

## **CONTENTS**

### **UNIT I**

### **ALGEBRA**

**CHAPTER        1   NUMBER THEORY   (Total - 8hrs)**

- 1.0 Introduction
- 1.1 Natural Numbers
- 1.2 whole numbers
- 1.3 Integers
- 1.4 Odd and Even Numbers
- 1.5 Prime Numbers
- 1.6 Composite Numbers
- 1.7 Fundamental theorem of arithmetic
- 1.8 Least Common Multiple
- 1.9 Highest common factor
- 1.10 Relation between H.C.F and L.C.M
- 1.11 Finding H.C.F of fractions
- 1.12 Rational Numbers
- 1.13 Irrational Numbers
- 1.14 Real Numbers
- 1.15 Complex numbers

**CHAPTER        2   SETS, RELATIONS AND FUNCTIONS  
                         (Total - 16hrs)**

- 2.0 Introduction
  - 2.1 Sets
  - 2.2 Methods of describing a set
  - 2.3 Null set
  - 2.4 Singleton set
  - 2.5 Finite set and Infinite sets
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## **Subject & Code: Basic Maths(75)**

- 2.6 Equal and equivalent sets
- 2.7 Subset
- 2.8 Universal Set
- 2.9 Operation on Sets
- 2.10 Complement of a set
- 2.11 Algebra of sets
- 2.12 Venn diagrams
- 2.13 Ordered pairs
- 2.14 Equality of ordered pairs
- 2.15 Cartesian product pairs
- 2.16 Worked examples
- 2.17 Relation
- 2.18 Domain and range of a relation
- 2.19 Inverse relation
- 2.20 Types of relations
- 2.21 Worked Examples
- 2.22 Functions
- 2.23 Domain, co-domain and range
- 2.24 Different types of functions
- 2.25 Worked examples

### **CHAPTER 3 THEORY OF INDICES (Total - 4Hr)**

- 3.1 Introductions
- 3.2 Meaning of  $a_n$
- 3.3 Laws of Indices

### **CHAPTER 4 LOGARITHMS (Total - 6Hrs)**

- 4.1 Introduction
  - 4.2 Definition of logarithm
  - 4.3 Laws of logarithm
  - 4.4 Common Logarithm
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**CHAPTER 5 PROGRESSIONS (Total-12 Hrs)**

- 5.1 Introduction
- 5.2 Sequences
- 5.3 Series
- 5.4 Arithmetic progressions
- 5.5  $n^{\text{th}}$  term of an A.P
- 5.6 Sum to 'n' terms of an A.P
- 5.7 Geometric progression
- 5.8  $n^{\text{th}}$  term of G.P
- 5.9 Sum to n terms of G.P
- 5.10 Sum to infinite G.P
- 5.11 Harmonic progression
- 5.12  $n^{\text{th}}$  term of H.P
- 5.13 Arithmetic, Geometric and harmonic means

**CHAPTER 6 THEORY OF EQUATIONS (Total - 12 Hrs)**

- 6.1 Introduction and definition of equation
- 6.2 Degrees of the equation and different types of equations
- 6.3 Linear equation in one variable
- 6.4 Simultaneous linear equation in two variables and different methods
- 6.5 Quadratic equation and its solution
- 6.6 Nature of the roots of quadratic equation
- 6.7 Cubic equation, examples and solution
- 6.8 Synthetic division

**CHAPTER 7 LINEAR INEQUALITIES (Total - 6 Hrs)**

- 7.1 Introduction
  - 7.2 Inequalities
  - 7.3 Linear inequalities in one variable
  - 7.4 System of linear inequations in one variable
  - 7.5 Application of Linear inequalities
  - 7.6 Linear inequalities in two variable
  - 7.7 System of Linear Inequations in two variables and their graphical solution
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**UNIT II**

