Name: Enrolment No:	UPES

UNIVERSITY OF PETROLEUM & ENERGY STUDIES
DEHRADUN

End Term Examination – May, 2019

Program/course:BBA(LM) **Semester – II**
Subject: Business Statistics **Max. Marks : 100**
Code : DSQT1004 **Duration : 3 Hrs**
No. of page/s:05

SECTION A

Attempt all questions

1.	**Select correct answer**	**Marks**	**CO**
	(i) Descriptive statistics consists of the following(s): a)Collection of data b) Presentation of data c)Description of sample data d) All the above	**2**	**CO1**
	(ii) A descriptive measure of a sample is called a) Parameter b)Statistics c)Population d) Sampling	**2**	**CO2**
	(iii) Which measures of central tendency is used to analyze nominal data a) Mode b)Median c) Mean d)Geometric mean	**2**	**CO1**

	(iv) The complete idea of about distribution of data requires the following(s): a) Measures of central tendency and Dispersion b) Sknew ness c)Kurtosis d)All the above	**2**	**CO2**
	(v) Two variables are said to be independent if a) r= 0 b) r= +1 c) r= -1 d) r= +0.5	**2**	**CO3**
	(vi) The histogram is an effective graphical technique used to explain a) Skew ness b) Mean c) Kurtosis d) Both a and c	**2**	**CO1**
	(vii) Which of the following(s) is a bar diagram a) Deviation bar b) Percentage bar c)Subdivided bar d) Multiple bar	**2**	**CO1**
	(viii) The probability of certain event is a) o b) always 1 c) near to 1 d) can't determined	**2**	**CO4**
	(ix) Mean deviation is least from a) Mean b) Mode c) Median d) All the above	**2**	**CO1**
	(x) Deviation bar diagrams is used for representing a) Net profit b) Net Loss c) Net excess or deficit	**2**	**CO1**

<table>
<tr><td></td><td>d) All the above</td><td></td><td></td></tr>
<tr><td colspan="4">SECTION B

(Attempt any Five questions)</td></tr>
<tr><td>2.</td><td>In a throw of two dice, what is the probability of getting
(i) the sum of numbers on both the dice to be 7 or 11.
(ii) the total of numbers on both the dice to be more than 10.</td><td>6</td><td>CO4</td></tr>
<tr><td>3.</td><td>In a class of 50 students, 10 have failed and their average marks is 25.The total marks secured by the entire class is 2810. Find the average marks of those who have passed.</td><td>6</td><td>CO4</td></tr>
<tr><td>4.</td><td>A college dean is interested in learning about the average age of BBA students and selected 65 students.Define the following basic terms in this situation.
a) Population
b) Sample
c) Variable</td><td>6</td><td>CO2</td></tr>
<tr><td>5.</td><td>From the following data, findout which product is more stable in prices.
<table><tr><td>Prices of product A (Rs)</td><td>20</td><td>22</td><td>19</td><td>23</td><td>16</td></tr><tr><td>Prices of product B (Rs)</td><td>10</td><td>20</td><td>18</td><td>12</td><td>15</td></tr></table></td><td>6</td><td>CO4</td></tr>
<tr><td>6.</td><td>Draw a percentage bar diagram for the following data:
<table><tr><td>Expenditure</td><td>Company A</td><td>Company B</td></tr><tr><td>Wages</td><td>450</td><td>700</td></tr><tr><td>Materials</td><td>200</td><td>500</td></tr><tr><td>Power</td><td>75</td><td>350</td></tr><tr><td>Maintenance</td><td>80</td><td>175</td></tr><tr><td>Profit</td><td>195</td><td>275</td></tr><tr><td>Total</td><td>1000</td><td>2000</td></tr></table></td><td>6</td><td>CO2</td></tr>
</table>

7.	From the following data, find the most likely production correspondings to the rainfall of 40 cm. Coefficient of correlation is 0.8.	**6**	**CO3**

