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Total No. of Questions : 9 | Total No. of Pages : 4

**57502**

B.B.A. 1st Semester  
Examination, March-2021  
(New Scheme 2014-17)

**BUSINESS MATHEMATICS**  
Paper-BBAN-102

Time : **Three Hours** | Maximum Marks : **80**

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note :- Attempt compulsory question No. 1 from Section-A and four questions from Section B (one question from each Unit). All questions carry equal marks.

**Section-A**

1. Explain and illustrate the following :

(a) Null Set

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**RD-341** P.T.O

- (b) Cartesian product of two sets  
(c) Sum of first 10 natural numbers  
(d)  $\log_a^b$   
(e) Permutation  
(f) Difference between a linear equation and quadratic equation

ular matrix

**Section-B**

**Unit-I**

A, B, C are three sets, prove that :

$$A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$$

(b) Using Venn diagram, show that :

$$A - (B \cup C) = (A - B) \cap (A - C)$$

3. Using suitable example, explain and illustrate :

- (i) Disjoint sets  
(ii) Null set  
(iii) Equality of two sets

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**RD-341**

- (iv) Finite set and  
 (v) Cartesian product of two sets

**Unit-II**

4. (a) Simplify :

$$\frac{1}{x^b + x^{-c} + 1} + \frac{1}{x^c + x^{-a} + 1} + \frac{1}{x^a + x^{-b} + 1}$$

given that  $a + b + c = 0$ .

- (b) Using log tables find the value of :

$$\sqrt{\frac{0.0074 \times 0.0137}{873.5}}$$

5. (a) Find the sum of all numbers between 300 and 500 which are divisible by 7.  
 (b) Sum of three numbers in AP is 30. If 1, 8 and 24 are added to the 1st, 2nd and 3rd numbers, respectively. The new numbers are in G.P. find the numbers.

**Unit-III**

6. (a) If  ${}^n P_4 = 12 {}^n P_2$ , find  $n$ .  
 (b) Find the number of combination of the word UNIVERSE by taking four letters at a time.

7. Solve the equation :

$$3x^2 - 18 + \sqrt{3x^2 - 4x - 6} = 4x$$

**Unit-IV**

8. Find the inverse of the matrix :

$$A = \begin{bmatrix} 2 & -3 & 4 \\ 5 & 6 & -2 \\ -4 & 2 & 1 \end{bmatrix}$$

Verify that  $A \cdot A^{-1} = I_3$ .

Differentiate  $(4x^2 - 3x + 4)^2 (x^2 - 4)^2$  w.r.t.  $x$ .

Evaluate :

$$\int (4x + 2) \sqrt{x^2 + x} dx$$

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