SYLLABUS MATHEMATICS

Unit I: Number Systems

- Real Numbers
- Euclid's division lemma
- Fundamental Theorem of Arithmetic (statement, motivating examples)
- Proofs of irrationality of numbers like √2, √3, √5
- Decimal expansions of rational numbers: terminating / non-terminating recurring decimals

Unit II: Algebra

1. Polynomials
- Zeros of a polynomial
- Relationship between zeros and coefficients (for quadratics)
- Division algorithm (for polynomials with real coefficients)

2. Pair of Linear Equations in Two Variables
- Graphical method of solution
- Algebraic methods: substitution, elimination, cross-multiplication
- Consistency/Inconsistency of systems

3. Quadratic Equations
- Standard form
- Solution by factorization and completing the square
- Nature of roots

4. Arithmetic Progressions
- General Term
- Sum of First n Terms

Unit 3: Coordinate Geometry

5. Coordinate Geometry

- Distance formula
- Section formula (internal division)
- Area of triangle

Unit 4: Geometry

6. Triangles
- Similarity of triangles

- Basic proportionality theorem
- Pythagoras theorem and its converse
- Areas of similar triangles

7. Circles
- Tangent to a circle
- Number of tangents from a point

8. Constructions
- Division of a line segment
- Tangents to a circle

Unit 5: Trigonometry

9. Introduction to Trigonometry

- Trigonometric ratios
- Trigonometric identities
- Heights and Distances (Angle of elevation & depression)

Unit 6: Mensuration

10. Areas Related to Circles

- Perimeter and area of a circle
- Area of sector and segment

11. Surface Areas and Volumes

- Surface area and volume of combinations of solids (cube, cuboid, cone, cylinder, sphere, hemisphere)

Unit 7: Statistics and Probability

12. Statistics

- Mean, median, and mode (of grouped data)
- Cumulative frequency

13. Probability

- Classical (theoretical) probability
- Simple problems on single events

📚 Additional Notes

Total Marks (Board Exam): 80

Internal Assessment: 20 (based on activities, periodic tests, notebook submission, etc)