

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 $\text{Lt}_{x \rightarrow \sqrt{2}} \frac{x^2 - 2}{x - \sqrt{2}} = 2\sqrt{2}.$ (g) Find derivative of $\frac{x+2}{3+\log x}$ w.r.t. $x.$ (h) Evaluate $\log_3 81.$ (i) Find n th 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 $A \cup (B \setminus A) = A \cup B$.

(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 many 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 :

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

$$x + y + z = 6$$

$$x - y + z = 2$$