

S.D.E.

F. Y. B. Com. (2008 Course) : WINTER - 2018

SUBJECT : BUSINESS MATHEMATICS & STATISTICS

Day : Wednesday
Date : 17/10/2018

W-2018-4288

Time : 11.00 AM TO 02.00 PM
Max. Marks : 80

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in **SAME** answer book.
- 4) Use of logarithmic, statistical tables and pocket **CALCULATOR** is allowed.

SECTION – I

Q.1 Attempt **ANY FOUR** of the following: [16]

- a) Find first, second and third quartiles for the following data:

X	5	10	15	20	25
f	8	12	25	11	9

- b) Draw histogram for the following data:

Class	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50
Frequency	5	20	32	24	4

- c) Find mean and mode for the following data:

X	10	15	20	25	30
f	5	8	13	6	8

- d) State the merits and demerits of mean.

- e) Find mode of the following data:

Class	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50
Frequency	7	8	15	11	9

- f) The frequency distribution of marks of 100 students is given below:

Class	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60
Frequency	5	15	25	30	20	5

- Obtain: i) Frequency of 4th class iii) Width of 5th class
 ii) Class mark of 3rd class iv) Frequency density of last class.

Q.2 Attempt **ANY FOUR** of the following: [16]

- a) A article costing Rs. 12,500/- was sold for Rs. 10,900/- after three years. Find the total loss and percentage of loss.
- b) A, B and C enter into partnership by putting in Rs, 2,000/- Rs, 2,400/- and Rs. 3,600/0 respectively and agreeing to share profits in capital ratio. In case of the net profit of Rs. 4,000/-, what would be the profit of each partner?
- c) For the following Arithmetic Progression (A.P), find t_{10} and S_{10} :
2, 4, 6, 8, 10,

P.T.O.

- d) Explain the term Share and Bonus shares.
- e) i) Find the value of y in the following proportion
 $91 : 52 :: 77 : y$
 ii) If 50 articles cost Rs. 516/-, find the cost of 70 articles.
- f) By selling two toys for Rs. 8,800/- each a trader gain 10% on one and on the other he losses 10%. What is the total gain or loss on the total transaction?

SECTION – II

Q.3 Attempt **ANY FOUR** of the following: **[16]**

- a) Find quartile deviation and coefficient of quartile deviation for the following data:

55, 22, 86, 52, 14, 60, 47, 58, 23, 10.

- b) Find mean deviation from median for the following data:

11, 15, 13, 19, 22.

- c) For bivariate data we have $\bar{X} = 53$ $\bar{Y} = 28$ $b_{yx} = -1.5$ $b_{xy} = -0.2$. Find:

- i) Correlation coefficient between X and Y.
 ii) Estimate Y for X = 75.

- d) Find range and coefficient of range for the following data:

X	10	15	20	25	30
f	2	3	5	6	4

- e) Find standard deviation (S.D) and variance for the following data:

24, 28, 26, 32, 35.

- f) Draw the scatter diagram and interpret the result:

X	41	67	65	92	84	77	27	100	38	80
Y	46	52	57	85	61	67	59	90	50	83

Q.4 Attempt **ANY FOUR** of the following: **[16]**

- a) Find the value of : i) ${}^{40}P_3$ ii) ${}^{15}C_4$
- b) What is the area of square plot of land if the diagonal distance between two opposite ends of it is 20 m?
- c) Find the compound interest of Rs. 50,000/- for 5 years at 5% p.a.

- d) Evaluate : $\begin{vmatrix} 0 & 1 & 2 \\ 3 & 4 & 5 \\ 6 & 7 & 8 \end{vmatrix}$

- e) Define Row matrix and Square matrix.
- f) In how many years Rs. 35,000/-, will amount to Rs. 87,500/- at 10% p.a. simple interest.

- Q.5 A)** Attempt **ANY TWO** of the following: **[08]**
a) Obtain regression equation of X on Y for the following data:

X	6	8	7	9	5
Y	6	7	8	5	9

- b)** If correlation coefficient between X and Y is 0.82. Find the correlation coefficient between following:
i) X and $-Y$ **iii)** $X - 10$ and $Y + 15$
ii) $5X$ and $7Y$ **iv)** $\frac{X}{3}$ and $\frac{Y}{5}$
- c)** Information about the daily salaries of employees in firms A and B is given below:

Firm	No. of employees	Mean salary	S.D. of salary
A	586	152	10
B	647	148	15

Which firm has smaller variation in salary ?

- B)** Attempt **ANY TWO** of the following: **[08]**

a) If $A = \begin{bmatrix} 1 & 2 & 3 \\ 8 & 5 & 6 \end{bmatrix}$, $B = \begin{bmatrix} 1 & 3 & 6 \\ 2 & 3 & 4 \end{bmatrix}$. Find $2A + 3B$.

b) Solve the following equations by using method of determinant
 $3x - 3y = 4$, $x + 4y = 2$.

- c)** A car is depreciated at rate of 25% on the reducing balance. The original cost was Rs. 4,50,000/-. Find the cost after 5 years.

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