A–0762

Total Pages : 3   **Roll No. ....**

BBA-102

Bachelor of Business Administration (BBA)

(Business Mathematics)

Examination, June 2025

Time : 2:00 Hrs.   Max. Marks : 70

Note :– This paper is of Seventy (70) marks divided into Two (02) Sections 'A' and 'B'. Attempt the questions contained in these sections according to the detailed instructions given therein. ***Candidates should limit their answers to the questions on the given answer sheet. No additional (B) answer sheet will be issued.***

Section–A

(Long Answer Type Questions)   2×19=38

Note :– Section 'A' contains Five (05) Long-answer type questions of Nineteen (19) marks each. Learners are required to answer any *two* (02) questions only.

A–0762/BBA-102   (1)   P.T.O.

1. Given three sets A = {2, 4, 6, 8}, B = {4, 8, 12, 16} and C = {6, 12, 18}, find A U B, A ∩ B, A – B. and A Δ C. Also, illustrate these operations using Venn diagrams.

2. Explain the different types of sets with examples. Solve problems related to union, intersection, complement, and difference of sets, and discuss the applications of set theory in business contexts.

3. The first term of an arithmetic progression is 10, and the common difference is 5. Find the sum of the first 20 terms and also calculate the 15th term of the sequence.

4. Define matrices and explain different types of matrices, such as square, diagonal, identity, and zero matrices. Discuss matrix operations including addition, multiplication, and finding the transpose. Explain how matrices are used in business for solving systems of linear equations and modeling economic relationships.

5. Find the first and second derivatives of the function $f(x) = 4x^3 - 3x^2 + 2x - 5$. Use these derivatives to determine the local maxima, minima, and points of inflection.

Section–B

(Short Answer Type Questions)   4×8=32

Note :– Section 'B' contains Eight (08) Short-answer type questions of Eight (08) marks each. Learners are required to answer any *four* (04) questions only.

1. Describe the Cartesian product of two sets and provide an example.

2. Explain the difference between disjoint sets and overlapping sets with the help of examples.

3. Describe geometric progression (GP). Provide a real-life example of its use in business.

4. Discuss the use of arithmetic progression in calculating the depreciation value of assets.

5. Define permutations and explain how they differ from combinations. Give examples.

6. Define the determinant of a matrix. Explain how to find the determinant of a 2x2 matrix.

7. Describe Cramer's rule and its application in solving systems of linear equations.

8. Elaborate the role of business mathematics in decision making.

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