Mean=Median=Mode
c. Median > Mode
d. Mean > Median

ix. The probability that cannot exist among the following:
a. ⅔
b.10%
c.0.7
d. -1.2

x. Find the mode of the call received on 7 consecutive day 11,13,13,17,19,23,25,11
a.11
b.13
c. Both 11& 13
d. 17

SECTION B
4Qx5M= 20 Marks

Q 2.	How descriptive statistics is different from inferential statistics. Explain with examples?		**CO2**
Q 3.	Find correlation coefficient between the marks obtained by 6 students in the class test (X) & class test (Y) examination in Quantitative Techniques for managers. <table><tr><td>X</td><td>23</td><td>20</td><td>19</td><td>17</td><td>16</td><td>28</td></tr><tr><td>Y</td><td>30</td><td>28</td><td>27</td><td>41</td><td>36</td><td>45</td></tr></table>		**CO2**
Q 4.	The faculty awards the following marks to 12 students as 32,44,23,12,40,30,39,27,13,15,21,25. Later the faculty wants to double all the marks. Calculate the mean and S.D. of new set of numbers.		**CO2**
Q 5.	A students takes a 10 questions, MCQ, purely by guessing. If there are 4 choices for each question, what is the probability of his obtaining 7 or more correct answers?		**CO2**

SECTION-C
3Qx10M=30 Marks

Q 6.	There are a number of possible measures of sales performance, including how consistent a salesperson is in meeting established sales goals. The data that follow represent the percentage of goal met by each of four salespeople over the last 6 years. Suggest a more appropriate alternative measure of consistency and Which salesperson is the most consistent?		CO3

Ram   83   33   88   56   70

Shyam   71   77   57   95   100

Paras   122   110   72   88   136

Prasad 147   126   67   93   127

Q 7.	Automobile travelling on the New York State Thruway are checked for speed by a state police radar system. Following is a frequency distribution of speeds:		CO3

Speed(Miles per hour)	Frequency
45-49	12
50-54	43
5-59	155
60-64	180
65-69	75
70-74	20
75-79	15

What is the mean speed of the automobiles travelling on the New York State Thruway? Also find Karl Pearson measures of skewness and comment on the nature of data.

Q 8.	A study was made by a retail merchant to determine the relation between weekly advertising expenditure and sales. The following data were recorded:		CO3

Adv. Cost	5	4	8	7	3	0	2	6	5
Sales	10	8	12	11	6	6	10	6	8

(i) Find the regression line to predict weekly sales from advertising cost

(ii) Estimate the weekly sales when advertising cost is 12

SECTION-D
2Qx15M= 30 Marks

Q 9.	The data on heights (in inches) of 50 adult individuals in a study is given below. The data has been grouped into intervals, and the cumulative frequency.
	
	Height Interval (in inches): 60-65 65-70 70-75 75-80 80-85 85-90
	
	Cumulative Frequency: 7 20 24 45 48 50
	
	   a. Create an Ogive (cumulative frequency curve) for the given data.
	   b. Use the Ogive to find the median graphically. Calculate the median traditionally and compare the result with the median found graphically.
			CO4

Q 10.	You are conducting a research study to investigate the relationship between the time spent commuting to an MBA program (x), the stress levels reported by MBA students (y), and their overall academic performance (z). The data is as follows:
	
	<table><tr><th>Time Spent (X)</th><th>Stress Level (Y)</th><th>Academic Performance (Z)</th></tr><tr><td>30</td><td>5</td><td>7</td></tr><tr><td>45</td><td>7</td><td>6</td></tr><tr><td>20</td><td>3</td><td>8</td></tr><tr><td>60</td><td>9</td><td>5</td></tr><tr><td>40</td><td>6</td><td>6</td></tr><tr><td>35</td><td>4</td><td>7</td></tr><tr><td>50</td><td>8</td><td>5</td></tr><tr><td>25</td><td>2</td><td>9</td></tr><tr><td>55</td><td>9</td><td>4</td></tr><tr><td>30</td><td>6</td><td>7</td></tr><tr><td>65</td><td>10</td><td>3</td></tr><tr><td>35</td><td>5</td><td>8</td></tr></table>
	   a. Calculate the Spearman's rank correlation coefficient (ρ) between the commute time (x) and stress levels (y).
	   b. Calculate the Spearman's rank correlation coefficient (ρ) between stress levels (y) and academic performance (z).
	   c. Calculate the Spearman's rank correlation coefficient (ρ) between commute time (x) and academic performance (z).
	   d. Based on the results of the Spearman's rank correlation coefficients, discuss the strength and direction of the relationships between the variables and provide your interpretation
			CO4