**MATHEMATICS**

For Class IX (marks 75)

**1. MATRICES AND DETERMINANTS**

1.1 Introduction to Matrices Define

1.2 Types of Matrices

1.3 Addition and Subtraction of Matrices

1.4 Multiplication of Matrices

1.5 Multiplicative Inverse of a Matrix

1.6 Solution of Simultaneous Linear Equations

**2. REAL AND COMPLEX NUMBERS**

2.1 Real Numbers

2.2 Properties of Real Numbers

2.3 Radicals and Radicands

2.4 Laws of Exponents/Indices

2.5 Complex Numbers

2.6 Basic Operations on Complex Numbers

**3. LOGARITHMS**

3.1 Scientific Notation

3.2 Logarithm

3.3 Common and Natural Logarithm

3.4 Laws of Logarithm

3.5 Application of Logarithm

**4. ALGEBRAIC EXPRESSIONS AND ALGEBRAIC FORMULAS**

4.1 Algebraic expressions

4.2 Algebraic Formulae

4.3 Surds and their Application

4.4 Rationalization

**5. FACTORIZATION**

5.1 Factorization

5.2 Remainder Theorem and Factor Theorem

5.3 Factorization of a Cubic Polynomial

**6. ALGEBRAIC MANIPULATION**

6.1 Highest Common Factor and Least Common Multiple

6.2 Basic Operations on Algebraic Fractions

6.3 Square Root of Algebraic Expression

**7. LINEAR EQUATIONS AND INEQUALITIES**

7.1 Linear Equations

7.2 Equation involving Absolute Value

7.3 Linear Inequalities

7.4 Solving Linear Inequalities

**8. LINEAR GRAPHS AND THEIR APPLICATION**

8.1 Cartesian Plane and Linear Graphs

8.2 Conversion Graphs

8.3 Graphic Solution of Equations in two Variables

**9. INTRODUCTION TO COORDINATE GEOMETRY**

9.1 Distance Formula

9.2 Collinear Points

9.3 Mid-point Formula

**10. CONGRUENT TRIANGLES**

10.1 Congruent Triangles

**11. PARALLELOGRAMS AND TRIANGLES**

11.1 Parallelograms and Triangles

**12. LINE BISECTORS AND ANGLE BISECTORS**

12.1 Line Bisectors and Angle Bisectors

**13. SIDES AND ANGLES OF A TRIANGLE**

13.1 Sides and Angles of a Triangle

**14. RATIO AND PROPORTION**

14.1 Ratio and Proportion

**15. PYTHAGORAS’ THEOREM**

15.1 Pythagoras’ Theorem

**16. THEOREMS RELATED WITH AREA**

16.1 Theorems Related with Area

**17. PRACTICAL GEOMETRY – TRIANGLES**

17.1 Construction of Triangle

17.2 Figures with Equal Areas

**RECOMMENDED REFERENCE BOOKS FOR CLASS IX**

 The question paper will be syllabus oriented. However, the following book is recommended for reference and supplementary reading:

 1. Mathematics (Science Group)

 Caravan Book House, Lahore