

## ACADEMIC SESSION 2018-19 : COURSE PLANNING

Course Program Name - XI ABHILASHA				Course Code - RDJEE	Course Duration - 900 Hrs
TARGET EXAM - JEE MAIN / ADVANCED / KVPY / SCRA / CBSE Board Exam					
Course Commencement : 04.06.2018					Subject - Mathematics
S.No	No. of week	Week Duration	No. of Classes	Topic(s) Name (No. of Lectures)	Sub-topic(s) Name (No. of Lectures)
1	W1	04/06/18 to 09/06/18	7	Sets & Relation	1. Representation of sets, Types of sets, Subset, superset, power set, Operations on sets : $A \cup B$ , $A \cap B$ , $A - B$ , $A \Delta B$ , 2. Venn Diagrams, De-Morgans law, Cardinal No. problems 3. Cartesian Product, Relation
2	W2	11/06/18 to 16/06/18	7	Sets & Relation	1. Classification of Relation 2. Function
3	W3	18/06/18 to 23/06/18	7	Fundamentals of Mathematics-I	1. Number system, Important formula, Componendo & Dividendo 2. Idea of polynomial, Factor theorem/Remainder theorem Idea of intervals 3. Method of Interval
4	W4	25/06/18 to 30/06/18	7	Fundamentals of Mathematics-I	1. Logarithm : Definition, Identity, Properties, Graph 2. Logarithm equation 3. Logarithm equation 4. Logarithmic Inequalities
5	W5	02/07/18 to 07/07/18	7	Fundamentals of Mathematics-I	1. Logarithmic Inequalities 2. Characteristic and mantissa : Anti log Log table 3. Determinant and expansion of determinant
6	W6	09/07/18 to 14/07/18	7	Quadratic Equation	1. Definite of polynomial, Quadratic polynomial equation and identity 2. Roots and coefficient 3. Theory of equation 4. Nature of roots 5. Graph and its analysis Maxima and Minima of quadratic
7	W7	16/07/18 to 21/07/18	6	Quadratic Equation	1. Maxima and Minima of quadratic 2. Range of Quadratic , Range of $Q/Q$ , $L/Q$ , $Q/L$ 3. Location of Roots 4. Condition of common roots
8	W8	23/07/18 to 28/07/18	10	Trigonometry	1. T-ratios of allied angles, Domain and range 2. Graph of T-ratios 3. Sum or different of two angles (Sine and Cosine) 4. Transformation of product into sum, Transformation of product into product 5. T-ratio of sum or different of tan and cot, T-ratio of multiple and sub multiple 6. Conditional identity, Product of cosine series
9	W9	30/07/18 to 04/08/18	10	Trigonometry	1. Maximum and Minimum of trigonometric expression 2. Sum of sine and cosine series 3. Type of trigonometric equation (a) Using factorization (b) Reducing them in quadratic equation 4. (c) Using sum, diff. and product of trigonometric ratios (d) Equation of form $a \sin x + b \cos x = c$ 5. (e) Equation of form $P(\sin x \pm \cos x, \sin x \cos x)$ (f) Use of boundness of trigonometric ratios $\sin x$ and $\cos x$ 6. Trigonometric inequality, Height & distance

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10	W10	06/08/18 to 11/08/18	6	Fundamentals of Mathematics-II	1. Modulus function : Definition, Equations 2. Graphs of Modulus (Linear only) 3. Equations involving Modulus. 4. Inequalities involving modulus 5. Irrational Inequalities
11	W11	13/08/18 to 18/08/18	6	Fundamentals of Mathematics-II	1. Signum Function, Dirichlet Function 2. Graphs related to modulus 3. Graphical transformations 4. Greatest Integer & Fractional part And Its Properties 5. Graphs of $[x]$ , $\{x\}$ <b>INDEPENDENCE DAY</b>
12	W12	20/08/18 to 25/08/18	6	Straight Line	1. Rectangular Cartesian - coordinate system, Distance formula, Section formulas 2. Special points of $\square$ Area of $\square$ , Slope formula, Condition of collinearity of 3 points 3. Locus 4. Equation of straight line in various forms, General form of Straight Line
13	W13	27/08/18 to 01/09/18	6	Straight Line	1. Angle between two straight line in terms of slope, $\parallel$ and $\perp$ lines, Position of points w.r.t. line 2. Ratio in which a line divides the line segment, Length of $\square$ Foot of $\square$ and image of points w.r.t. line 3. Bisector of the angles between two lines 4. Condition of concurrency, Family of straight lines
14	W14	03/09/18 to 08/09/18	6	Straight Line	1. Pair of straight line through origin, General equation of 2nd degree representing a pair of straight lines 2. Homogenisation 3. Solving linear inequalities using graph in one and two variable
15	W15	10/09/18 to 15/09/18	7	Circle	1. Definition of Circle, Intercepts made by a circle on the axes, Parametric equation of circle, Position of point w.r.t. circle 2. Line and a circle, Equation of chord joining two points on circle 3. Tangent in various form, Normal and Chord of contact 4. Length of tangent and power of points 5. Pair of tangents, Director circle
16	W16	17/09/18 to 22/09/18	7	Circle	1. Chord with given middle point, Common tangent to two circle 2. Orthogonal of circles 3. Radical axis and radical centre 4. Family of circle.
17	W17	24/09/18 to 29/09/18	6	Binomial Theorem	1. Binomial expression and statement of binomial theorem, General term 2. Middle terms, Numerically greatest term in expansion of $(a + b)^n$ , Problem based on Remainder and last terms 3. Standard expansion of $(x + y)^n$ , $(x - y)^n$ , $(x + y)^n \pm (x - y)^n$ 4. Properties of Binomial coefficients, Summation of series with constant upper index multiplied with fixed constant
18	W18	01/10/18 to 06/10/18	6	Binomial Theorem	1. Product of Binomial coefficients Negative or factorial index 2. Multinomial theorem
19	W19	08/10/18 to 13/10/18	6	Permutation & Combination	1. Fundamental principle of counting 2. Permutation and arrangements of objects 3. Combination
20	W20	15/10/18 to 20/10/18	5	Permutation & Combination	1. Selection of one or more object 2. Formation of group and distribution of objects 3. Circular arrangement 4. Multinomial in P and C