**COMMERCIAL ARITHMETIC**

<b>CHAPTER</b>	<b>8 SIMPLE INTEREST AND COMPOUND INTEREST</b> (Total – 8 Hrs)
	8.1 Introduction
	8.2 Simple Interest
	8.3 Compound Interest
	8.4 Nominal and effective rate of interest
	8.5 Varying rate of interest
	8.6 Depreciation
	8.7 Using compound interest formula for growth rate
	8.8 Problems related to simple interest and compound interest
<b>CHAPTER</b>	<b>9 ANNUITIES</b> (Total – 6Hrs)
	9.1 Definition and types of annuity immediate
	9.2 Future value of annuity immediate
	9.3 Present value of annuity immediate
	9.4 Future value of annuity due
	9.5 Present value of annuity due
	9.6 Perpetuity
	9.7 Deferred annuity
<b>CHAPTER</b>	<b>10 AVERAGES</b> (Total - 4 Hrs)
	10.1 Introduction
	10.2 Types of Averages
	10.3 Simple Average
	10.4 Weighted Average
	10.5 Combined Average

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- CHAPTER 11 PERCENTAGE, PROFIT AND LOSS**  
(Total - 6 Hrs)
- 11.1 Conversion of percentage to ratio fraction, decimal and vice versa
  - 11.2 Percentage increase, percentage decrease
  - 11.3 Application problems involving percentages
  - 11.4 Profit and Loss, Cost price, Selling price, Profit, Loss, Profit percentage, Loss percentage, definition and formula
  - 11.5 Application problems

- CHAPTER 12 LINEAR FUNCTIONS** (Total - 4 Hrs)
- 12.1 Introduction
  - 12.2 Definition
  - 12.3 Linear Revenue, Cost and profit function
  - 12.4 Break Even Analysis

### **UNIT III**

## **TRIGONOMETRY**

- CHAPTER 13 ANGLES AND TRIGONOMETRIC RATIOS**  
(Total - 6 Hrs)
- 13.1 Introduction
  - 13.2 Measurement of angles
  - 13.3 Trigonometric ratios of acute angle
  - 13.4 Relation between the trigonometric ratios
- CHAPTER 14 STANDARD ANGLES AND ALLIED ANGLES**  
(Total - 6 Hrs)
- 14.1 Trigonometric Ratios of standard angles
  - 14.2 Signs of Trigonometric ratios
  - 14.3 Allied angles
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**UNIT IV**

**ANALYTICAL GEOMETRY**

<b>CHAPTER</b>	<b>15 CO-ORDINATE SYSTEM IN A PLANE</b> (Total - 5 Hrs)
	15.1 Introduction
	15.2 Rectangular Cartesian Co-ordinate system in a plane
	15.3 Distance Formula
	15.4 Section Formula
	15.5 Midpoint Formula, Centroid Formula,
	15.6 Area of the Triangle and quadrilateral
<b>CHAPTER</b>	<b>16 LOCUS AND ITS EQUATIONS</b> (Total 3 Hrs)
	16.1 Introduction
	16.2 Equation of the locus of a point
<b>CHAPTER</b>	<b>17 STRAIGHT LINE</b> (Total - 10 Hrs)
	17.1 Introduction
	17.2 Slope or Gradient of a line
	17.3 Slope of Parallel lines and Perpendicular Lines
	17.4 Slope of the line joining two points
	17.5 Standard forms of Equation of a straight lines
	17.6 Equation of a line in general form
	17.7 Intersection of two lines
	17.8 Condition for concurrency of three lines
	17.9 Length of the perpendicular from a point to a line
	17.10 Distance between parallel lines

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**Subject & Code: Basic Maths(75)**

**UNIT - I**  
**ALGEBRA**

<b>CHAPTER</b>	<b>NAME OF THE CHAPTER</b>	<b>TEACHING HOURS</b>
<b>1</b>	<b>NUMBER THEORY</b>	<b>08</b>
<b>2</b>	<b>SETS, RELATIONS AND FUNCTIONS</b>	<b>15</b>
<b>3</b>	<b>THEORY OF INDICES</b>	<b>04</b>
<b>4</b>	<b>LOGARITHMS</b>	<b>05</b>
<b>5</b>	<b>PROGRESSIONS</b>	<b>12</b>
<b>6</b>	<b>THEORY OF EQUATIONS</b>	<b>12</b>
<b>7</b>	<b>LINEAR INEQUALITIES</b>	<b>06</b>
	<b>TOTAL</b>	<b>62 Hours</b>