

**F.Y.B.COM. SEM – II (2014 Course) : WINTER - 2018**  
**SUBJECT: BUSINESS MATHEMATICS & BUSINESS STATISTICS - II**

Day: Wednesday  
Date: 17/10/2018

**W-2018-0337**

Time: 03.00 PM TO 05.00 PM  
Max. Marks: 40

**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** Attempt any **TWO** of the following: **(10)**

- a) Write the expression for regression lines. Also state their utility.
- b) Find combined S.D. for the following data:

	Boys	Girls
Total	72	68
Mean Height ( in inches)	68	61
Standard Deviation	9	6

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

X	27	30	20	28	11
Y	19	20	16	11	21

- d) Six competitors in a beauty contest are ranked by 2 judges in the following data:

Ranks by Judge A	5	6	4	3	1	2
Ranks by Judge B	6	2	1	4	5	3

Compute Spearman's rank correlation coefficient between A and B

**Q.2** Attempt any **TWO** of the following: **(10)**

- a) Find range and coefficient of range for the following data:  
22, 32, 56, 45, 36, 18
- b) Compute coefficient of variation for the following frequency distribution:

Class	15-20	20-25	25-30	30-35	35-40
Frequency	12	18	20	16	7

**P.T.O.**

c) Given the following information:

	Height (cm)	Age (years)
Mean	120.5	10.37
Standard Deviation	12.7	2.39
Correlation coefficient	0.93	

Estimate the height of a boy of 12 years.

**Q.3** Attempt any **TWO** of the following: **(10)**

a) If

$$A = \begin{bmatrix} 3 & 4 \\ 9 & 2 \end{bmatrix}, B = \begin{bmatrix} 1 & 0 \\ 2 & 1 \end{bmatrix} \text{ and } C = \begin{bmatrix} 2 & 3 \\ 4 & 5 \end{bmatrix} \quad \text{Find } A + 2C \text{ and } C - 2B$$

b) A machine depreciated at rate 25% on the reducing balance. The original cost was Rs. 1,99,000 /-. Find the cost after 10 years.

c) Evaluate

i)  $\begin{vmatrix} 3 & -7 \\ 4 & 9 \end{vmatrix}$

ii) Find the value of x, y and z so that

$$\begin{bmatrix} x-4 & z^2 \\ y+3 & 2 \end{bmatrix} = \begin{bmatrix} 5 & 9 \\ -3 & 2 \end{bmatrix}$$

d) Define column matrix and zero matrix

**Q.4** Attempt any **TWO** of the following: **(10)**

a) A sum of Rs 14,800/- amount to Rs. 16,240/- in certain period. If the rate of simple interest is 10% p.a. Find the period.

b) Find the amount of Rs.5000/- at 12% p.a in 3 years compounded quarterly.

c) i) Define third order determinant

ii) State the order and type of following matrices.

$$[3 \ 3 \ 2] \text{ and } \begin{bmatrix} 1 \\ 0 \\ 0 \end{bmatrix}$$