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Program/Course	:	BBA(AM/LM/FT/MM)
Semester	:	II
Name of the Subject	:	Business Statistics
Subject Code	:	BBCQ122
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Note: Please mention additional Stationery to be provided, during examination such as Table/Graph Sheet etc. else mention "NOT APPLICABLE":

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**UNIVERSITY OF PETROLEUM
AND ENERGY STUDIES**

End Semester Examination, May 2017

Program/course: BBA(AM/LM/FT/MM)   Semester –   II
Subject: Business Statistics   Max. Marks   : 100
Code   :   BBCQ122   Duration   : 3 Hrs.
No. of page/s: 4

Section A

1. **Fill in the blanks.** (2x10)

I. Let us suppose we have 10 audience of a certain show. Find the number of ways the host can select three audiences to volunteer.
   a) 120
   b) 720
   c) 1000
   d) 3!

II. In tossing of coin event head and tail are not
   a) Exhaustive event
   b) Mutually exclusive event
   c) Equally likely events
   d) Independent event

III. The coefficient correlation is the geometric mean of the two regression coefficients
   a) $r = \sqrt{b_{xy} \times b_{yx}}$
   b) $r = b_{xy} \times b_{yx}$
   c) $r = \sqrt{\dfrac{b_{xy}}{b_{yx}}}$
   d) $r = \dfrac{b_{xy}}{b_{yx}}$

IV. The two regression lines coincide each other and give one line.
   a) $r = -1$
   b) $r = 0$
   c) $r = +1$
   d) $r = \infty$

V. Which of the following indicates the strongest relationship?
   a) $r = 0.5$
   b) $r = 0.09$
   c) $r = -0.6$

d) $r^2 = 0.2$

VI. Which method is used to calculate the correlation of qualitative data
   a) Scatter plot
   b) Coefficient of correlation
   c) Rank correlation Coefficient
   d) Method of least squares

VII. If mean of the data set is 16 and variance is 64, coefficient of variation is
   a) $\frac{\sqrt{64}}{16} \times 100$
   b) $\frac{\sqrt{16}}{64} \times 100$
   c) $\frac{64}{16} \times 100$
   d) $\frac{16}{64} \times 100$

VIII. _____ is not the method of measure of central tendency .
   a) Mode
   b) Geometric Mean
   c) Harmonic Mean
   d) Range

IX. If _____ the distribution is positively skewed.
   a) $S > 0$
   b) $S < 0$
   c) $S > 1$
   d) $S < 1$

X. Quartile deviation is _____ when first quartile is 4 and third quartile is 8.
   a) 1
   b) 2
   c) 3
   d) 6

Section B

Solve any four questions: (5x4)

2. Suppose that we have the following observations of the numbers of hours five students spent studying statistics last week:

   | 8 | 4 | 9 | 11 | 3 |

   Calculate the Variance of given data set.

3. City residents were surveyed recently to determine readership of newspapers available. 50% of the residents read the morning paper, 60% read the evening paper, and 20% read

both newspapers. Find the probability that a resident selected reads either the morning or evening paper or both the papers.

4. What is the interpretation of regression coefficient(b_0 and b_1).

5. Interpret the following value of r: $r = 0, r = -1, r = +1, r = 0.25$

6. Give the scatter diagram for the following cases:
   a) Positive correlation
   b) Negative correlation
   c) No correlation

Section C

Solve any five questions (6x5)

7. A record was kept over a period of 6 months by a sales manager to determine the average number of calls made per day by his six salesmen. The results are shown below:

Salesmen:	A	B	C	D	E	F
Average number of calls per day:	8	10	12	15	7	5

Compute a measure of skewness. Is the distribution symmetrical?

8. From the following table showing the wage distribution in a certain factory, determine the mean wage.

Weekly wage	No. of Employees
100-200	8
200-300	12
300-400	20
400-500	30
500-600	40
600-700	32
700-800	18

9. Rates of return over the past 6 years for two mutual funds are shown below

Fund A:	8.3	-6.0	18.9	-5.7	23.6	20
Fund B:	12	-4.8	6.4	10.2	25.3	1.4

Which one has a higher level of risk?

10. Find the rank correlation coefficient between poverty and overcrowding from the information given below:

Town	A	B	C	D	E	F	G	H	I	J
Poverty:	17	13	15	16	6	11	14	9	7	12
Overcrowding:	36	46	35	24	12	18	27	22	2	8

11. The probability that a contractor will get a plumbing contract is 2/3 and the probability that he will not get an electric contract is 5/9. if the probability of getting at least one contract is 4/5, what is the probability that he will get both?

12. A study showed that 65 per cent of managers had some business education and 50 per cent had some engineering education. Furthermore, 20 per cent of the managers had some business education but no engineering education. What is the probability that a manager has some business education, given that he has some engineering education?

Section D

13. Suppose that you are interested in using past expenditure on research and development by a firm to predict current expenditures on R&D. you got the following data by taking a random sample of firms, where X is the amount on R&D(in lakhs of rupees) 5 years ago and Y is the amount spent on R & D(in lakhs of rupees) in the current year:

X:	30	50	20	80	10	20	20	40
Y:	50	80	30	110	20	20	40	50

    (i)   Calculate the correlation coefficient of given data .   **(10x1)**

    (ii)   Find the regression equation of Y on X.   **(15x1)**

    (iii)   If a firm is chosen randomly and X=10, can you use the regression to predict the value of Y?   **(5x1)**