Name: **Enrolment No:**	UPES UNIVERSITY OF TOMORROW

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2024

Course: Business Statistics **Semester: II**
Program: BBA ALL **Time: 03 hrs.**
Course Code: DSQT1004 **Max. Marks: 100**

Instructions: Attempt all questions

SECTION A (10Qx2M=20Marks)

S. No.		Marks	CO
Q 1	Multiple choice questions		
(i)	Ogives curve (LT and MT) can be helpful in locating graphically the (a) Mean (b) Median (c) Mode (d) All	**2**	**CO1**
(ii)	Rankings of teams in a league give you. (a) Nominal (b) Ordinal (c) Interval (d) Both a and b	**2**	**CO1**
(iii)	What does a correlation coefficient of -0.9 indicate between two variables? (a) Strong positive correlation (b) Weak negative correlation (c) Strong negative correlation (d) No correlation	**2**	**CO1**
(iv)	For a Platykurtic Frequency curve: (a) $\beta 2 > 3$ (b) $\beta 2 < 3$ (c) $\beta 2 > 0$ (d) $\beta 2 < 0$	**2**	**CO1**
(v)	For a negatively skewed distribution, the relation between mean median and mode is: (a) Mean < Median and Mean < Mode (b) Mean > Median and Mean > Mode (c) Mode > Median and Mean < Mode	**2**	**CO1**

	(d) Mean < Median > Mode		
(vi)	If two events are independent, what is the probability of both events occurring? (a) Sum of their probabilities (b) Product of their probabilities (c) Difference of their probabilities (d) Division of their probabilities	**2**	**CO1**
(vi)	If P (A ∩ B) = 0.50 and P(A ∪ B) = 0.30 for two events A and B, then P(A) + P(B) is (a) 0.70 (b) 0.80 (c) 0.90 (d) 0.60	**2**	**CO1**
(viii)	Which one is the best measure for qualitative data? (a) Mean (b) Median (c) Mode (d) All the above	**2**	**CO1**
(ix)	Karl Pearson's coefficient of skewness lies between: (a) -1 to +1 (b) 0 to 1 (c) -3 to +3 (d) Both a and c	**2**	**CO1**
(x)	The probability of an event can't be equal to (a) 0 (b) 1 (c) 0.5 (d) -0.5	**2**	**CO1**
SECTION B (4Qx5M= 20) **Write short notes**			
Q2	Define business statistics and explain its significance in the business decision-making process.	**5**	**CO2**
Q3	You are given five sets of data representing different scenarios. For each scenario, identify the type of correlation. (a) Company Revenue and Advertising Spend (b) Employee Training Hours and Job Performance (c) Inventory Levels and Stockouts (d) Customer Satisfaction and Customer Retention (e) Quality Control Inspections and Defective Products	**5**	**CO2**

<table>
<tr><td>Q4</td><td>What do you mean by skewness and Kurtosis? Also, discuss its types</td><td>5</td><td>CO2</td></tr>
<tr><td>Q5</td><td>From the data given below, calculate Karl Pearson’s coefficient of skewness.
Arithmetic Mean= 100
Mode= 40
Variance = 400</td><td>5</td><td>CO2</td></tr>
<tr><td colspan="4">SECTION-C (3Qx10M=30 Marks)</td></tr>
<tr><td>Q6</td><td>The following set of numbers represents mutual fund prices reported at the end of a week for selected 54 nationally sold funds. The observations were as follows:
<table>
<tr><td>6</td><td>5</td><td>13</td><td>7</td><td>23</td><td>3</td><td>38</td><td>26</td><td>32</td></tr>
<tr><td>8</td><td>43</td><td>22</td><td>8</td><td>26</td><td>39</td><td>13</td><td>14</td><td>7</td></tr>
<tr><td>46</td><td>23</td><td>44</td><td>11</td><td>6</td><td>29</td><td>41</td><td>43</td><td>34</td></tr>
<tr><td>26</td><td>48</td><td>42</td><td>29</td><td>45</td><td>38</td><td>50</td><td>40</td><td>22</td></tr>
<tr><td>10</td><td>44</td><td>44</td><td>38</td><td>23</td><td>5</td><td>37</td><td>47</td><td>3</td></tr>
<tr><td>15</td><td>27</td><td>30</td><td>7</td><td>20</td><td>28</td><td>3</td><td>41</td><td>32</td></tr>
</table>
Construct a frequency table and draw an appropriate diagram for it.</td><td>10</td><td>CO3</td></tr>
<tr><td>Q7</td><td>You have collected data on the daily temperatures in a city over the past month. The temperature data is presented in a continuous series, with the temperature ranges and their corresponding frequencies as follows:
<table>
<tr><th>Temp</th><th>No. of Days</th></tr>
<tr><td>20-30</td><td>20</td></tr>
<tr><td>30-40</td><td>10</td></tr>
<tr><td>40-50</td><td>10</td></tr>
<tr><td>50-60</td><td>40</td></tr>
<tr><td>60-70</td><td>16</td></tr>
<tr><td>70-80</td><td>12</td></tr>
</table>
Calculate the Standard Deviation and median of the above data. Also, interpret your findings.</td><td>10</td><td>CO3</td></tr>
<tr><td>Q8</td><td>Two dice are thrown simultaneously. Find the probability of getting:
(i)The sum as a prime number.
(ii) A total of at least 10.
(iii) A doublet of an even number.
(iv) A multiple of 2 on. dice and a multiple of 3 on the other dice.
(v) A multiple of 3 am the sum.</td><td>10</td><td>CO3</td></tr>
</table>

SECTION-D (2Qx15M= 30 Marks)

Q9

The temperature of three cities, A, B, and C, in the winter season for six days are given below.

City	Temperature city in (Degree Celsius)					
A	26	21	21	27	29	26
B	14	26	26	18	15	24
C	24	16	25	22	23	17

Based on this data, Find which city is more consistent in temperature changes.

15 **CO4**

Q10

A company wants to determine if there is a relationship between the amount of money spent on advertising and the sales revenue generated. The following table shows the data for the past 10 months:

Advertising Cost (x)	Sales Revenue (y)
$40	$110
$30	$100
$50	$130
$35	$90
$60	$150
$45	$110
$55	$120
$70	$170
$65	$140
$30	$70

a) Calculate the correlation coefficient between the advertising cost and sales revenue and interpret the results

b) Develop a linear regression equation to predict sales revenue based on advertising cost.

c) Use the regression equation to predict the sales revenue if the advertising cost is $400.

15 **CO4**