F.Y.B.COM. SEM – II (2018 CBCS COURSE) : SUMMER - 2019

SUBJECT : BUSINESS MATHEMATICS & BUSINESS STATISTICS – II

Day : Saturday
Date : 27/04/2019

S-2019-0294

Time : 03.00 P.M. To 06.00 P.M.
Max. Marks : 60

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 **TWO** of the following: **(12)**

a) For bivariate data we have $\overline{X} = 3$, $\overline{Y} = 4$, $b_{yx} = 4$ and $b_{xy} = \frac{1}{16}$. Find :

i) Correlation coefficient between X and Y **ii)** estimate Y for X = 6
iii) Estimate X for Y = 5

b) Find the standard deviation and coefficient of variation for the following data:
16, 14, 15, 13, 22, 20.

c) Obtain the correlation coefficient between X and Y for the following data:

X	6	2	10	4	8
Y	9	11	5	8	7

Q.2 Attempt any **THREE** of the following: **(12)**

a) What is scatter diagram? How it helps in determining type of correlation.

b) Compute rank correlation coefficient for the following data:

Rank by X	5	6	4	2	1	3
Rank by Y	6	5	3	2	4	1

c) The following is the daily income in ₹ of 10 families
145, 367, 268, 73, 185, 619, 280, 115, 870, 315.
Compute range and coefficient of range.

d) Find the combines standard deviation (SD) for the following data:

Group	Mean	SD	Size
A	50	10	100
B	55	11	150

Q.3 Attempt any **TWO** of the following: **(12)**

a) Solve the following equations by using cramer's rule.
$3x + 4y = 7$, $y - 2x = 3$.

b) A person takes loan of ₹ 1000 from a bank for a period of 1 year. The rate of simple interest is 10% p.a. Find the interest and the amount he has to pay at the end of a year.

c) The population of a town is 20,000 and increases every year 1.8% of the population at the beginning of that year. Find the population after 15 years.

P.T.O.

Q.4 Attempt any **THREE** of the following: **(12)**

a) If $A=\begin{bmatrix}3 & 6\\ 7 & -8\end{bmatrix}$ and $B=\begin{bmatrix}5 & -7\\ 9 & 4\end{bmatrix}$
Find 2A + 3B and 3B – A.

b) Find the difference between compound interest and simple interest on ₹ 5000 for 2 years at 10% p.a.

c) Find the inverse of matrix $A=\begin{bmatrix}4 & -5\\ 2 & 1\end{bmatrix}$ by adjoint method.

d) Find x, if $\begin{vmatrix}x & -3\\ -1 & x+2\end{vmatrix}=0$.

Q.5 A) Attempt any **TWO** of the following: **(06)**

a) State any three properties of correlation coefficient.

b) If corr(x,y) = 1, b_{yx} = 2, find b_{xy} . Also obtain line of regression of X on Y when $\overline{X}=4$ and $\overline{Y}=3$.

c) How the rank of correlation coefficient is compute in case of ties?

B) Attempt any **TWO** of the following: **(06)**

a) Define with example: **i)** Row matrix **ii)** Zero matrix.

b) Evaluate : $D=\begin{vmatrix}2 & 1 & 2\\ 2 & 1 & 3\\ 5 & 4 & 9\end{vmatrix}$

c) Define **i)** Principle (sum) **ii)** Amount

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