Board of Intermediate Education, Andhra Pradesh.

Intermediate – II Year Syllabus w.e.f. 2013 – 14

Subject : MATHEMATICS – IIA

S. No.	Topics	Page No.
1.	**ALGEBRA** **Complex Numbers:** 1.1 Complex number as an ordered pair of real numbers- fundamental operations 1.2 Representation of complex numbers in the form a+ib. 1.3 Modulus and amplitude of complex numbers Illustrations. 1.4 Geometrical and Polar Representation of complex numbers in Argand plane- Argand diagram.	
2.	**De Moivre's Theorem:** 2.1 De Moivre's theorem- Integral and Rational indices. 2.2 n^{th} roots of unity- Geometrical Interpretations – Illustrations.	
3.	**Quadratic Expressions:** 3.1 Quadratic expressions, equations in one variable 3.2 Sign of quadratic expressions – Change in signs – Maximum and minimum values 3.3 Quadratic in equations	
4.	**Theory of Equations:** 4.1 The relation between the roots and coefficients in an equation 4.2 Solving the equations when two or more roots of it are connected by certain relation 4.3 Equation with real coefficients, occurrence of complex roots in conjugate pairs and its Consequences 4.4 Transformation of equations – Reciprocal Equations.	
5	**Permutations and Combinations:** Fundamental Principle of counting - linear and circular permutations Permutations of 'n' dissimilar things taken 'r' at a time. Permutations when repetitions allowed Circular permutations Permutations with constraint repetitions. Combinations-definitions and certain theorems	
6.	**Binomial Theorem:** Binomial theorem for positive integral index Binomial theorem for rational Index (without proof). Approximations using Binomial theorem	
7.	**Partial fractions:** Partial fractions of f(x)/g(x) when g(x) contains non – repeated linear factors. Partial fractions of f(x)/g(x) when g(x) contains repeated and/or non-repeated linear factors. Partial fractions of f(x)/g(x) when g(x) contains	

	irreducible factors.		
8.	**PROBABILITY** **MEASURES OF DISPERSION** **Range** Mean deviation Variance and standard deviation of ungrouped/grouped data. Coefficient of variation and analysis of frequency distribution with equal means but different variances.		
9.	**Probability** Random experiments and events Classical definition of probability, Axiomatic approach and addition theorem of probability. 9.3 Independent and dependent events conditional probability- multiplication theorem and Bayee's theorem.		
10.	**Random Variables and Probability Distributions:** 10.1 Random Variables 10.2 Theoretical discrete distributions – Binomial and Poisson Distributions		
Topics deleted under 30% reduction of Syllabus due to COVID-19			
1.	Complex Numbers	1.2.8-> Square root of a Complex Number and related problems in solved problems and exercise 1(b)	
3.	Quadratic Expressions	3.3-> Quadratic inequations including exercise 3(c)	85 - 90
4.	Theory of Equations	4.4-> Transformation of Equations including exercise 4(d)	129 - 144
5.	Permutations & Combinations	Derivation of formula npr and ncr Theorems :5.2.1 and 5.6.1	154, 183
6.	Bi-nominal theorem	Full	
7.	Partial Functions	7.3.8 and including exercise 7(d)	274 - 275
8.	Measures of Dispersion	8.4-> Coefficient of variation and analysis of frequency distributions with equal means Solved problems 2,3,6 in 8.5 and problem No:3 in III in exercise 8(a)	296 - 304

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Subject : MATHEMATICS – IIB

S. No.	Topics	Page No.
1.	**COORDINATE GEOMETRY** **Circle :** Equation of circle -standard form-centre and radius of a circle with a given line segment as diameter & equation of circle through three non collinear points - parametric equations of a circle. Position of a point in the plane of a circle – power of a point-definition of tangent-length of tangent Position of a straight line in the plane of a circle-conditions for a line to be tangent – chord joining two points on a circle – equation of the tangent at a point on the circle- point of contact-equation of normal. Chord of contact - pole and polar-conjugate points and conjugate lines - equation of chord with given middle point. Relative position of two circles- circles touching each other externally, internally common tangents –centers of similitude- equation of pair of tangents from an external point.	
2.	**System of circles:** Angle between two intersecting circles. Radical axis of two circles- properties- Common chord and common tangent of two circles – radical centre. Intersection of a line and a Circle.	
3.	**Parabola:** 3.1 Conic sections –Parabola- equation of parabola in standard form-different forms of parabola- parametric equations. 3.2 Equations of tangent and normal at a point on the parabola (Cartesian and parametric) - conditions for straight line to be a tangent.	
4.	**Ellipse:** 4.1 Equation of ellipse in standard form- Parametric equations.	

	4.2 Equation of tangent and normal at a point on the ellipse (Cartesian and parametric)- condition for a straight line to be a tangent.	
5	**Hyperbola:** 5.1 Equation of hyperbola in standard form- Parametric equations. 5.2 Equations of tangent and normal at a point on the hyperbola (Cartesian and parametric)- conditions for a straight line to be a tangent- Asymptotes.	
6.	**CALCULUS** **Integration :** 6.1 Integration as the inverse process of differentiation- Standard forms – properties of integrals. 6.2 Method of substitution- integration of Algebraic, exponential, logarithmic, trigonometric and inverse trigonometric functions. Integration by parts. Integration- Partial fractions method. Reduction formulae.	
7.	**Definite Integrals:** Definite Integral as the limit of sum Interpretation of Definite Integral as an area. Fundamental theorem of Integral Calculus. Properties. Reduction formulae. Application of Definite integral to areas.	
8.	**Differential equations:** Formation of differential equation-Degree and order of an ordinary differential equation. Solving differential equation by a) Variables separable method. b) Homogeneous differential equation. c) Non - Homogeneous differential equation. Linear differential equations.	

Topics deleted under 30% reduction of Syllabus due to COVID-19

1.	Circles	1.5-> Relative positions of two circles including Ex 1(e) and solved problems	60 - 70
3.	Parabola	3.2-> Tangents & Normal including Ex 3(b)	117 -128
4.	Ellipse	4.2-> Equations of tangents & Normal including Ex 4(b)	148 – 158

6.	Intergation	Evaluation of	
7.	Definite Integrals	7.1 and 7.2 -> Definite integral as the limit of the sum and limit of the sum and related problems in exercise 7(a) and 7(b) and Examples 7.6-> Application of Definite integrals to areas including ex 7(d)	262 – 268 283 – 286 297 - 308
8.	Differential Equations	8.17-> Formation of Differential Equations and problems related to it 8.2(C): Non – Homogeneous Differential Equations including Ex 8(d) Solution of linear differential Equations of the type dx+Px=Q, Where P and Q	317 341 - 345