

# SECTION A : MATHEMATICS

## BASIC MATHEMATICS

Some Formulae; Elementary Algebra ; Number System ; Sets and Sub Sets; Some more Sets ; Analytical Geometry of Two Dimensions ; Illustrations ; Locus of a Point; Illustrations; Rectangular Hyperbola; The Parabola; The Equation of a Circle; Linear and Quadratic Equations; Linear Equation — One Variable Illustrations; Quadratic Equations; Ratio, Proportion and Growth; Illustrations; Logarithms; Elements of Trigonometry; Arithmetic and Geometric Progression; Arithmetic Progression; Illustrations; Geometric Progression (G.P); Miscellaneous Exercise on Basic Mathematics; (B) Linear Equations; Quadratic Equations; Useful Notations and Growth Rates; Problems on Compound.

1. CONCEPT OF FUNCTIONS AND TYPE OF FUNCTIONS 1
2. LIMITS AND CONTINUITY 2
3. DERIVATIVES AND RULES OF DIFFERENTIATION 2
4. REVENUE, COST, DEMAND, SUPPLY FUNCTIONS AND ELASTICITIES 2
5. USE OF DERIVATIVES IN MATHEMATICS 3
6. ECONOMIC APPLICATION OF DERIVATIVES 3
7. MULTI-VARIABLE FUNCTIONS, PARTIAL DERIVATIVES AND THEIR MEANING 4
8. PROBLEMS OF MAXIMA AND MINIMA IN MULTI VARIABLE FUNCTION — UNCONSTRAINED AND CONSTRAINED OPTIMISATION 4
9. INTEGRATION 4
10. DETERMINANTS AND THEIR BASIC PROPERTIES; SOLUTION OF SIMULATANCONS EQU THROUGH CRAMERS' RULE 5
11. CONCEPT OF MATRIX 5
12. CONCEPT OF VECTOR AND INTRODUCTION TO INPUT-OUTPUT ANALYSIS 6
13. DIFFERENCE EQUATIONS 6
14. DIFFERENTIAL EQUATIONS 6
15. LINEAR PROGRAMMING 7
16. GAME THEORY 7

## SECTION B : STATISTICS

1. INTRODUCTION TO STATISTIC
2. FREQUENCY DISTRIBUTION
3. PRESENTATION OF DATA
4. COLLECTION OF DATA
5. MEASURES OF CENTRAL TENDENCY
6. MEASURES OF DISPERSION, SKEWNESS, KURTOSIS AND MOMENTS
7. INDEX NUMBER
8. ANALYSIS OF TIME SERIES
9. INTERPOLATION AND EXTRAPOLATION
10. ASSOCIATION OF ATTRIBUTES
11. STATISTICAL QUALITY CONTROL
12. CORRELATION
13. REGRESSION
14. PARTIAL AND MULTIPLE CORRELATION
15. PROBABILITY
16. RANDOM VARIABLE EXPECTATION
17. PROBABILITY DISTRIBUTIONS (DISCRETE—BINOMIAL AND POISSON)
18. CONTINUOUS PROBABILITY DISTRIBUTION
19. SAMPLING AND SAMPLING DISTRIBUTION
20. ESTIMATION
21. HYPOTHESIS TESTING
22.  $\chi^2$  (CHI-SQUARE) DISTRIBUTION
23. ANALYSIS OF VARIANCE (F TEST)
24. STATISTICAL DECISION THEORY
25. FORECASTING
26. BASIC ISSUES IN STATISTICS

Tables