The Orchid School
Weekly Syllabus Overview 2015- 2016
Std : XI
Subject : Math

Month	Lesson / Topic	Expected Learning Objective	Activities/ FAs Planned	Remark
March				
APRIL				
MAY				
	Linear Inequalities (Periods 10) Linear inequalities, Algebraic solutions of linear inequalities in one variable and their representation on the number line. Graphical solution of linear inequalities in two variables. Solution of system of linear inequalities in two variables - graphially	Most students will be able to solve sums on: .Linear Inequalities,Linear inequalities, Algebraic solutions of linear inequalities in one variable and their representation on the number lin, Graphical solution of linear inequalities in two variables, Solution of system of linear inequalities in two variables - graphically	ex 6.1 6.2	

	Graphical solution to linear ineqations,introduction to trigonometry	MOST STUDENTS WILL BE ABLE TO UNDERSTAND THE CONCEPT AND SOLVE THE NUMERICALS BASED ON graphical solution to linear ineqations,introduction to trigonometry	Ex 6.3 and miscelleneous	
JUNE	Trigonometric Functions (Periods 18) Positive and negative angles. Measuring angles in radians and in degrees and conversion from one measure to another. Definition of trigonometric functions with the help of unit circle. Truth of the identity sin2 x + cos2 x = 1, for all x. Signs of trigonometric functions and sketch of their graphs. Expressing sin (x+ y) and cos (x + y) in terms of sin x, sin y, cos x and cos y	MOST STUDENTS WILL BE ABLE TO UNDERSTAND THE CONCEPT AND SOLVE THE NUMERICALS BASED ON Trigonometric Functions (Periods 18) Positive and negative angles. Measuring angles in radians and in degrees and conversion from one measure to another. Definition of trigonometric functions with the help of unit circle. Truth of the identity sin2 x + cos2 x = 1, for all x. Signs of trigonometric functions and sketch of their graphs. Expressing sin (x+ y) and cos (x + y) in terms of sin x, sin y, cos x and cos y	Ex 3.1 3.2	
	Identities related to sin2x, cos2x, tan2x, sin3x, cos3x and tan3x. General solution of trigonometric equations of the type sinθ = sin α, cosθ = cosα and tanθ = tan α. Proofs and simple applications of sine and cosine formulae.	MOST STUDENTS WILL BE ABLE TO UNDERSTAND THE CONCEPT AND SOLVE THE NUMERICALS BASED ON Identities related to sin2x, cos2x, tan2x, sin3x, cos3x and tan3x. General solution of trigonometric equations of the type sinθ = sin α, cosθ = cosα and tanθ = tan α. Proofs and simple applications of sine and cosine formulae.	Ex. 3.3 and miscelleneous	
	Complex Numbers and Quadratic Equations Need for complex numbers, to be motivated by inability to solve every quadratic equation	MOST STUDENTS WILL BE ABLE TO UNDERSTAND THE CONCEPT AND SOLVE THE NUMERICALS BASED ON Complex Numbers and Quadratic Equations Need for complex numbers, to be motivated by inability to solve every quadratic equation	Ex 5.1 5.2	
JULY	. Brief description of algebraic properties of complex numbers. Argand plane and polar representation of complex numbers. Statement of Fundamental Theorem of Algebra, solution of quadratic equations in the complex number system,	MOST STUDENTS WILL BE ABLE TO UNDERSTAND THE CONCEPT AND SOLVE THE NUMERICALS BASED ON . Brief description of algebraic properties of complex numbers. Argand plane and polar representation of complex numbers. Statement of Fundamental Theorem of Algebra, solution of quadratic equations in the complex number system,	Ex 5.3 miscelleneous	

