

F.Y.B.COM. SEM – II (CBCS - 2016 COURSE) : SUMMER - 2018

SUBJECT : BUSINESS MATHEMATICS & BUSINESS STATISTICS-II

Day : Friday
Date : 20/04/2018

S-2018-0253

Time : 03.00 PM TO 06.00 PM
Max. Marks : 60

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Use of Logarithmic table and pocket **CALCULATOR** is allowed.

Q.1 A) Choose correct alternative for: [06]

- i) What is simple interest on ₹ 1,000/- at 6% p.a. for 2 years?
a) ₹ 60 b) ₹ 120 c) ₹ 100 d) ₹ 200
- ii) If $D = \begin{vmatrix} 2 & -1 \\ 4 & 5 \end{vmatrix}$, then D is _____.
a) 14 b) 6 c) 10 d) -4
- iii) If $\begin{bmatrix} x & 3 \\ -2 & 1 \end{bmatrix} = \begin{bmatrix} -5 & 3 \\ -2 & 1 \end{bmatrix}$, then x is _____.
a) -5 b) 5 c) 2 d) -2
- iv) The variance of set of 10 observations is 3 if every observation is doubled, the new value of variance will be
a) 3 b) 6 c) 9 d) 12
- v) If X and Y are independent variables then Correlation between X and Y is
a) 1 b) -1 c) 0.5 d) 0
- vi) The two regression lines intersect at
a) (0, 0) b) (\bar{x}, \bar{y}) c) (σ_x, σ_y) d) (1, 1)

B) Attempt the following: [06]

- i) Define Principal.
- ii) Define Row Matrix.
- iii) Define Determinant.
- iv) If $n = 10$, $\sum X = 20$, $\sum X^2 = 80$, find Standard Deviation of X.
- v) Define positive correlation.
- vi) Write down the formula for b_{xy} .

Q.2 Attempt ANY TWO of the following: [12]

- a) Find correlation coefficient between X and Y given following data:
 $n = 5$, $\sum X = 20$, $\sum X^2 = 90$, $\sum Y = 20$, $\sum Y^2 = 90$, $\sum XY = 73$.
- b) Ten competitors in a beauty contest are ranked by 2 judges in the following order:

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

Find rank correlation coefficient.

P.T.O.

- c) Using the following results:

	Rainfall (inches)	Yield (per acre)
Mean	27	40
Standard Deviation	3	6
Correlation Coefficient	0.8	

Obtain yield when rainfall is 29 inches.

Q.3 Attempt **ANY THREE** of the following: [12]

- a) A group of 50 items have Mean and S.D. 61 and 8 respectively. Another group of 100 observations has Mean and S.D. 70 and 9 respectively. Find Mean and S.D. of combined group.
- b) Find mean and standard deviation for the following data:

Class	5 – 15	15 – 25	25 – 35	35 – 45	45 – 55
Frequency	5	12	18	6	2

- c) State the properties of regression coefficients.
- d) Find range and coefficient of range for:
23, 12, 17, 22, 26, 25, 24.

Q.4 Attempt **ANY TWO** of the following: [12]

- a) Solve the following system of equations by using Determinant method:
 $2x + y = 4$ $x + 3y = 6$
- b) The simple interest on ₹ 1900 for 4 years exceeds the simple interest on ₹ 1200 for the same period by ₹ 308. Find the rate of interest.
- c) Given: $A = \begin{bmatrix} 3 & -2 \\ 4 & 5 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & 2 \\ 5 & 3 \end{bmatrix}$
Find AB and BA.

Q.5 Attempt **ANY THREE** of the following: [12]

- a) A machine is depreciated at rate of 20% on the reducing balance. The original cost was ₹ 2,05,000/-. Find the cost after 6 years.
- b) What sum will amount to ₹ 24,300/- in 3 years at 10% p.a. compound interest?
- c) Define Square matrix and Diagonal matrix.
- d) Find the compound interest on ₹ 6,200/- at 6% p.a. in the 3rd year.

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