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

Total No. of Questions : 07

BBA (Sem.–1st)

BUSINESS MATHEMATICS

Subject Code : BB-102

Paper ID : [C0202]

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

INSTRUCTION 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 short notes on :

(a) Union of Sets.

(b) If a, b, c, d are +ve real numbers, then

$a > b, c > d \Rightarrow a + c > b + d.$

(c) Solve : $\frac{2}{x}+\frac{3}{y}=18,\ \frac{4}{x}+\frac{9}{y}=48$.

(d) How many permutations of the letter of word APPLE are there ?

(e) Define Conditional Statement.

(f) Show that $\underset{x\to\sqrt{2}}{\text{Lt}}\frac{x^2-2}{x-\sqrt{2}}=2\sqrt{2}$.

(g) Find derivative of $\frac{x+2}{3+\log x}$ w.r.t. x.

(h) Evaluate $\log_3 81$.

(i) Find nth term of an A.P. whose sum of n terms is $3n^2 + n$.

(j) Give example of a matrix to show that AB = 0 even if A $\neq$ 0, B $\neq$ 0.

SECTION-B

2. (a) Prove that $A \cup (B \backslash A) = A \cup B$.

   (b) If $f(x) = 2^x$ show that $f(x+3) - f(x-1) = \frac{15}{2} f(x)$.

3. (a) Find the 5th term in the expansion of $\left(\frac{4x}{3} - \frac{3}{2x}\right)^7$.

   (b) If 14th term of an A.P. is 6 and 6th term is 14, find 95th term.

4. Find Maximum and Minimum value of the function :

   $f(x) = x^3 + 15x^2 + 48x + 7.$

5. (a) Prove that $\log\frac{75}{16} - 2\log\frac{5}{9} + \log\frac{32}{243} = \log 2$.

   (b) Find the truth table for $[p \rightarrow \sim q] \wedge (p \vee r] \rightarrow q$

6. How may different words containing all the letters of the word 'SOCIETY' can be formed ? Also find the number of different seven letter words formed from the letters of the/word 'SOCIETY' if each word :

   (i) Begins with S and ends with Y.

   (ii) To have vowels never together.

7. Use Cramer's Rule to find solution of the equations :

$$2x - y + 3z = 9$$
$$x + y + z = 6$$
$$x - y + z = 2$$