ACADEMIC PLAN (2016-2017)
Class: X
Subject: Mathematics

Formative Assessment	TOPIC	LEARNING OBJECTIVES	H.W.	RECAPITULATION WS Assignment CLASS-TESTS	Activities to be taken / assessed*
I **April** **20 days**	**NUMBER SYSTEMS** **Real Numbers**	●To revisit basic Number system concepts from naturals to Real numbers. ● To understand & apply Euclid's Division algorithm for finding HCF of two numbers. ●To understand fundamental theorem of Arithmetic & its application. ● To understand decimal expansion of real numbers.	2	1 1 2	
	ALGEBRA **1. Polynomials**	● To learn geometric meaning of Zeroes of a polynomial. ● To learn to verify relationship between zeroes and coefficients of a polynomial.	2	1 1 2	**1(a)GEOMETRICAL INTERPRETATION OF ZEROS OF POLYNOMIALS.(CONSTANT, LINEAR, QUADRATIC,CUBIC). (b)CROSS WORD OF REAL NUMBERS.**
May **16 days**	**2. Pair of linear equations in two variables**	●To frame pair of linear equations in two variables and finding their graphical solution. ●Geometric representation of different possibilities of solutions/inconsistency. ●Algebraic conditions for number of solutions of a pair of linear equations in two variables & solutions. ●Simple word problems from day to day life. ●Simple problems on equations reducible to linear equations.	3	- 1 2	***2. DERIVING CONDITIONS OF CONSISTENCY FOR LINEAR EQUATIONS IN TWO VARIABLES GRAPHICALLY. (Group activity)** *** MCQ : Real Numbers, Polynomials , Pair of linear equations in two variables.**

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II **July** **21 days**	**STATISTICS**	●To find the mean for grouped data by direct, assumed mean and step-deviation method. ●To find the median and mode of grouped data. ●To represent Cumulative frequency distribution graphically as ogives of less than and more than type. ●To find median using ogives.	3	1 1 2	***FINDING MEAN, MEDIAN AND MODE AND MAKING OGIVES FOR MARKS IN I UNIT TEST OF MATHEMATICS.** **(Group activity)**
	TRIGONOMETRY	●To find Trigonometric ratios of an acute angle of a right-angled triangle. ●To find values of the trigonometric ratios of special angles 30°, *45°,60°*& 90°. ● To study relationships between the ratios. ●Trigonometric identities . ●Trigonometric ratios of complementary angles.	4	- 2 2	
Aug. **22 days**	**TRIANGLES**	To learn ● The concept of similarity of triangles. ●Basic Proportionality theorem. ●Similarity rules(SAS, SSS, AA) ●Pythagoras theorem and its converse. ●Areas of similar triangles	2	- - 2	***(3,4) VERIFYING BY PAPER CUTTING AND PASTING :** **(I)BASIC PROPORTIONALITY THEOREM** **(II)PYTHAGORAS THEOREM**
Sept. **5 days**	**Revision**				

FORMATIVE ASSESSMENT	TOPIC	LEARNING OBJECTIVES	H.W.	RECAPITULATION WS ASSIGNMENT CLASS-TESTS	ACTIVITIES to be taken / assessed*
III **Oct.** **17days**	**APPLICATION OF TRIGONOMETRY** **CO-ORDINATE GEOMETRY**	●To apply the knowledge of trigonometry in solving real life problems on heights and distances. ●To reinforce the concepts of coordinate geometry. ●To learn to apply the distance formula for finding distance between two given points on a plane. ●To find the coordinates of the point of division of a line segment using Section formula. ●To apply the knowledge of coordinate geometry for finding area of a triangle.	1 4	1 1 2 1 1 2	***TO MAKE A CLINOMETER FOR MEASURING THE ANGLES OF ELEVATION AND DEPRESSION OF AN OBJECT AND USE IT TO MEASURE THE HEIGHT OF THE OBJECT. (Group activity).** 5. How to make a clinometer and basic knowledge of trigonometry ln solving real life problems.
Nov. **21 days**	**ALGEBRA** **1. Quadratic Equation**	●To write the standard form of a quadratic equation $ax^2 + bx + c = 0$, $(a \neq 0)$. ●To learn to find the solution of the quadratic equations (only real roots) by factorizationmethod ,by completing the square method and by using quadratic formula. ●To explore relationship between discriminant and nature of roots. ●To solve word problems related to quadratic equations.	3	- 1 2	*MCQ: QUADRATIC EQUATION,CO-ORDINATE GEOMETRY, ARITHMETIC PROGRESSION 6. To show that the mediansof a triangle are concurrent at a point (called the centroid),which divides a median in the ratio 2:1, by paper folding and Pasting .
	2. Arithmetic Progression	●To develop the understanding of an arithmetic progression. ●Finding the nth term and sum of first nterms of an A.P. ●Application of A.P. in solving daily life problems.	2	- 1 2	7.To verify that the given sequence is an A.P. and representing it graphically

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IV **Dec.** **22 days**	**MENSURATION** **(i) Surface area and Volumes**	●To find the surface areas and volumes of combinations ofsolids. ●Problems involving converting one type of metallic solid into another and other mixed problems.●To relate the problems to daily life situation. ●To apply the formulae to find volume and surface area of frustum of a cone.	4	1 1 2	8.To compare the curved surface area of two right cylinders which are formed from the rectangular sheets of paper having same dimensions.
	(ii) Areas related to circles .	● Recall of the concept of the circumference and the area of a circle; ●To find the area of sectors and segments of a circle and its use in daily life situations. ●To solve problems based on areas and perimeter. ●To apply the knowledge of area of plane figures in solving the problems with combination of plane figures.	2	1 1 2	9. Areas of sectors formed at the vertices of a triangle.
	GEOMETRY (i) **Circles**	●The tangent at any point of a circle is perpendicular to the radius through the point of contact. ●The lengths of tangents drawn from an external point to circle are equal. ●To apply the knowledge of above theorems in solving questions.	2	- 1 1	10.Verifying that the lengths of the tangents drawn from an external point to a circle are equal.

