UPES

UNIVERSITY OF PETROLEUMAND ENERGY STUDIES

Program/course: BBA (Oil & Gas, E-business, FAS & General)	**Semester – II**
Subject: Business Statistics	**Max. Marks : 100**
Code : DSQT 1004	**Duration : 3Hrs**
No. of page/s: 4	

Section A

1. Select most appropriate answer.   **(2x10)**

(i)   If the number of students in the BBA class is 40 then find the probability to select any of the student

(a) 1/40
(b) $1/40^2$
(c) 1/10
(d) None of these

(ii)   Which one is correct

(a) $0 \leq P(E) \leq 1$
(b) $0 < P(E) < 1$
(c) $-1 \leq P(E) \leq 1$
(d) None of these

(iii)   Karl Pearson's correlation coefficient measures

(a) Linear relationship between two variables
(b) Positive relationship between two variables
(c) Negative relationship between two variables
(d) None of these

(iv)   A process by which we estimate the value of dependent variable on the basis of one or more independent variables is called:

(a) Correlation
(b) Regression
(c) Skewness
(d) Kurtosis

(v)   The relation between correlation coefficient and regression coefficients is

(a) $r = \sqrt{bxy * byx}$
(b) $r = \sqrt{bxy / byx}$
(c) $r^2 = \sqrt{bxy * byx}$
(d) None of these

(vi)   A positive correlation is present when _____.

(a) Two variables move in opposite directions.
(b) Two variables move in the same direction.
(c) One variable goes up and one goes down
(d) Several variables never change.

(vii)   What is the total numbers of outcomes if we toss three coins simultaneously?

(a) 2
(b) 4
(c) 6
(d) 8

(viii)   For a curve to be positively skewed ………..

(a) Mean> Median
(b) Mean=Median
(c) Mean< Median
(d) None of these

(ix)   Range for Karl pearson coefficient of correlation is

(a) $-1 \le r \le +1$
(b) $0 \le r \le +1$
(c) $-1 \le r \le 0$

(d) None of these

(x)   If $Q_3=40$ and $Q_1=10$ then Quartile deviation will be

(a) 30
(b) 50
(c) 15
(d) 25

Section B

Attempt any four questions.   **(5x4)**
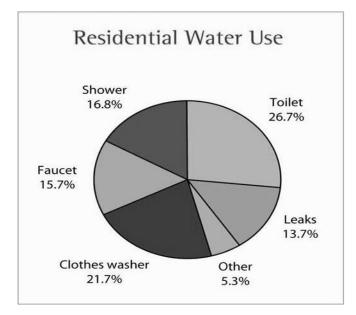
1. Define Kurtosis?

2. What is the difference between Correlation and regression?

3. From the following data, compute Karl Pearson's correlation coefficient and comment on it.

Price	10	12	14	15	19
Demand	40	41	48	60	50

4. Three coins are tossed simultaneously find the probability of getting
    (i)   Exactly one head   (2.5)
    (ii)   At least two heads   (2.5)

5.   Identify the given pie chart and interpret the information getting from it?

Residential Water Use

Shower 16.8%
Toilet 26.7%
Faucet 15.7%
Leaks 13.7%
Clothes washer 21.7%
Other 5.3%

Section-C

Answer any three questions.   **(10x3)**

1. Define skewness and coefficient of skewness.

2. Find mean and median from the following data given below

Marks obtained	0-10	10-20	20-30	30-40	40-50	50-60
No. of students	12	18	27	20	17	6

3. Calculate Standard Deviation and Quartile Deviation for the following data

C.I.	0-15	15-30	30-45	45-60	60-75	75-90	90-105
Frequency	8	26	30	45	20	17	4

4. Two unbiased dice are thrown. Find the probability that
   (i)   Both the dice shown the same number
   (ii)   Sum is prime no.
   (iii) First dice shows 6
   (iv)   Sum is at most 4.

Section-D

Answer both the question.   **(30x1)**

4

1. From the data given below find

X	25	28	35	32	31	36	29	38	34	32
Y	43	46	49	41	36	32	31	30	33	39

   (a) The two regression line equation.   (10)
   (b) The coefficient of correlation between the marks in subjects X and Y?   (5)
   (c) The most likely marks in subject Y when marks in subject X is 30.   (5)
   (d) The most likely marks in subject X when marks in subject Y is 40.   (5)

2. From a well shuffled pack of cards two cards are drawn at random. Find the probability of selecting one black and one red card?   (5)

Roll No: ---------------------------

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Section A

1. Select most appropriate answer.   **(2x10)**

   (i) P(E) is equals to

     (a) $1 - P(\bar{\bar{E}})$
     (b) 1
     (c) 0
     (d) None of these

(ii) What is the total numbers of outcomes if we throw three dice?