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21	W21	22/10/18 to 27/10/18	6	Permutation & Combination	1. Multinomial in P and C 2. Method of factious partition 3. Problem based on divisors 4. Derangements and no. of onto function
22	W22	29/10/18 to 03/11/18	6	Solution of Triangle	1. Sine Rule, Cosine Rule, Projection formula, Na piers analogy 2. Trigonometric function of half angles, Ar. of $\square$ , m - n Rule 3. Circum radius
23	W23	05/11/18 TO 10/11/18			Diwali
24	W24	12/11/18 TO 17/11/18	6	Solution of Triangle	1. Inradius 2. Radius of the ex circles 3. Length of angle bisected, medians and altitude's
25	W25	19/11/18 to 24/11/18	7	Sequence & Series	1. Introduction (Finish sequence and infinite sequence) A.P. : General form, sum 2. Properties A.P., Arithmetic mean (A.M.) 3. G.P. $\square$ General term, sum 4. Properties of G.P. Geometric mean
26	W26	26/11/18 to 01/12/18	7	Sequence & Series	1. Harmonic progression, Harmonic Mean 2. A.G.P. Relation between means 3. $\bar{a}_n$ , $\bar{a}_2$ , $\bar{a}_3$ 4. Method of differences 5. Miscellaneous sequence
27	W27	03/12/18 to 08/12/18	8	Statistics	1. AM, Weighted AM, Combined AM Median, Mode, Characteristics of mean, median, mode 2. Mode = 3 Median - 2 Mean Range, coefficient of range, Mean deviation, coefficient of M.D., Standard Deviation, Variance, Coeff. of variation
28	W28	10/12/18 to 15/12/18	6	Probability	1. Basics definitions 2. Classical definition of probability 3. Addition theorem of probability 4. Conditional probability
29	W29	17/12/18 to 22/12/18	6	Probability	1. Independent and dependent events 2. Total probability theorem 3. Baye's theorem (Inverse probability theorem)
30	W30	24/12/18 to 29/12/18	5	Probability	1. Binomial probability theorem 2. Expectation, Probability distribution
31	W31	31/12/18 to 05/01/19	2	Principle of mathematical induction	1. Principle of mathematical induction
32	W32	07/01/19 to 12/01/19	8	Conic	1. Conic Section, Parabola 2. Parametric equation of parabola (Standard), Chord joining $t_1, t_2$ , Position of a point w.r.t. parabola 3. Position of a line w.r.t. parabola,
33	W33	14/01/19 to 19/01/19	8	Conic	1. Definition, Properties i.e. focal property, General Ellipse, Auxiliary Circle, Parametric Equation, Equation chord joining a, b 2. Position of a point, Position of a line 3. Tangent, Normal 4. Pair of tangents, Chord of contact, Director circle, Chord with middle point 5. Introduction : Standard hyperbola,

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34	W34	21/01/19 to 26/01/19	8	Conic	1. Focal property, Rectangular, Tangent & Normal, Pair of tangent, Director circle 2. Chord of contact, Chord with middle point 3. Rectangular hyperbola ( $xy = c^2$ ) 4. Properties
35	W35	28/01/19 to 02/02/19	6		
36	W36	4/2/2019 to 09/02/19	6	12TH	
37	W37	11/02/19 to 16/02/19	26		