(ii) Constructions	To learn ●To divide a line segment in a given ratio. ●To construct a pair of tangents to a circle from a given point. ●To construct a triangle similar to a given triangle as per the given scale.	2	1 - 1	*Activity files
PROBABILITY	● To define theoretical probability and its connection with experimental probability as given in Class IX. ●To solve problems on single events. ●To apply the knowledge of probability in real life.	1	1 1 1	***To get familiar with the idea of probability of an event of "sum of the numbers drawn" through a double color card experiment. (Group activity).**

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SYLLABUS FOR UT EXAMINATIONS

Topics for I UnitTestTopics for II Unit TestTopics for III Unit Test   UNIT TEST IV

Real Numbers StatisticsCoordinate Geometry   (Special test)
PolynomialsTrigonometryQuadratic equations

- THE STUDENTS WILL MAINTAIN THREE REGISTERS C.W. , H.W. AND   ASSIGNMENTS AND ONE ACTIVITY FILE.
- SEPARATE WORKSHEETS WILL BE GIVEN FOR REMEDIAL CLASS STUDENTS.
- HOTS QUESTIONS WILL BE GIVEN (MARKED AS *) IN THE ASSIGNMENTS FOR ENRICHMENT.
- CLASS TESTS WILL BE CONDUCTED WEEKLY, AS AND WHEN POSSIBLE.

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SUMMATIVE ASSESSMENT I   SUMMATIVE ASSESSMENT II

S.NO	CONTENT	MARKS
1	**Number System** (Real Numbers)	11
2	**Algebra** (i) Polynomials (ii) Linear equation in two variables	23
3	**Geometry** (Triangles)	17
4	**Trigonometry** (Introduction to Trigonometry)	22
5	**Statistics**	17 90

S.NO.	CONTENT	MARKS
1	**Algebra(contd.)** (i) Quadratic equations (ii) Arithmetic Progression	23
2	**Geometry(contd.)** (i) Circles Constructions	17
3	**Trigonometry(contd.)** (Some applications of Trigonometry)	8
4	**Probability**	8
5	**Coordinate Geometry**	11
6	**Mensuration** (i) Areas related to Circles (ii) Surface Areas and Volumes	23 90

SCHEDULE OF FORMATIVE ASSESSMENT & UNIT TEST

FORMATIVE ASSESSMENT-I	FORMATIVE ASSESSMENT-II	FORMATIVE ASSESSMENT-III	FORMATIVE ASSESSMENT-IV
UNIT TEST (20)	UNIT TEST (20)	UNIT TEST (20)	SPECIAL TEST
GROUP ACTIVITY(10)	GROUP ACTIVITY(10)	GROUP ACTIVITY(10)	GROUP ACTIVITY(10)
ACTIVITY (10)	ACTIVITY (10)	MCQ (10)	ACTIVITY FILES (10)

SYLLABUS FOR UNIT TEST -I
1. Real Numbers
2. Polynomials

SYLLABUS FOR UNIT TEST -II
1. Statistics
2. Trigonometry

SYLLABUS FOR UNIT TEST -III
1. Coordinate Geometry
2. Quadratic Equations

SPECIAL TEST
4-5 Chapters from S.A-II Syllabus.

ACTIVITIES FOR FORMATIVE ASSESSMENT -I
1. DERIVING CONDITIONS OF CONSISTENCY FOR LINEAR EQUATIONS IN TWO VARIABLES GRAPHICALLY.GROUP ACTIVITY(10)
2. **(a)** GEOMETRICAL INTERPRETATION OF ZEROS OF POLYNOMIALS (CONSTANT, LINEAR ,QUADRATICANDCUBIC)
   (b) CROSS WORD OF REAL NUMBERS.

ACTIVITIES FOR FORMATIVE ASSESSMENT -III
1. TO MAKE A CLINOMETER FOR MEASURING THE ANGLES OF ELEVATION AND DEPRESSION OF AN OBJECT AND USE IT TO MEASURE THE HEIGHT OF THE OBJECT. PREPARE A PROJECT REPORT OF THE SAME. (Group activity).
2. **MCQ:** QUADRATIC EQUATION,CO-ORDINATE GEOMETRY, ARITHMETIC PROGRESSION

ACTIVITIES FOR FORMATIVE ASSESSMENT –II
1. FINDING MEAN, MEDIAN AND MODE AND MAKING OGIVES FOR MARKS IN UNIT TEST-I OF MATHEMATICS.
2. VERIFYING BY PAPER CUTTING AND PASTING :
(I) BASIC PROPORTIONALITY THEOREM
(II)PYTHAGORAS THEOREM
3.HOLIDAYS HOME WORK

ACTIVITIES FOR FORMATIVE ASSESSMENT -IV
1.TO GET FAMILIAR WITH THE IDEA OF PROBABILITY OF AN EVENT OF "SUM OF THE NUMBERS DRAWN" THROUGH A DOUBLE COLOR CARD EXPERIMENT.(GROUP ACTIVITY).

2. ACTIVITY FILES