	1. Sets (Periods 12) Sets and their representations. Empty set. Finite and Infinite sets. Equal sets. Subsets. Subsets of the set of real numbers especially intervals (with notations). Power set. Universal set. Venn diagrams. Union and intersection of sets. Difference of sets. Complement of a set, Properties of Complement sets	MOST STUDENTS WILL BE ABLE TO UNDERSTAND THE CONCEPT AND SOLVE THE NUMERICALS BASED ON 1. Sets (Periods 12) Sets and their representations. Empty set. Finite and Infinite sets. Equal sets. Subsets. Subsets of the set of real numbers especially intervals (with notations). Power set. Universal set. Venn diagrams. Union and intersection of sets. Difference of sets. Complement of a set, Properties of Complement sets	ex 1.1 to 1.6	
UT 1				
JULY	Relations and Functions (Periods 14) Ordered pairs, Cartesian product of sets. Number of elements in the Cartesian product of two finite sets. Cartesian product of the reals with itself (upto R × R × R). Definition of relation, pictorial diagrams, domain, co-domain and range of a relation. Function as a special kind of relation from one set to another.	MOST STUDENTS WILL BE ABLE TO UNDERSTAND THE CONCEPT AND SOLVE THE NUMERICALS BASED ON Relations and Functions (Periods 14) Ordered pairs, Cartesian product of sets. Number of elements in the Cartesian product of two finite sets. Cartesian product of the reals with itself (upto R × R × R). Definition of relation, pictorial diagrams, domain, co-domain and range of a relation. Function as a special kind of relation from one set to another.	ex 2.1 2.2	
	Pictorial representation of a function, domain, co-domain and range of a function. Real valued function of the real variable, domain and range of these functions, constant, identity, polynomial, rational, modulus, signum and greatest integer functions with their graphs. Sum, difference, product and quotients of functions.	MOST STUDENTS WILL BE ABLE TO UNDERSTAND THE CONCEPT AND SOLVE THE NUMERICALS BASED ON Pictorial representation of a function, domain, co-domain and range of a function. Real valued function of the real variable, domain and range of these functions, constant, identity, polynomial, rational, modulus, signum and greatest integer functions with their graphs. Sum, difference, product and quotients of functions.	ex 2.3 and miscelleneous	
	Permutations and Combinations Fundamental principle of counting	MOST STUDENTS WILL BE ABLE TO UNDERSTAND THE CONCEPT AND SOLVE THE NUMERICALS BASED ONFundamental principle of counting	ex 7.1 ,7.2	
	Factorial n. Permutations and combinations derivation of formulae and their connections, simple applications.	MOST STUDENTS WILL BE ABLE TO UNDERSTAND THE CONCEPT AND SOLVE THE NUMERICALS BASED ON Factorial n. Permutations and combinations derivation of formulae and their connections, simple applications.	ex 7.3 7.4 and miscelleneous	

AUG	. Sequence and Series (Periods 10) Sequence and Series. Arithmetic Progression (A.P.), Arithmetic Mean (A.M.), Geometric Progression (G.P.), general term of a G.P., sum of n terms of a G.P. Arithmetic and geometric series, infinite G.P. and its sum, geometric mean (G.M.). Relation between A.M. and G.M. Sum to n terms of the special series : 2 3 ∑∑ ∑ nn n	MOST STUDENTS WILL BE ABLE TO UNDERSTAND THE CONCEPT AND SOLVE THE NUMERICALS BASED ON Sequence and Series. Arithmetic Progression (A.P.), Arithmetic Mean (A.M.), Geometric Progression (G.P.), general term of a G.P., sum of n terms of a G.P. Arithmetic and geometric series, infinite G.P. and its sum, geometric mean (G.M.). Relation between A.M. and G.M. Sum to n terms of the special series	ex 9.1 to 9.4	
	1. Straight Lines (Periods 09) Brief recall of 2-D from earlier classes, shifting of origin. Slope of a line and angle between two lines.	MOST STUDENTS WILL BE ABLE TO UNDERSTAND THE CONCEPT AND SOLVE THE NUMERICALS BASED ON Brief recall of 2-D from earlier classes, shifting of origin. Slope of a line and angle between two lines.	ex 10.1 10.2	
SEPT	Various forms of equations of a line: parallel to axes, point-slope form, slope-intercept form, two-point form, intercepts form and normal form. General equation of a line. Equation of family of lines passing through the point of intersection of two lines. Distance of a point from a line.	MOST STUDENTS WILL BE ABLE TO UNDERSTAND THE CONCEPT AND SOLVE THE NUMERICALS BASED ON Various forms of equations of a line: parallel to axes, point-slope form, slope-intercept form, two-point form, intercepts form and normal form. General equation of a line. Equation of family of lines passing through the point of intersection of two lines. Distance of a point from a	10.3 and miscelleneous	
	Binomial Theorem (Periods 08) History, statement and proof of the binomial theorem for positive integral indices	MOST STUDENTS WILL BE ABLE TO UNDERSTAND THE CONCEPT AND SOLVE THE NUMERICALS BASED ON Binomial Theorem (Periods 08) History, statement and proof of the binomial theorem for positive integral indices	ex 8.1	
	Pascal's triangle, general and middle term in binomial expansion, simple applications.	MOST STUDENTS WILL BE ABLE TO UNDERSTAND THE CONCEPT AND SOLVE THE NUMERICALS BASED ON Pascal's triangle, general and middle term in binomial expansion, simple applications.	ex 8.2 and miscelleneous	
	Principle of Mathematical Induction (Periods 06) Process of the proof by induction, motivating the application of the method by looking at natural numbers as the least inductive subset of real numbers. The principle of mathematical induction and simple applications.	MOST STUDENTS WILL BE ABLE TO UNDERSTAND THE CONCEPT AND SOLVE THE NUMERICALS BASED ON Principle of Mathematical Induction (Periods 06) Process of the proof by induction, motivating the application of the method by looking at natural numbers as the least inductive subset of real numbers. The principle of mathematical induction and simple applications.	ex 4.1	

