

**S.D.E.**

**F. Y. B. Com. Sem - II (CBCS 2018 Course) : SUMMER - 2019**

**SUBJECT : BUSINESS MATHEMATICS & BUSINESS STATISTICS – II**

Day : Thursday  
Date : 02/05/2019

**S-2019-4721**

Time 03.00 PM TO 06.00 PM  
Max. Marks : 70

**N.B.**

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Use of non-programmable calculator is allowed.

**Q.1** Attempt **ANY THREE** of the following: **(15)**

- a) Find the coefficient of variation of the following data:  
14, 8, 11, 10, 13, 16, 12.
- b) Given :  $X - 4Y = 5$  and  $X - 16Y = -64$  are the regression lines  
Find :  
i) Means of X and Y ii) Coefficient of correlation between X and Y.
- c) Compute the coefficient of correlation between X and Y for the following data:

X	2	4	5	3	6
Y	3	5	4	6	2

- d) Draw a scatter diagram to represent the following data and interpret the result:

X	12	18	20	25	28	24	26	32
Y	15	20	28	35	40	30	33	38

**Q.2** Attempt **ANY THREE** of the following: **(15)**

- a) Information about the daily salaries of employees in firm A and B is stated below:

Firm	No. of Employees	Mean Salary	Standard deviation of salary
A	586	52.5	10
B	647	47.5	11

Which firm is more consistent in salaries?

- b) Define Range and coefficient of Range. Also state merits and demerits of range.
- c) Compute rank correlation coefficient from the following data and interpret it:

Ranks by Judge – A	2	3	8	6	4	5	1	7
Ranks by Judge – B	2	3	7	6	5	4	1	8

- d) Compute regression coefficients for the following data:  
 $n = 100$ ,  $\bar{X} = 60$ ,  $\bar{Y} = 50$ ,  $\sum(x - \bar{x})(y - \bar{y}) = 8400$ ,  $\sigma_x = 15$ ,  $\sigma_y = 10$   
Also find correlation coefficient.

P.T.O.

**Q.3** Attempt **ANY THREE** of the following: **(15)**

- a) What sum will amount to ₹9,5957 in 3 months at 16% p.a. simple interest?
- b) Find compound interest on ₹7500 at 4% p.a. for two years, compounded annually.
- c) Solve the following equations by using cramer's rule  
 $4x - 3y = 11, 6x + 5y = 7$  .
- d) Find the inverse of matrix  $A = \begin{bmatrix} 4 & -5 \\ 2 & 1 \end{bmatrix}$  by adjoint method.

**Q.4** Attempt **ANY THREE** of the following: **(15)**

- a) If  $A = \begin{bmatrix} 3 & 6 \\ 7 & -8 \end{bmatrix}, B = \begin{bmatrix} 5 & -7 \\ 9 & 4 \end{bmatrix}$  . Find  $2A+3B$  and  $3B-A$ .
- b) A person has borrowed ₹5000 from a bank on the interest rate of 12% p.a. for 10 years. Calculate equated monthly installments.
- c) Find  $x$ , if  $\begin{vmatrix} x & 2 & 1 \\ 3 & x & -2 \\ 1 & 3 & 1 \end{vmatrix} = 5$  .
- d) What is the order and type of following matrices?  
i)  $\begin{bmatrix} 3 & 2 \\ 4 & 0 \end{bmatrix}$       ii)  $\begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}$

**Q.5** **A)** Attempt **ANY ONE** of the following: **(05)**

- a) State the properties of regression coefficients.
- b) State the merits and demerits of scatter diagram as measure of correlation.

**B)** Attempt **ANY ONE** of the following: **(05)**

- a) Define i) Principal    ii)    Amount

- b) Evaluate  $D = \begin{vmatrix} 1 & 1 & 2 \\ 2 & 1 & 2 \\ 3 & 2 & 1 \end{vmatrix}$

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