

Roll No.

Total No. of Pages : 02

Total No. of Questions : 07

B.Com. (2011 & Onward) (Sem.-2)

**BUSINESS STATISTICS**

Subject Code : BCOP-204

Paper ID : [B1120]

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTION TO CANDIDATES :**

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains SIX questions carrying TEN marks each and students has to attempt any FOUR questions.

**SECTION-A**

**1. Write short notes on :**

- (a) Using the values 20, 40, 80, verify that A.M. > H.M.
- (b) Find out Median, when  $\bar{X} = 22$  and Mode = 18.
- (c) From the following data calculate Quartile deviation X = 4, 9, 14, 19, 24, 29, 34, 39, 44, 49, 54.
- (d) Find the coefficient of skewness from following information. Difference of two quartiles = 8, Mode = 11, Mean = 8, Sum of two quartiles = 22.
- (e) Two judges in a beauty contest remarked the entries as follows :

X	:	1	2	3	4	5
Y	:	5	4	3	2	1

What degree of agreement is there between the Judgements of the Judges.

- (f) From the following data, calculate the number of pairs of X, Y variables :  
 $\Sigma xy = 135$ ,  $\sigma_x^2 = 4$ ,  $\sigma_y^2 = 9$ ,  $r = 0.9$ .
- (g) Calculate variance of Y for the following data.  
 $\sigma_x^2 = 9$ ,  $b_{xy} = 0.6$ ,  $r = 0.8$
- (h) Given  $\bar{X} = 53$ ,  $\bar{Y} = 28$ ,  $b_{yx} = -1.5$ . Find regression equation of Y on X.
- (i) The coefficient of correlation between two variables X, Y is 0.6. Their covariance is 18. The variance of X is 25. Find variance of Y series.
- (j) Calculate mean, given that, Mode = 29, Variance = 100, Karl-Pearson's coefficient of skewness = -0.9.

**SECTION-B**

2. Give the definition of statistics and discuss its Scope and Limitations.
3. The median and mode of the following wage distribution are known to be Rs. 33.5 and Rs. 34 respectively. Three frequencies from the table are missing. Find out the missing frequencies when sum of frequencies is given to be 230.

Wages (Rs.)	:	0-10	10-20,	20-30,	30-40,	40-50,	50-60,	60-70
No. of persons	:	4,	16,	—,	—,	—,	6	4

4. (a) Calculate S.D. from the following data :

Classes	:	10-20,	20-30,	30-40,	40-50,	50-60,	60-70
$f$	:	2	4	8	10	12	4

- (b) Calculate Bowley's coefficient of skewness :

Marks	:	0-10,	10-20,	20-30,	30-40,	40-50,	50-60
No. of Students	:	10	20	30	50	40	30

5. (a) Calculate Karl Pearson's coefficient of correlation from the data given below :

X	:	20	24	22	26	24	28	18	24	28	26
Y	:	14	18	24	18	26	16	20	24	14	26

- (b) Calculate  $r_k$  of the following data :

X	:	75	73	72	72	63	62	55	50
Y	:	10	11	13	13	13	20	16	28

6. In a partially destroyed laboratory record of an analysis of correlation data. The following results are only legible. Variance of X = 9, Regression equations  $8X - 10Y + 66 = 0$ ,  $40X - 18Y = 214$ .

Find : (i) mean of X and Y (ii)  $r$  (iii) S.D. of Y.

7. (a) Compute the trend values by method of least squares from following data :

Year	:	1981	1982	1983	1984	1985	1986	1987
Production	:	80	90	92	83	94	99	92

- (b) From following data calculate 4-yearly moving average

Year	:	1988	89	90	91	92	93	94	95	96	97
Value	:	50	36.5	43	44.5	38.9	38.1	32.6	41.7	41.1	33.8