Roll No. ....

Total No. of Questions : 07]   [Total No. of Pages : 02

BBA (Sem. - 1st)
BUSINESS MATHEMATICS
SUBJECT CODE : BB - 102
Paper ID : [C0202]

[Note : Please fill subject code and paper ID on OMR]

Time : 03 Hours   Maximum Marks : 60

Instruction to Candidates:

1) Section - A is **Compulsory.**

2) Attempt any **Four** questions from Section - B.

Section - A

Q1)   (10 × 2 = 20)

   a) Briefly explain union of two sets.

   b) Differentiate $y = x^2$ from first principles.

   c) What is complement of a set?

   d) Differentiate arithmetic and geometric progressions.

   e) What do mean by inverse of a matrix?

   f) What do you mean by domain of a function?

   g) The sum of two numbers is 52 and their difference is 2. Find the numbers.

   h) Which term of the progression $-1, -3, -5$ .... is -39?

   i) What do you mean by scalar matrix?

   j) If $x = m$ is one of the solutions of the equation $2x^2 + 5x - m = 0$. What will be the possible values of m?

Section - B

(4 × 10 = 40)

Q2) (a) If $x^y + y^x = a^b$. Find dy/dx.

   (b) Divide 25 into two parts so that sum of their reciprocals is 1/6.

Q3) The cost function C of manufacturing a certain article is given by the formula:

$C = 5 + 48/x + 3x^2$

Where x is the number of articles manufactured. Find the minimum value of C.

J-199   *P.T.O.*

Q4) (a) In an office there are 500 persons who smoke and 400 persons drink. There are 200 persons who smoke and drink. Find how many persons do not drink but only smoke.

(b) Solve the following simultaneous system using matrices :

$$2x_1 + 3x_2 = 9$$
$$3x_1 + 5x_2 = 12$$

Q5) If $a = \log_{24} 12$, $b = \log_{36} 24$ and $c = \log_{48} 36$ then prove that :
$1 + abc = 2bc$.

Q6) Find the sum to n terms of the series
$3 + 33 + 333 + \ldots\ldots$

Q7) How many different numbers can be formed by using any three out of five digits 1, 2, 3, 4, 5, no digit being repeated in any number? How many of these will

(a) Begin with a specified digit.

(b) Begin with specified digit and end with another specified digit?