	Rainfall(in cm)	Production (tonnes)
Mean	35	50
Standard deviation	5	8

SECTION-C

(Answer any Five questions)

8.	As part of manpower planning exercise at ONGC the following data is collected on units of output and manpower usage per week for a petroleum product during the year 2012. Calculate the correlation between output and manpower used.	**10**	**CO3**

Output	60	48	35	30	55	40	80	70
Man hrs used	650	450	250	500	550	380	750	700

9.	20 students of BBA-LM appeared in Economics and Statistics. Out of these , 8 passed in Economics ,7 passed in Statistics, and 8 failed in both subjects.If one student is selected at random,find the probability that the student. (i) Passed in both subjects (ii) Failed in both subjects (iii) Failed in Economics or Statistics	**10**	**CO4**
10.	Let us consider the grades(X) of 120 students in three different subjects A,B and C. Explain skewness in case of each subjects.	**10**	**CO2**

X	A	B	C
1	6	8	3
2	7	15	7
3	12	29	10
4	20	19	16
5	30	16	25
6	20	12	29
7	12	8	20
8	7	8	6
9	6	5	4

11.	The following data corresponds to income(x) and overheads(y)	**10**	**CO3**

x	1	2	3	4	6	8

	y	2.4	3	3.6	4	5	6	
	Find the both regression lines.							
12.	The joint council of Economic Education conducted a test on basic economic concepts.The following table gives the number of questions answered correctly. 41,13,42,74,29,99,73,49,12,76,90,9,72,9,6,66,29,41,28,37,65,34,14,63,79,76,77,18,36,13,17, 15,14,17,15,54,17,50,11,32,17,93,92,16,7,30,9,19,17,71,19,43,76,50,51,25,28,19,18,11,62,8 (i) Draw relative frequency and percentage frequency distribution table. (ii) For the above data prepare a cumulative frequency distribution table and draw the less than ogive and more than ogive.							**10**	**CO2**
13.	The following table showing the wage distribution in a factory. Find mean, median and mode of wage. If the management of the factory wants to fix minimum wages per week, suggest an appropriate measure of central tendency.							**10**	**CO2**
	Weekly wages(Rs)	0-10	10-20	20-30	30-40	40-50		
	No. of employess	14	25	27	24	15		

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	(ii) A descriptive measure of a pooulation is called a) Parameter b)Statistic c)Population d) Sampling	**2**	**CO2**
	(iii) Which measures of central tendency is used to analyze ordinal data a) Mode b)Median c) Mean d)Geometric mean	**2**	**CO1**
	(iv) The complete idea of about distribution of data requires the following(s): a) Measures of central tendency and Dispersion	**2**	**CO2**

	b) Sknew ness c)Kurtosis d)All the above		
	(v) Two variables are said to be uncorrelated if a) r= 0 b) r= +1 c) r= -1 d) r= +0.5	**2**	**CO3**
	(vi) The histogram is an effective graphical technique used to explain a) Skew ness b) Mean c) Kurtosis d) Both a and c	**2**	**CO1**
	(vii) Which of the following(s) is not a bar diagram a) Deviation bar b) Percentage bar c)Subdivided bar d) pie chart	**2**	**CO1**
	(viii) The probability of uncertain event is a) o b) always 1 c) near to 1 d) can't determined	**2**	**CO4**
	(ix) Mean deviation is least from a) Mean b) Mode c) Median d) None	**2**	**CO1**
	(x) Deviation bar diagrams is used for representing a) Net profit b) Net Loss c) Net excess or deficit d) All the above	**2**	**CO1**

SECTION B

(Attempt any Five questions)