     (a) $1/(6)^3$
     (b) 36

(c) $(6)^3$

(d) None of these

(iii) For a leptokurtic curve the value of β_2 is

(a) 3

(b) Less than 3

(c) Greater than 3

(d) $-3 \le \beta_2 \le 3$

(iv) If Cov $(X,Y) = 3.6$, $\sigma_x = 3$ and $\sigma_y = 4$ then the value of correlation coefficient (r) is

(a) r= 0.3

(b) r=0.03

(c) r=3

(d) none of these

(v) A Negative correlation is present when _____.

(a) Two variables move in opposite directions.

(b) Two variables move in the same direction.

(c) Several variables never change.

(d) None of these.

(vi) If variance of X is 11 then standard deviation will be

(a) 121

(b) $\sqrt{11}$

(c) 3.14

(d) None of these

(vii) If the value of regression coefficients is b_{xy} and b_{yx} then correlation coefficient (r) will be

(a) $\pm \dfrac{b_{xy}}{b_{yx}}$

(b) $\pm \sqrt{b_{xy}.b_{yx}}$

(c) $b_{xy}.b_{yx}$

(d) $b_{xy} + b_{yx}$

(viii) For perfect positive correlation the value of Karl Pearson correlation coefficient is

(a) -1

(b) 1

(c) Greater than 1

(d) Greater than 0

(ix) Correlation can not explain
(a) Degree of association
(b) Direction
(c) Cause and effect
(d) None of these

(x) For a curve to be positively skewed ………..
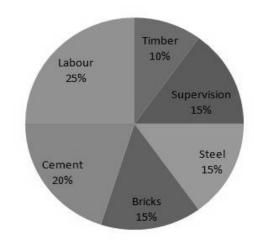(a) Mean> Median
(b) Mean=Median
(c) Mean< Median
(d) None of these

Section B

Attempt any four questions. **(5x4)**

2. Mean of 5 observations was 10. It is found that the sum of first four observations were 38. Find the value of 5th observation?

3. Define skewness and Bowley's coefficient of skewness.

4. Identify the given pie chart and interpret the information getting from it?

Cost of Construction of House

5. Calculate range and variance for the following data.

Class Interval	20-25	25-30	30-35	35-40	40-45	45-50

No. of Students	170	110	80	45	40	35

6. A bag contain 4 black and 6 red balls, two balls are drawn at random. Find the probability that the selected balls are 1 red and 1 white?

Section-C

Answer any three questions.   (10x3)

7. Compute Karl Pearson coefficient of skewness from the following data.

Marks	1	2	3	3	4	5	6
No. of Students	10	18	30	25	12	3	2

8. The ranks of the same 15 students in two subjects in two subjects A and B are given below; the two numbers within the brackets denoting the ranks of the same student in A and B respectively, (1,10), (2,7), (3,2), (4,6), (5,4), (6,8), (7,3), (8,1), (9,11), (10,15), (11,9), (12,5), (13,14), (14,12), (15,13)

   Use spearman's formula to find the rank correlation coefficients.

9. Marks obtained by 40 students are as follows

Marks	0-5	5-10	10-15	15-20	20-25	25-30
No. of Students	10	18	30	25	12	3

Calculate

    (i) Mode   (4)

    (ii) Median   (4)

    (iii) Represent data using Histogram   (2)

10. Three cards are drawn at random from a pack of 52 cards. Find the probability that

    (i)   They are a king, a queen and an ace   (2.5)

    (ii)   Two are black and one is red   (2.5)

    (iii)   One from spade, one from heart and one from Diamond   (2.5)

    (iv)   All three cards are of Club   (2.5)

Section-D

Answer the question.   **(30x1)**

11. From the data given below find

X	40	34	28	30	44	38	31
Y	32	39	26	30	38	34	28

(a) The two regression line equation.   (10)
(b) The coefficient of correlation between the marks in subjects X and Y?   (5)
(c) The most likely marks in subject Y when marks in subject X is 60.   (5)
(d) The most likely marks in subject X when marks in subject Y is 50.   (5)

12. Three coins are tossed simultaneously. Find the probability of getting at most two tails. (5)