	Conic Sections (Periods 12) Sections of a cone: Circles, ellipse, parabola, hyperbola, a point, a straight line and pair of intersecting lines as a degenerated case of a conic section	MOST STUDENTS WILL BE ABLE TO UNDERSTAND THE CONCEPT AND SOLVE THE NUMERICALS BASED ON Sections of a cone: Circles, ellipse, parabola, hyperbola, a point, a straight line and pair of intersecting lines as a degenerated case of a conic section	ex 11. 11.2	
Term 1 Exam				
OCT	Standard equations and simple properties of parabola, ellipse and hyperbola. Standard equation of a circle.	MOST STUDENTS WILL BE ABLE TO UNDERSTAND THE CONCEPT AND SOLVE THE NUMERICALS BASED ON Standard equations and simple properties of parabola, ellipse and hyperbola. Standard equation of a circle.	ex 11.3 11.4	
	Introduction to Three-dimensional Geometry (Periods 08) Coordinate axes and coordinate planes in three dimensions. Coordinates of a point. Distance between two points and section formula.	MOST STUDENTS WILL BE ABLE TO UNDERSTAND THE CONCEPT AND SOLVE THE NUMERICALS BASED ON Coordinate axes and coordinate planes in three dimensions. Coordinates of a point. Distance between two points and section formula.	ex 12.1 to 12.3	
	Derivative introduced as rate of change both as that of distance function and geometrically, intuitive idea of limit.	MOST STUDENTS WILL BE ABLE TO UNDERSTAND THE CONCEPT AND SOLVE THE NUMERICALS BASED ON erivative introduced as rate of change both as that of distance function and geometrically, intuitive idea of limit.	ex 13.1	
	Definition of derivative, relate it to slope of tangent of the curve, derivative of sum, difference, product and quotient of functions. Derivatives of polynomial and trigonometric functions	MOST STUDENTS WILL BE ABLE TO UNDERSTAND THE CONCEPT AND SOLVE THE NUMERICALS BASED ON Definition of derivative, relate it to slope of tangent of the curve, derivative of sum, difference, product and quotient of functions. Derivatives of polynomial and trigonometric functions	ex 13.2	

NOV	: MATHEMATICAL REASONING (Periods 08) Mathematically acceptable statements. Connecting words/phrases - consolidating the understanding of “if and only if (necessary and sufficient) condition”, “implies”, “and/or”, “implied by”, “and”, “or”, “there exists” and their use through variety of examples related to real life and Mathematics	MOST STUDENTS WILL BE ABLE TO UNDERSTAND THE CONCEPT AND SOLVE THE NUMERICALS BASED ON Mathematically acceptable statements. Connecting words/phrases - consolidating the understanding of “if and only if (necessary and sufficient) condition”, “implies”, “and/or”, “implied by”, “and”, “or”, “there exists” and their use through variety of examples related to real life and Mathematics	ex 14.1 14.2 14.3	
	Validating the statements involving the connecting words - difference between contradiction, converse and contrapositive.	MOST STUDENTS WILL BE ABLE TO UNDERSTAND THE CONCEPT AND SOLVE THE NUMERICALS BASED ON Validating the statements involving the connecting words - difference between contradiction, converse and contrapositive.	ex 14.4 14.5	
	1. Statistics (Periods 10) Measure of dispersion; mean deviation, variance and standard deviation of ungrouped/grouped data.	MOST STUDENTS WILL BE ABLE TO UNDERSTAND THE CONCEPT AND SOLVE THE NUMERICALS BASED ON Measure of dispersion; mean deviation, variance and standard deviation of ungrouped/grouped data.	ex 15.1 15.2	
DEC	. Analysis of frequency distributions with equal means but different variances.		ex 15.3 and miscelleneous	
	Probability (Periods 15) Random experiments: outcomes, sample spaces (set representation). Events: Occurrence of events, ‘not’, ‘and’ & ‘or’ events, exhaustive events, mutually exclusive events	MOST STUDENTS WILL BE ABLE TO UNDERSTAND THE CONCEPT AND SOLVE THE NUMERICALS BASED ON Random experiments: outcomes, sample spaces (set representation). Events: Occurrence of events, ‘not’, ‘and’ & ‘or’ events, exhaustive events, mutually exclusive events	ex 16.1	
	Axiomatic (set theoretic) probability, connections with the theories of earlier classes	MOST STUDENTS WILL BE ABLE TO UNDERSTAND THE CONCEPT AND SOLVE THE NUMERICALS BASED ON Axiomatic (set theoretic) probability, connections with the theories of earlier classes	ex 16.2 16.3	

	s. Probability of an event, probability of ‘not’, ‘and’, & ‘or’ events.	MOST STUDENTS WILL BE ABLE TO UNDERSTAND THE CONCEPT AND SOLVE THE NUMERICALS BASED ON s. Probability of an event, probability of ‘not’, ‘and’, & ‘or’ events.	miscelleneous	
UT 2				
JAN	Revision			
	Revision			
	Revision			
	Sample question paper solving			

FEB	Sample question paper solving			
	Sample question paper solving			
	Sample question paper solving			
Final Exam				