

Roll No. ....

## BBA-102(N)

B. B. A. (First Semester)  
EXAMINATION, Dec., 2012

(New Course)

Paper Second

BUSINESS MATHEMATICS

Time : Three Hours ] [ Maximum Marks : 70

Note : Attempt any ten questions from Section A and any two questions from Section B.

Section - A 5 each

1. If :

$$A = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{bmatrix}, B = \begin{bmatrix} 0 & 9 & 8 \\ 7 & 6 & 5 \end{bmatrix}$$

find  $2A + 4B$ .

2. Write an example of Row matrix, Column matrix and Identity matrix.

3. If :

$$A = \begin{bmatrix} 2 & -1 & 3 \\ -5 & 3 & 1 \\ -3 & 2 & 3 \end{bmatrix}$$

find inverse of A ( $A^{-1}$ ).

4. Calculate  $27\frac{1}{2}\%$  of ₹ 19,271.

5. Find the sum of first 50 natural numbers.
6. Define Set.
7. The income of A, B and C are as 5 : 4 : 3 and their spending are as 8 : 5 : 4. If A saves ₹ 800 out of an income of ₹ 12,000, find the saving of B and C.

8. Find the  $\frac{dy}{dx}$  of the following :

$$y = x^2 + 2 \cos x - 11x^{-3/5}$$

9. Evaluate :

$$\int \sin x \, dx$$

10. If :

$$A = \{a, b, c, d, e, f, g, h\}$$

$$B = \{b, d, f, h\}$$

$$C = \{a, c, e, g\}$$

Find :

- (i)  $A - B$
  - (ii)  $B \cup C$
  - (iii)  $B \cap C$
  - (iv)  $A - C$
11. Write the formula of simple interest and compound interest.
  12. If 8 persons working 8 hrs. in a day can complete a work in 15 days, then how many persons can complete this work in 6 days by working 10 hrs. in a day ?
  13. Find the average of 51, 53, 55 and 57.

## Section - B

10 each

14. Find the maximum and minimum values of the function :

$$f(x) = x^3 - 6x^2 + 12x - 8$$

15. Find the Rank of the matrix A :

$$A = \begin{bmatrix} 1 & 2 & 3 \\ 2 & 4 & 5 \end{bmatrix}$$

16. Write a short note on the use of matrices in Business Mathematical Induction. Also give example.

17. Solve the following system of equations :

$$x + 3y - 2z = 0, 2x - y + 4z = 0, x - 11y + 14z = 0$$