# Contents

# MATHEMATICS

## 1. Basic Concepts

Some Formulae, Elementory Algebra, Exponents or Theory of Indices, Number System, Sets and Sub Sets, Some More Sets.

- 2. Analytical Geometry of Two Dimensions Locus of a Point, Rectangular Hyperbola, The Parabola, Exercise, The Equation of a Circle, Illustrations
- **3.** Linear and Quadratic Equations Linear Equation — One Variable, Illustrations, Solve Yourself, Quadratic Equations, Exercise
- 4. Ratio Proportion, Variation and Growth Illustrations, Exercise, Growth–Simple and Compound, Illustration
- 5. Logarithms Illustrations, Exercise
- 6. Elements of Trigonometry Illustrations

## 7. Arithmetic and Geometric Progression

Arithmetic Progression, Illustrations, Geometric Progression (G.P), Illustrations, Exercise, The Sigma ( $\Sigma$ ) Notation and Use of Subscripts, Illustrations

- **8.** Functions and their Graphic Representation Introduction, Function, Illustrations, Graph of a Function, Exercise
- 9. Limits and Continuity

Illustration, Continuity of a Function, Illustrations, Exercise

10. Derivatives

Illustrations, Exercise, Differentiation of Logarithmic and Exponential Functions, Illustrations, Exercise

- Application of Differentiation in Economic Theory Revenue Function, Application of Mathematics in Economic Theory—Illustrations on Elasticity of Demand and Elasticity of Supply, Exercise, Cost Functions, Exercise
- 12. First and Higher Order Derivatives and their Uses— Maxima and Minima, Economic Applications Effect of Taxation and Subsidy on Monopoly, Illustrations on Maxima and Minima, Illustrations on Perfect Competition and Monopoly Market Situations, Exercise

#### *ii* : Contents

## 13. Partial Derivatives

Homogeneous Functions, Illustrations, Exercise

# 14. Differential and Total Derivatives

Illustrations, Extreme Values when U is a Function of More than One Variable, Lagrange's Multiplier, Illustrations, Exercise

#### 15. Integration

Illustrations, Exercise, Application of Integration in Economics, Consumer's Surplus, Producer's Surplus, A Problem of Durable Capital Goods, Illustrations, Exercise

### 16. Determinants and Matrices

Illustrations, Illustrations, Exercise, Algebra of Matrices or Operations with Matrices, Illustrations, Exercise, Some Definitions and Operations, Input–Output Analysis, Some Applications

## STATISTICS

- 1. Statistics (Introduction)
  - Introduction, Exercise
- 2. Frequency Distribution Illustrations, Exercise
- **3. Presentation of Data** Illustration, Illustration, Exercise
- 4. Collection of Data Exercise
- 5. Measures of Central Tendency Illustrations, Illustrations, Exercise
- 6. Measures of Dispersion, Skewness, Kurtosis and Moments Illustrations, Skewness, Illustrations, Moments, Illustrations, Ginnis Mean Difference, Exercise, Dispersion and Skewness
- 7. Correlation Illustrations, Exercise, Correlation
- 8. Regression Not needed for Elementary Students, Illustrations, For Advanced, Statistics Students, Illustration, Excercise, Regression
- **9.** Association of Attributes Illustrations, Exercise, Association of Attributes
- 10. Index Number

Illustrations, Exercise, Index Number

## 11. Time Series Analysis

Illustrations, Exercise, Analysis of Time Series

12. Interpolation and Extrapolation Illustrations, Exercise, Interpolation and Extrapolation Tables