

**B.A. (2019 Pattern) (Semester - I)**

**Subject : Mathematics**

**Paper Code: 122C-I**

**Title of the Paper: Mathematics Paper III : Financial Mathematics – I**

**Unit 1: Review**

- 1.1 Exponents
- 1.2 Polynomials
- 1.3 Equations: Linear and quadratic
- 1.4 Simultaneous Equations
- 1.5 Functions
- 1.6 Graphs, Slopes and Intercepts

**Unit 2: The Derivative and the rules of differentiation**

- 2.1 Limits
- 2.2 Continuity
- 2.3 The Derivative
- 2.4 Differentiability and Continuity
- 2.5 Derivative Notation
- 2.6 Rules of Differentiation
- 2.7 Higher Order Derivatives
- 2.8 Implicit Differentiation

**Unit 3: Uses of derivative in Mathematics and Economics**

- 3.1 Increasing and Decreasing functions
- 3.2 Concavity and Convexity
- 3.3 Relative Extrema
- 3.4 Inflection Points
- 3.5 Optimization of Functions
- 3.6 Marginal Concepts
- 3.7 Optimizing Economic Functions
- 3.8 Relationship among Total, Marginal and Average Concepts.

**Unit 4: Exponential and logarithmic functions**

- 4.1 Exponential Functions
- 4.2 Logarithmic Functions
- 4.3 Properties of Exponents and Logarithms
- 4.4 Natural Exponential and Logarithmic Functions