

Term – Wise Syllabus
Session-2021-22
Class – X
Subject : Mathematics (Code : 041 & 241)

Course Structure
Term – I

Units	Unit Name	Marks
I	Number Systems	6
II	Algebra	10
III	Coordinate Geometry	6
IV	Geometry	6
V	Trigonometry	5
VI	Mensuration	4
VII	Statistics & Probability	3
Total		40
Internal Assessment		10
Grand Total		50

Term – II

Units	Unit Name	Marks
I	Algebra (Contd.)	10
II	Geometry (Contd.)	9
III	Trigonometry (Contd.)	7
IV	Mensuration (Contd.)	6
V	Statistics & Probability (Contd.)	8
Total		40
Internal Assessment		10
Grand Total		50

Term – I

CHAPTER 1 : REAL NUMBERS

Fundamental Theorem of Arithmetic – statements after reviewing work done earlier and after illustrating and motivating through examples, Decimal representation of rational numbers in terms of terminating / non-terminating recurring decimals.

CHAPTER 2 : POLYNOMIALS

Zeroes of a polynomial. Relationship between zeroes and coefficients of quadratic polynomials.

CHAPTER 3: PAIR OF LINEAR EQUATIONS IN TWO VARIABLES

Pair of linear equations in two variables and graphical method of their solution, consistency/inconsistency.

Algebraic conditions for number of solutions. Solutions of a pair of linear equations in two variables

algebraically – by substitution and by elimination. Simple situational problems. Simple problems on equations reducible to linear equations.

CHAPTER 6: TRIANGLES

Definitions, examples, counter examples of similar triangles.

1. (Prove) If a line is drawn parallel to one side of a triangle to intersect the other two sides in distinct points, the other two sides are divided in the same ratio.
2. (Motivate) If a line divides two sides of a triangle in the same ratio, the line is parallel to the third side.
3. (Motivate) If in two triangles, the corresponding angles are equal, their corresponding sides are proportional and the triangles are similar.
4. (Motivate) If the corresponding sides of two triangles are proportional, their corresponding angles are equal and the two triangles are similar.
5. (Motivate) If one angle of a triangle is equal to one angle of another triangle and the sides including these angles are proportional, the two triangles are similar.
6. (Motivate) If a perpendicular is drawn from the vertex of the right angle of a right triangle to the hypotenuse, the triangles on each side of the perpendicular are similar to the whole triangle and to each other.
7. (Motivate) The ratio of the areas of two similar triangles is equal to the ratio of the squares of their corresponding sides.
8. (Prove) In a right triangle, the square of the hypotenuse is equal to the sum of the squares of the other two sides.
9. (Motivate) In a triangle, if the square of one side is equal to sum of the squares of the other two sides, the angle opposite to the first side is a right angle.

CHAPTER 7: COORDINATE GEOMETRY

Lines (In two-dimensions)

Review: Concepts of co-ordinate geometry, graphs of linear equations. Distance formula. Section formula (internal division).

CHAPTER 8: INTRODUCTION TO TRIGONOMETRY

Trigonometric ratios of an acute angle of a right-angled triangle. Proof of their existence (well defined); Values of the trigonometric ratios of 30° , 45° and 60° . Relationships between the ratios. Proof and applications of the identity $\sin^2 A + \cos^2 A = 1$. Only simple identities to be given.

CHAPTER 12: AREA RELATED TO CIRCLES

Motivate the area of a circle; area of sectors and segments of a circle. Problems based on areas and perimeter / circumference of the above said plane figures. (In calculating area of segment of a circle, problems should be restricted to central angle of 60° and 90° only. Plane figures involving triangles, simple quadrilaterals and circle should be taken.)

CHAPTER 15: PROBABILITY

Classical definition of probability. Simple problems on finding the probability of an event.

- Mental Maths
- Revision from Support Material

Term II

CHAPTER 4: QUADRATIC EQUATIONS

Standard form of a quadratic equation $ax^2 + bx + c = 0$, ($a \neq 0$). Solutions of quadratic equations (only real roots) by factorization and by using quadratic formula. Relationship between discriminant and nature of roots. Situational problems based on quadratic equations related to day to day activities (problems on equations reducible to quadratic equations are excluded).

CHAPTER 5: ARITHMETIC PROGRESSIONS

Motivation for studying Arithmetic Progression, Derivation of the n^{th} term and sum of the first n terms of A.P. and their application in solving daily life problems (Applications based on sum to n terms of an A.P. are excluded).

CHAPTER 9: SOME APPLICATIONS OF TRIGONOMETRY

Heights and distances: Angle of elevation, Angle of Depression.
Simple problems on heights and distances. Problems should not involve more than two right triangles. Angles of elevation / depression should be only 30° , 45° , 60°

CHAPTER 10: CIRCLES

Tangent to a circle at point of contact.

1. (Prove) The tangent at any point of a circle is perpendicular to the radius through the point of contact.
2. (Prove) The lengths of tangents drawn from an external point to a circle are equal.

CHAPTER 11: CONSTRUCTIONS

Division of a line segment in a given ratio (internally).
Tangents to a circle from a point outside it.

CHAPTER 13: SURFACE AREAS AND VOLUMES

Surface areas and volumes of combinations of any two of the following: cubes, cuboids, spheres, hemispheres and right circular cylinders / cones.
Problems involving converting one type of metallic solid into another and other mixed problems. (Problems with combination of not more than two different solids be taken.)

CHAPTER 14: STATISTICS

Mean, median and mode of grouped data (bimodal situation to be avoided). Mean by Direct method and Assumed mean method only.

- Mental Maths
- Revision from Support Material
- Revision of sample question papers provided by CBSE as well as D.O.E.