PART – II (Class – X) 75 Marks Time: 2:30 Hours

Unit 1 ALGEBRAIC FORMULAE AND APPLICATIONS

1.1) Algebraic Expressions
- 1.1.1 Rational Expression
- 1.1.2 Improper Rational Expression
- 1.1.3 Examine A Given Algebraic Expression
- 1.1.4 Rational Expression in its Lowest Terms
- 1.1.5 Reduce A Rational Expression to its Lowest Terms
- 1.1.6 Sum, Difference and Product of Rational Expressions
- 1.1.7 Division of a Rational Expression
- 1.1.8 Value of an Algebraic Expression

1.2) Formulae

1.3) Surds and Their Applications
- 1.3.1 Surds
- 1.3.2 Surds of Second Order

1.4) Rationalization

Unit 2 FACTORIZATION

2.1) Factorization of Expressions

2.2) Remainder Theorem and Factor Theorem
- 2.2.1 The Remainder Theorem
- 2.2.2 Finding Remainder without Dividing
- 2.2.3 Zeros of a Polynomial
- 2.2.4 The Factor Theorem

2.3) Factorizing a Cubic Polynomial

Unit 3 ALGEBRAIC MANIPULATION

3.1) Highest Common Factor (H.C.F) Least Common Multiple (L.C.M)
- 3.1.1 Highest Common Factor (H.C.F)
- 3.1.2 Least Common Multiple (L.C.M)
- 3.1.3 Relationship Between HCF and LCM

3.2) Basic Operations on the Algebraic Fractions
- 3.2.1 Addition and Subtraction of the Algebraic Fractions
- 3.2.2 Multiplication and Division of the Algebraic Fractions

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3.3) Square Root of an Algebraic Expression
3.3.1 Square Root by Factorization Method
3.3.2 Square Root by Division Method
Unit 4 LINEAR EQUATIONS AND INEQUALITIES
4.1) Linear Equations
4.1.1 Linear Equation in one Variable
4.1.2 Solution of a Linear Equation
4.1.3 Equations Involving Radicals
4.2) Equations Involving Absolute Value
4.2.1 Absolute Value
4.2.2 Equations Involving Absolute Value
4.3) Linear Inequalities
4.3.1 Inequalities (>,<) and (≥,≤):
4.3.2 Properties of Inequalities
4.4) Solving Linear Inequalities
Unit 5 QUADRATIC EQUATIONS
5.1) Quadratic Equations
5.2) Solution of a Quadratic Equation
5.2.1 Solution of a Quadratic Equation by Factorization
5.2.2 Solution of a Quadratic Equation by completing the Square Method
5.3) The Quadratic Formula
5.3.1 Derivation of Quadratic Formula
5.3.2 Problems Involving Quadratic Equations
Unit 6 MATRICES AND DETERMINANTS
6.1) Introduction
6.2) Types of Matrices
6.3) Addition and Subtraction of Matrices
6.3.1 Add and Subtract Matrices
6.3.2 Laws of Addition of Matrices
6.3.3 Additive Identity of Matrices
6.3.4 Additive Inverse of a Matrix
6.4) Multiplication of Matrices
6.4.1 Associative Law of Matrices with respect to Multiplication

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6.4.2 Distributive Laws
6.4.3 Commutative Law
6.4.4 Theorem
6.5) Multiplicative Inverse of a Matrix
6.5.1 Determinant Function
6.5.2 Evaluate Determinant of a Matrix
6.5.3 Singular and Non-Singular Matrices
6.5.4 Adjoint of a Matrix
6.5.5 Multiplicative Inverse
6.5.6 Inverse of a Non-Singular Matrix
6.5.7 Verify $(AB)^{-1} = B^{-1} A^{-1}$
6.6) Solution of Simultaneous Linear Equations
Matrix Inversion Method / Cramer's Rule
Unit 7 **FUNDAMENTALS OF GEOMETRY**
7.1) Properties of Angles
7.1.1 Adjacent, Complementary and Supplementary Angles
7.1.2 Vertical Angles
7.1.3 Calculate unknown Angles
7.1.4 Calculate unknown Angles of a Triangle
7.2) Parallel Lines
7.2.1 Properties of Parallel Lines
7.2.2 Transversal
7.2.3 Relation between the Pairs of Angles
7.3) Congruent and Similar Figures
7.3.1 Congruent Figures
7.3.2 Symbol ()
7.3.3 Properties of Congruency
7.4) Congruent Triangles
7.5) Quadrilaterals
7.5.1 Properties of Congruency
7.5.2 Opposite Sides of a Rectangle are Equal
7.5.3 Properties of a Parallelogram
7.6) Circle
7.6.1 Circle

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7.6.2 Sector
7.6.3 Properties of Angles
7.6.4 Applications
Unit 8 PRACTICAL GEOMETRY
8.1) Construction of a Triangle
8.1.1 Construction
8.1.2 Angle Bisectors of a Triangle
8.2) Construction of Quadrilaterals
8.2.1 Rectangle
8.2.2 Square
8.2.3 Parallelogram
8.3) Tangent to the Circle
8.3.1 Locate the Centre of the Circle
8.3.2 Draw a Circle Passing through three Non-collinear Points
8.3.3 Tangent to a Circle
8.3.4 Drawing Tangent to two Equal Circles
8.3.5 Drawing Tangent to two Un-Equal Circles
8.3.6 Drawing Tangents
Unit 9 AREAS AND VOLUMES
9.1) Pythagoras Theorem
9.2) Area
9.2.1 The Area of a Triangle
9.2.2 Areas of Rectangular and Square Fields
9.2.3 Area of a Circle
9.2.4 Area of Concentric Circles
9.3) Volumes
Unit 10 INTRODUCTION TO COORDINATE GEOMETRY
10.1) Distance Formula
10.1.1 Distance between Two Points
10.1.2 Use of Distance Formula
10.2) Collinear Points
10.2.1 Collinear Points
10.2.2 Collinear and Non-Collinear Points

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10.2.3 Collinearity of three Points
10.2.4 Use of Distance Formula (for the Non-Collinear Points)

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SYMBOLS
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