

S.D.E.

F. Y. B. COM. (2008 COURSE) : SUMMER - 2018

SUBJECT : BUSINESS MATHEMATICS & STATISTICS

11.00 AM TO 02.00 PM

Day : Friday
Date : 20/04/2018

S-2018-4167

Time :
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 the mean, median and mode for the following data:
32, 30, 35, 30, 38, 35, 40, 35, 37, 38.

b) State the merits and demerits of median.

c) Calculate quartiles for the following data:

Class	20-25	25-30	30-35	35-40	40-45
Frequency	5	10	15	13	7

d) The frequency distribution of wages of 100 workers is given below:

Wages	0-10	10-20	20-30	30-40	40-50
No. of workers	10	20	35	23	12

Find less than and more than cumulative frequencies.

e) Draw the Histogram for the following data:

Class	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	3	7	12	8	6	4

f) Find the mode for the following data:

Class	20-25	25-30	30-35	35-40	40-45
Frequency	5	10	15	13	7

P.T.O.

Q.2 Attempt any **FOUR** of the following:

(16)

- a) Find the value of x and y if
 - i) $3 : 8 ; : 9 : x$
 - ii) $y : 8 ; : 10 : 16$
- b) The partnership firm, which has three partners with respective capitals ₹ 10,000/-, ₹ 50,000/- and ₹ 30,000/- earns profit of ₹ 7,920/- in a year. How much each will get?
- c) A article costing ₹ 12,000/- was sold for ₹ 10,800/- after two years. Find the percentage loss.
- d) Sum of present ages of 3 persons is 66 years. Five years ago, their ages were in the ratio 4 : 6 : 7. Find the present ages.
- e) Explain different types of shares.
- f) Find t_{15} and S_{15} for a following arithmetic progression (A.P.) 3, 6, 9, 12, 15.....

SECTION – II

Q.3 Attempt any **FOUR** of the following:

(16)

- a) Find correlation coefficient between X and Y , given that
 $n = 7, \Sigma x = 72, \Sigma y = 204, \Sigma x^2 = 788, \Sigma y^2 = 9248, \Sigma xy = 2380$
- b) Find the range and coefficient of range for the following data:
95, 40, 76, 17, 55, 38, 09, 32, 60, 11
- c) Draw the scatter diagram and interpret the result

X	44	80	70	48	52	72	68	56	60	64
Y	48	75	54	60	63	69	72	51	57	66

- d) Find the mean deviation about mean and its coefficient for the following data:
16, 18, 20, 11, 35
- e) If $n = 5, \Sigma x = 114, \Sigma x^2 = 2830$ find mean, standard deviation and variance.
- f) Define correlation coefficient and state the properties.

Q.4 Attempt any **FOUR** of the following:

(16)

a) Evaluate

$$D = \begin{vmatrix} 3 & 4 & 5 \\ 0 & 1 & 2 \\ 6 & 7 & 8 \end{vmatrix}$$

b) If $A = \begin{bmatrix} 3 & 4 & -2 \\ 4 & 5 & 6 \end{bmatrix}$, $B = \begin{bmatrix} 1 & 6 & 9 \\ 1 & -8 & 6 \end{bmatrix}$ Find $2A + 2B$

c) Find the value of

i) ${}^{40}P_4$ ii) ${}^{20}C_5$

d) Find the compound interest on ₹3,000/- for 5 years at 5% p.a.

e) If length and breadth of rectangle are in the ratio 5:3 and its area is 135 sq.m. Find the perimeter of rectangle.

f) In how many years will ₹ 35,000/- will amount to ₹ 70,000/- at 10% p.a. simple interest?

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

(08)

a) State the properties of regression coefficients.

b) Find the coefficient of quartile deviation for the following frequency distribution.

X	40	50	60	70	80	90
f	3	6	9	5	4	3

c) Given variance of $X = 9$ and the regression equations
 $8X - 10Y + 66 = 0$ and $40X - 18Y - 214 = 0$

Find: i) Correlation coefficient between X and Y
ii) Variance of Y

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

(08)

a) Define Row matrix and Column matrix.

b) A machine depreciates at rate of 25% on the reducing balance. The original cost was ₹1,00,000/-, find the cost after $7\frac{1}{2}$ years.

c) Find the area and perimeter of a triangle whose sides are 15 m, 21m and 24 m.

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