

I Semester B.B.M. Examination, Nov./Dec. 2014
(Fresh) (CBCS) (2014-15 and Onwards)
BUSINESS MANAGEMENT

1.5 : Quantitative Methods for Business – I

Time : 3 Hours

Max. Marks : 70

Instructions : Answers should be written in **English**. All the rough work must be shown on the **right hand margin**.

SECTION – A

Answer **any five** sub-questions from the following. Each carries **2** marks. **(2×5=10)**

1. a) Give the meaning of Real Numbers.
- b) Define Integers.
- c) Define Linear Equation.
- d) If $A = \begin{bmatrix} 2 & 4 \\ 3 & -5 \end{bmatrix}$ find A^2 .
- e) What is a scalar matrix ? Give an example.
- f) Solve for x, $4x^2 + 4 = 20$.
- g) Find the simple interest on Rs. 12,000 for 2 years at 8% p.a.

SECTION – B

Answer **any three** of the following. Each question carries **six** marks. **(6×3=18)**

2. Find the LCM of 36, 72, 144 and 2100 by division method.
3. Solve for x, $(2x - 7)(3x + 1) = (2x - 5)(3x + 2)$

4. Find AB and BA, if $A = \begin{bmatrix} 1 & 2 & -3 \\ 5 & 0 & 2 \\ 1 & -1 & 1 \end{bmatrix}$ and $B = \begin{bmatrix} 3 & -1 & 2 \\ 4 & 2 & 5 \\ 2 & 0 & 3 \end{bmatrix}$

5. What term of AP 7, 10, 13,...is 60 ?
6. Calculate compound interest on 5,000 at 5% rate of interest p.a. for 3 years.

P.T.O.



SECTION - C

Answer any three of the following. Each question carries fourteen marks. (14×3=42)

7. a) The weekly wages of 30 persons consisting of men and women amounts to Rs. 3,800. Each man receives Rs. 160 and each woman Rs. 120 as wages per week. Find the number of men and women.

b) Solve by elimination method.

$$x + y = 15$$

$$3x - y = 21$$

8. a) Find the difference between compound and simple interest on Rs. 10,000 invested for 5 years at 8% p.a.

b) 8 men or 16 boys can do a work in 39 days. In how many days will 4 men and 18 boys do it?

9. a) Find the inverse of a matrix

$$\begin{bmatrix} 1 & -1 & 1 \\ 2 & -1 & 3 \\ -3 & -2 & 4 \end{bmatrix}$$

b) Find the sum of all numbers between 100 to 1000, which are multiples of 5.

10. a) If $A = \begin{bmatrix} 3 & 1 \\ 4 & 2 \end{bmatrix}$, $B = \begin{bmatrix} 2 & -1 \\ 3 & 1 \end{bmatrix}$ and $C = \begin{bmatrix} 2 & 3 \\ 4 & 1 \end{bmatrix}$ verify $A(B + C) = AB + AC$.

b) Solve by Cramer's rule.

$$2x + 3y = 42$$

$$5x - y = 20$$

11. a) Two washing machines are sold for 15,000 each, getting 10% profit on one and 10% loss on the other. Find the gain (or) loss percent on the sale of both the machines.

b) Calculate amount of an annuity of 10,000 for 10 years, if the rate of interest is 10% p.a.