<table>
<tr><td>2.</td><td>A bag contains 7 red, 3 white and 6 blue balls. What is the probability that three balls drawn are red, white and blue?</td><td>6</td><td>CO4</td></tr>
<tr><td>3.</td><td>In a class of 50 students, 10 have failed and their average marks is 25.The total marks secured by the entire class is 2810. Find the average marks of those who have passed.</td><td>6</td><td>CO4</td></tr>
<tr><td>4.</td><td>A college dean is interested in learning about the average grade of BBA students and selected 100 students.Define the following basic terms in this situation.
a) Variable
b) Sample
c) Variable</td><td>6</td><td>CO2</td></tr>
<tr><td>5.</td><td>The following are the salaries of 200 employees. Draw a histogram and frequency polygon to represent the data.
<table>
<tr><td>Salaries</td><td>6000-9000</td><td>9000-12000</td><td>12000-15000</td><td>15000-18000</td><td>18000-21000</td><td>21000-24000</td><td>Total</td></tr>
<tr><td>No. of employees</td><td>30</td><td>35</td><td>40</td><td>45</td><td>33</td><td>17</td><td>200</td></tr>
</table></td><td>6</td><td>CO4</td></tr>
<tr><td>6.</td><td>Draw a percentage bar diagram for the following data:
<table>
<tr><td>Expenditure</td><td>Company A</td><td>Company B</td></tr>
<tr><td>Wages</td><td>400</td><td>650</td></tr>
<tr><td>Materials</td><td>250</td><td>550</td></tr>
<tr><td>Power</td><td>75</td><td>350</td></tr>
<tr><td>Maintenance</td><td>80</td><td>175</td></tr>
<tr><td>Profit</td><td>195</td><td>275</td></tr>
<tr><td>Total</td><td>1000</td><td>2000</td></tr>
</table></td><td>6</td><td>CO2</td></tr>
<tr><td>7.</td><td>Calculate mode for the following data:
<table>
<tr><td>Monthly Rent</td><td>1500-2000</td><td>2000-2500</td><td>2500-3000</td><td>3000-3500</td><td>3500-4000</td><td>4000-4500</td><td>4500-5000</td><td>Total</td></tr>
<tr><td>No. of families paying the rent</td><td>17</td><td>40</td><td>75</td><td>27</td><td>15</td><td>20</td><td>6</td><td>200</td></tr>
</table></td><td>6</td><td>CO3</td></tr>
</table>

SECTION-C

(Answer any Five questions)

8.	Find coefficient of correlation between income and expenditure. 	Income	1	2	3	4	5	6	7	8	9
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Expenditure	12	11	13	15	14	17	16	19	18		**10**	**CO3**
9.	20 students of BBA-LM appeared in Economics and Statistics. Out of these , 8 passed in Economics ,7 passed in Statistics, and 8 failed in both subjects.If one student is selected at random,find the probability that the student. (i) Passed in both subjects (ii) Failed in both subjects (iii) Failed in Economics or Statistics	**10**	**CO4**
10.	Let us consider the grades(X) of 120 students in three different subjects A,B and C. 	X	A	B	C
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1	6	8	3
2	7	15	7
3	12	29	10
4	20	19	16
5	30	16	25
6	20	12	29
7	12	8	20
8	7	8	6
9	6	5	4	 Find skew ness in each case?	**10**	**CO2**
11.	The following data corresponds to income(x) and overheads(y) 	X	1	2	3	4	6	8
---	---	---	---	---	---	---
Y	2.4	3	3.6	4	5	6	 Find the line of regression of Y on X and X on Y.	**10**	**CO3**
12.	The mean and S.D. of 20 items is found to be 10 and 2 respectively. At the time of checking it was found that one item was incorrect. Calculate the mean and S.D. if (i) the wrong item is omitted and (ii) it is replaced by 19.	**10**	**CO2**

13.	The following table showing the wage distribution in a factory. Find mean, median and mode of wage. If the management of the factory wants to fix minimum wages per week, suggest an appropriate measure of central tendency.	**10**	**CO2**

Weekly wages(Rs)	0-100	100-200	200-300	300-400	400-500
No. of employess	14	25	27	24	15