CLASS X

First Term		Marks : 80
UNITS		**MARKS**
I.	NUMBER SYSTEMS	10
II.	ALGEBRA	20
III.	GEOMETRY	15
IV	TRIGONOMETRY	20
V	STATISTICS	15
	TOTAL	**80**

UNIT I : NUMBER SYSTEMS

1. REAL NUMBERS **(15) Periods**

Euclid's division lemma, Fundamental Theorem of Arithmetic - statements after reviewing work done earlier and after illustrating and motivating through examples, Proofs of results - irrationality of $\sqrt{2}$, $\sqrt{3}$, $\sqrt{5}$, decimal expansions of rational numbers in terms of terminating/non-terminating recurring decimals.

UNIT II : ALGEBRA

1. POLYNOMIALS **(7) Periods**

Zeros of a polynomial. Relationship between zeros and coefficients of quadratic polynomials. Statement and simple problems on division algorithm for polynomials with real coefficients.

2. PAIR OF LINEAR EQUATIONS IN TWO VARIABLES **(15) Periods**

Pair of linear equations in two variables and their graphical solution. Geometric representation of different possibilities of solutions/inconsistency.

Algebraic conditions for number of solutions. Solution of pair of linear equations in two variables algebraically - by substitution, by elimination and by cross multiplication. Simple situational problems must be included. Simple problems on equations reducible to linear equations may be included.

UNIT III : GEOMETRY

1. TRIANGLES **(15) Periods**

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. (Prove) The ratio of the areas of two similar triangles is equal to the ratio of the squares on their corresponding sides.
8. (Prove) In a right triangle, the square on the hypotenuse is equal to the sum of the squares on the other two sides.
9. (Prove) In a triangle, if the square on one side is equal to sum of the squares on the other two sides, the angles opposite to the first side is a right traingle.

UNIT IV : TRIGONOMETRY

1. INTRODUCTION TO TRIGONOMETRY **(10) Periods**

Trigonometric ratios of an acute angle of a right-angled triangle. Proof of their existence (well defined); motivate the ratios, whichever are defined at 0^o & 90^o. Values (with proofs) of the trigonometric ratios of 30^o, 45^o & 60^o. Relationships between the ratios.

2. TRIGONOMETRIC IDENTITIES **(15) Periods**

Proof and applications of the identity $\sin^2 A + \cos^2 A = 1$. Only simple identities to be given. Trigonometric ratios of complementary angles.

UNIT VII : STATISTICS AND PROBABILITY

1. STATISTICS **(18) Periods**

Mean, median and mode of grouped data (bimodal situation to be avoided). Cumulative frequency graph.