KOTHARI INTERNATIONAL SCHOOL

GRADE: 10

SUBJECT:MATHEMATICS CODE:041

ANNUAL PLANNER (2021-22)

S.No	TERM	MONTH	TOPIC	SUBJECT ENRICHMENT
1.	**PRE MID TERM** **PERIOD - (18th March -28th May)** **(30 % of annual syllabus to be completed)** **REVISION - (19th May-28th May)** **ASSESSMENT 1- (5th July-14th July)**	**MARCH** **Working Days -9**	**1.Polynomials** Zeros of a polynomial. Relationship between zeros and coefficients of quadratic polynomials. Statement and simple problems on division algorithm for polynomials with real coefficients.	Following Maths Lab Activities will be Performed
		APRIL **Working Days -18**	**2.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. Solution of a pair of linear equations in two variables algebraically - by substitution, by elimination and by cross multiplication method. Simple situational problems. Simple problems on equations reducible to linear equation 3• **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.	•Activity 1: To obtain the condition of consistency of a system of linear equations in two variables by graphical method

			Relationship between discriminant and nature of roots. Situational problems based on quadratic equations related to day to day activities to be incorporated	
		MAY **Working Days -20**	4. • **ARITHMETIC PROGRESSION** Motivation for studying Arithmetic Progression Derivation of the nth term and sum of the first n terms of A.P. and their application in solving daily life problems. 5. **CIRCLES** Tangent to a circle at, point of contact 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 a circle are equal 6. . • **PROBABILITY** Classical definition of probability. Simple problems on single events (not using set notation) **Revision**	Activity 2: • To verify that a given sequence is an Arithmetic Progression by paper cutting and Pasting method. Activity 3: • To verify that sum of first n natural numbers is n(n+1)/2 Activity 4: • To verify that the angles in the of tangents drawn from an external point are equal using the method of paper cutting, pasting and folding Activity 5: To get familiar with the idea of probability of an event through a double colour card experiment
2.	**<u>MID TERM</u>** **<u>PERIOD</u> - (15th July- 11th Sept)**	**JULY** **Working Days -21**	7• **STATISTICS** Mean, median and mode of grouped data (bimodal situation to be avoided). Cumulative frequency graph	

	(75 % of annual syllabus to be completed) **<u>REVISION</u> - (11th Sept- 17th Sept)** **<u>ASSESSMENT 2</u> - (20th Sept- 30th Sep)**	**AUGUST** **Working Days -19**	8• **TRIGONOMETRY** 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° and 90°. Values (with proofs) 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. Trigonometric ratios of complementary angles **9• SOME APPLICATION OF TRIGONOMETRY** 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° 10• **TRIANGLES** Definitions, examples, counter examples of similar triangles. . 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 .If a line divides two sides of a triangle in	Activity 6: • To Verify the Basic Proportionality Theorem Activity 7: • To Verify the Pythagoras Theorem

			the same ratio, the line is parallel to the third side If in two triangles, the corresponding angles are equal, their corresponding sides are proportional and the triangles are similar If the corresponding sides of two triangles are proportional, their corresponding angles are equal and the two triangles are similar 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. 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 The ratio of the areas of two similar triangles is equal to the ratio of the squares of their corresponding sides In a right triangle, the square on the hypotenuse is equal to the sum of the squares on the other two sides 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 angle	
		SEPTEMBER **Working Days- 22**	11• **CO-0RDINATE GEOMETRY** Review: Concepts of coordinate geometry, graphs of linear equations. Distance formula. Section formula (internal division). Area of a triangle **REVISION**	Activity 8: • To verify distance formula
3	**POST MID TERM** **PERIOD - (1st Oct–20th Nov)** **(100 % of annual syllabus to be completed)** **REVISION - (29th Nov–8th Dec)** **ASSESSMENT 3 - (10th Dec–21st Dec)**	**OCTOBER** **Working Days -16**	**12• AREAS RELATED TO CIRCLE** Motivate tofind 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°, 90° and 120° only. Plane figures involving triangles, simple quadrilaterals and circle should be taken.) 13• **SURFACE AREA AND VOLUME** Surface areas and volumes of combinations of any two of the following: cubes, cuboids, spheres, hemispheres and right circular cylinders/cones. Frustum of a cone. 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)	Activity 9: Angles in the same segment of a circle are equal, using the method of paper cutting, pasting and folding. Activity 10: To give a suggestive demonstration of the formula for the lateral surface area of a cone

		NOVEMBER **Working Days – 18**	14• **CONSTRUCTIONS** : Division of a line segment in a given ratio. Tangents to a circle from a point outside it. Construction of a triangle similar to a given triangle 15 • **REAL NUMBERS** Euclid's division lemma, Fundamental Theorem of Arithmetic - statements after reviewing work done earlier and after illustrating and motivating through examples, Proofs of irrationality of 2, 3, 5 Decimal representation of rational numbers in terms of terminating/non-terminating recurring decimals	
		DECEMBER **Working Days -22**	**Revision and Assessment 3**	
5.	**PRE BOARD** **(100 % of annual syllabus)** **REVISION - (21st Dec–30thDec)** **(6th Jan-8th Jan)** **ASSESSMENT 4 - (10th Jan–21stJan)**	**JANUARY** **Working Days -15**	Revision of full syllabus	