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**UNIVERSITY OF PETROLEUM
AND ENERGY STUDIES**



End Semester Examination, May 2017

Program/course: BBA (O&G, AVO, E-Com, DM, FAS, Core)

Subject: Business Statistics

Code : BBCQ 122

No. of page/s: 4

Semester –

II

Max. Marks : 100

Duration : 3 Hrs.

Section A

1. Select most appropriate answer.

(2x15)

- I.** Which of the following is the best method to show the expenditure of a house hold in the five major heads as food, rent, clothing, fuel and miscellaneous:
- a. Frequency polygon
 - b. Smooth frequency curve
 - c. Histogram
 - d. Pie chart
- II.** A frequency distribution cannot be presented graphically by:
- a. Histogram
 - b. Frequency polygon
 - c. Mean
 - d. Smooth frequency curve
- III.** Suppose a student scores 30 marks in internal assessment, 25 marks in practical exam and 20 marks in final. Weights assigned to these three tests are 2, 3 and 5. Then the weighted mean is:
- a. 25
 - b. 23.5
 - c. 23
 - d. None of these
- IV.** The point of intersection of the “less than” and “greater than” ogives corresponds to:
- a. Mean
 - b. Median
 - c. Mode
 - d. Standard deviation
- V.** One of the method of determining mode is:
- a. $\text{Mode} = 3\text{Median} - 2\text{Mean}$
 - b. $\text{Mean} - \text{Mode} = 3(\text{Mean} - \text{Median})$
 - c. Both (a) and (b)
 - d. Neither (a) nor (b)
- VI.** The mean annual salaries paid to 10 male employees of a factory were Rs. 2000 while the mean annual salaries paid to 20 female employees of the same factory was Rs. 1500. Then the overall average salaries paid to all employees of the factory are:
- a. 1666.66
 - b. 116.67
 - c. 3500
 - d. None of these
- VII.** If $Q_3 = 79.17$, $Q_1 = 53.44$ then coefficient of quartile deviation is:
- a. 25.73
 - b. 12.865
 - c. 0.19
 - d. None of these

- VIII.** If a curve is more peaked than the normal curve it is then called:
- | | |
|----------------|---------------|
| a. Platykurtic | c. Mesokurtic |
| b. Leptokurtic | d. Skewed |
- IX.** The value of $Q_1=18$, $Q_3=25$, $\text{Mode}=21$, $\text{Mean}=18$. Then the coefficient of skewness is:
- | | |
|-----------|------------------------|
| a. -0.714 | c. Can't be determined |
| b. 0.714 | d. 1 |
- X.** A card is drawn from a pack of 52 cards. The probability that it is either a spade or a king is:
- | | |
|-----------|-----------|
| a. $1/26$ | c. $4/13$ |
| b. $3/26$ | d. $3/13$ |
- XI.** The highest strength of association is reflected by which of the following correlation coefficients?
- | | |
|----------|---------|
| a. -1.0 | c. 0.1 |
| b. -0.95 | d. 0.85 |
- XII.** If two coefficients of regression are 0.8 and 0.2, then the value of coefficient of correlation is:
- | | |
|---------|----------|
| a. 0.16 | c. -0.16 |
| b. 0.40 | d. -0.40 |
- XIII.** A process by which we estimate the value of dependent variable on the basis of one or more independent variables is called:
- | | |
|----------------|-------------|
| a. Correlation | c. Residual |
| b. Regression | d. Slope |
- XIV.** If the figure +1 signifies perfect positive correlation and the figure -1 signifies a perfect negative correlation, then the figure 0 signifies:
- | | |
|---------------------------|---------------------|
| a. A perfect correlation | c. Not significant |
| b. Uncorrelated variables | d. Weak correlation |
- XV.** If $r_{xy} = 1$, then:
- | | |
|----------------------|------------------------------|
| a. $b_{yx} = b_{xy}$ | c. $b_{yx} < b_{xy}$ |
| b. $b_{yx} > b_{xy}$ | d. $b_{yx} \cdot b_{xy} = 1$ |

2. State True or False.

(1X5)

- (a) A class width of a frequency distribution should always be of equal size.
- (b) Mean is a positional average.
- (c) In case of symmetrical distribution mean, median and mode are identical.
- (d) A distribution is said to be negatively skewed if mode is greater than mean and the median lies in between the two.
- (e) Probability of an impossible event is 1.

Section B

Answer all questions.

3. Present the following information in a table supplying the figure not directly given. In 2009, out of a total of 4000 workers in a factory, 3300 were members of a trade union. The number of women workers employed was 500 out of which 400 did not belong to any union. In 2008, the number of workers in the union was 3450 in which 3200 were men. The numbers of non-union workers was 760 of which 330 were women. Also construct a suitable chart to represent the following information. (10)
4. (a) A ball is drawn at random from a box containing 6 red balls, 4 white balls and 5 blue balls. Determine the probability that the ball drawn is: (a) Red, (b) White, (c) Blue, (d) Not Red, (e) Red or White. (4)
- (b) A speaks truth in 75% cases and B in 80% of the cases. In what percentage of cases they are likely to contradict each other? (3)
- (c) A man wants to marry a girl having qualities: (i) white complexion (WC), probability of getting such a girl is $1/20$; (ii) handsome dowry (HD), the probability of getting such a girl is $1/50$; (iii) westernized manners and etiquettes (WE), the probability of getting such a girl is $1/100$. Find out the probability of getting such a girl when the possession of these three attributes is independent. (3)
5. An analysis of weekly wages paid to workers in two firms A and B belonging to the same industry, gives the following results:

	Firm A	Firm B
Number of wage-earners	550	650
Average daily wages (Rs.)	50	45
Standard deviation of wages (Rs.)	9.5	10.9

- (a) Which firm, A or B pays out a larger amount weekly wages? (3)
- (b) In which firm, A or B, is there greater variability in the distribution of wages? (3)
- (c) What is the mean and standard deviation of all workers in two firms taken together? (4)
6. What do you mean by correlation? The ranking of 10 students in accordance with their performance in two subjects A and B are as follows:

A	:	6	5	3	10	2	4	9	7	8	1
B	:	3	8	4	9	1	6	10	7	5	2

Calculate the rank correlation coefficient and comment on its value. (10)

7. You are given the data pertaining to kilowatt hours of electricity consumed by 100 persons in Dehradun.

Consumption K. watt Hours	:	0-10	10-20	20-30	30-40	40-50
No. of Users	:	6	25	36	20	13

Calculate the mean and standard deviation and comment on result. (10)

8. The following data give the ages and blood pressure of 10 women:

Age (X)	:	56	42	36	47	49	42	60	72	63	55
Blood Pressure (Y):		147	125	118	128	145	140	155	160	149	150

- (i) Find the correlation coefficient between X and Y. **(6)**
- (ii) Determine the regression equation of Y on X. **(6)**
- (iii) Estimate the blood pressure of a women whose age is 45 years. **(3)**