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Roll No. | | | | | | | | | | | | | **Total No. of Pages : 02**

Total No. of Questions : 07

BBA (2010 & 2011 Batch) (Sem.–1)

BUSINESS MATHEMATICS

Subject Code : BB-102

Paper ID : [C0202]

Time : 3 Hrs. **Max. Marks : 60**

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains SIX questions carrying TEN marks each and students has to attempt any FOUR questions.**

SECTION-A

1. Write briefly :

a. Describe disjoint sets.

b. Define scalar matrix.

c. Define compound interest.

d. Find the coefficient of the term involving X^{10} in the expansion of $(X^2 - 2)^{11}$.

e. Find the sum of first ten terms of the G.P. series $2 + 2^2 + 2^3 + 2^4 + \ldots\ldots\ldots$

f. Find the quadratic equation whose roots are $1 + \sqrt{3}$ and $1 - \sqrt{3}$.

g. Show that $3 \log_2 5 + \log_2 10 - \log_2 625 = 1$

h. For what value of x, $f(x) = x^2 + 3x - 2$ satisfies the equation $f(x) = f(2x)$.

i. Evaluate $\lim_{x \to 2} \frac{x^2 - 5x + 6}{x^2 - 4}$

j. If A has 32 elements, B has 42 elements and $A \cup B$ has 62 elements. Indicate the number of elements in $A \cap B$.

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SECTION-B

2. How many odd numbers greater than 80000 can be formed using the digits 2, 3, 4, 5 and 8 if each digit is used only once in a number? (10)

3. Find a, b and n in the expansion of $(a + b)_n$ if the first three terms of the expansion are 729, 7290 and 30375 respectively. (10)

4. What sum will become Rs. 6,690 after three years and Rs. 10,035 after six years on compound interest? (10)

5. In a class of 25 students, 12 students have taken Economics, 8 have taken Economics but not Math. Find the number of students who have taken Economics and Math and those who have taken Math but not Economics. (10)

6. Find the values of X, Y, and Z using Crammer's Rule from the following :

$3x + 2y - z = 4$

$-x - y + 3z = 6$

$5x - 3y + z = 2$ (10)

7. a) Find dy/dx when

$Y = (ax^3 + bx^2 + cx + d)^{-7/3}$ (4)

b) Find maximum and minimum values of the function

$Y = 2x^3 - 9x^2 + 12x + 6$ (6)

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