II Semester B.B.A. Examination, July/August 2024
(NEP) (Freshers and Repeaters)
BUSINESS ADMINISTRATION
Paper – 2.3 : Business Mathematics

Time : 2½ Hours

Max. Marks : 60

Instruction : *Answers should be written only in **English**.*

SECTION – A

1. Answer **any five** sub-questions. **Each** question carries **2 marks**. (5×2=10)

   a) What are quadratic equations ?

   b) The first term of a GP is 5 and the common ratio is – 2 find 6th term.

   c) What is unit matrix ?

   d) Solve for x ; $x + 3 (3x + 1) = 13$

   e) What do you mean by proportion ?

   f) State the meaning of logarithm.

   g) Give the meaning of Banker's gain.

SECTION – B

Answer **any three** question. **Each** question carries **4 marks**. (3×4=12)

2. Solve the equation by formula method

   $4x^2 + 12x + 10 = 5$

3. 40 men can do a piece of work in 90 days. How many men will be required to do the work in 50 days.

4. Find the sum of the sequence 4, 8, 16, 32, ... to 10 terms.

5. Solve by Cramer's rule

   $5x + 6y – 3 = 0$

   $3x – 4y + 21 = 0$

6. If it is given that log2 = 0.3010, log3 = 0.4771 find log8 and log6.

SECTION – C

Answer any three questions. Each question carries 10 marks. (3×10=30)

7. Solve for x and y using
   a) Elimination method
   b) Substitution method
   $$5p + 6q = 3$$
   $$2p - 5q = 16$$

8. If $A = \begin{bmatrix} 5 & 3 \\ 4 & 1 \end{bmatrix}$ $B = \begin{bmatrix} 4 & 2 \\ -1 & 3 \end{bmatrix}$ $C = \begin{bmatrix} -1 & 2 \\ 7 & 6 \end{bmatrix}$ find $8A - 3B + 2C$.

9. a) At what rate of simple interest a sum doubles itself in 6 years.
   b) What sum amounts to Rs. 8,000 after 4 years at 5% p.a. compound interest ?

10. Explain the laws of indices with example.

11. The sum of three numbers in AP is 24 and their product is 384. Find the numbers.

SECTION – D

Answer any one of the following. Each question carries 8 marks. (1×8=8)

12. A bill for Rs. 50,000 drawn on 27-5-2023 for 4 months was discounted on 19-07-2023 at 5% p.a. find,
    a) Bankers Discount (BD)
    b) True Discount
    c) Bankers Gain
    d) Discounted Value.

                        OR

13. If $A = \begin{bmatrix} 2 & 4 & 4 \\ 4 & 2 & 4 \\ 4 & 4 & 2 \end{bmatrix}$ prove that $A^2 - 8A - 20I = 0$.