Board of Intermediate Education, Andhra Pradesh.

Intermediate – I Year Syllabus w.e.f. 2012 – 13

Subject : MATHEMATICS – IA

S. No.	Topics	Page No.
1	**Functions :** Types of functions – Definitions. Inverse functions and Theorems. Domain, Range, Inverse of real valued functions.	
2	**Mathematical Induction** Principle of Mathematical Induction & Theorems. Applications of Mathematical Induction. Problems on divisibility.	
3	**Matrices:** Types of matrices Scalar multiple of a matrix and multiplication of matrices Transpose of a matrix Determinants Adjoint and Inverse of a matrix Consistency and inconsistency of Equations- Rank of a matrix Solution of simultaneous linear equations	
4	**VECTOR ALGEBRA** **Addition of Vectors** : Vectors as a triad of real numbers. Classification of vectors. Addition of vectors. Scalar multiplication. Angle between two non zero vectors. Linear combination of vectors. Component of a vector in three dimensions. Vector equations of line and plane including their Cartesian equivalent forms.	
5	**Product of Vectors** : Scalar Product - Geometrical Interpretations - orthogonal projections. Properties of dot product. Expression of dot product in i, j, k system - Angle between two vectors. Geometrical Vector methods. Vector equations of plane in normal form. Angle between two planes. Vector product of two vectors and properties. Vector product in i, j, k system. Vector Areas. Scalar Triple Product.	

	Vector equations of plane in different forms, skew lines, shortest distance and their Cartesian equivalents. Plane through the line of intersection of two planes, condition for coplanarity of two lines, perpendicular distance of a point from a plane, Angle between line and a plane. Cartesian equivalents of all these results Vector Triple Product – Results	
6	**TRIGONOMETRY** **Trigonometric Ratios up to Transformations :** 6.1 Graphs and Periodicity of Trigonometric functions. 6.2 Trigonometric ratios and Compound angles. 6.3 Trigonometric ratios of multiple and sub- multiple angles. 6.4 Transformations - Sum and Product rules.	
7	**Trigonometric Equations:** 7.1 General Solution of Trigonometric Equations. 7.2 Simple Trigonometric Equations – Solutions.	
8	**Inverse Trigonometric Functions:** 8.1 To reduce a Trigonometric Function into a bijection. 8.2 Graphs of Inverse Trigonometric Functions. 8.3 Properties of Inverse Trigonometric Functions.	
9	**8 Hyperbolic Functions:** 9.1 Definition of Hyperbolic Function – Graphs. 9.2 Definition of Inverse Hyperbolic Functions – Graphs. 9.3 Addition formulas of Hyperbolic Functions.	
10	**Properties of Triangles:** 10.1 Relation between sides and angles of a Triangle 10.2 Sine, Cosine, Tangent and Projection rules. 10.3 Half angle formulae and areas of a triangle 10.4 In-circle and Ex-circle of a Triangle.	

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

1	Functions 1.2-> Inverse Functions and theorems	14 - 22
2	Mathematical Induction	
3	Matrices –	85 – 89
	3.4.8-> Properties of determinants 3.4.9-> Notations	89
	3.4.10-> Solved problems	89 – 94
	Exercise.3(d) Problems II and III Proof of A-1 = adjA/!A! and	95 – 96
	3.5.5 theorem	98 – 99
	3.6.8 to 3.6.13 (Consistent and in consistent system) including exercise 3g	109 – 115
	3.7.4 to 3.7.9 Gauss Jordan Method and related problems solution of a homogenous linear Equations	118 - 124
5	Product of Vectors	196 - 215

	5.10 to 5.13 : Scalar Triple product and onwards including exercise 5(c)	
7	Trigonometric Equations – Full	
8	Inverse Trigonometric functions – Full	
10	Properties of Triangles Problems related to Heights and distances and solved problems 27 and 28 Problems 13 to 18 in III exercise 10(a)	389 392

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Intermediate – I Year Syllabus w.e.f. 2012 – 13

Subject : MATHEMATICS – IB

S. No.	Topics	Page No.
1.	**COORDINATE GEOMETRY** **Locus :** Definition of locus – Illustrations. To find equations of locus - Problems connected to it.	
2.	**Transformation of Axes :** Transformation of axes - Rules, Derivations and Illustrations. Rotation of axes - Derivations – Illustrations.	
3.	**The Straight Line :** Revision of fundamental results. Straight line - Normal form – Illustrations. Straight line - Symmetric form. Straight line - Reduction into various forms. Intersection of two Straight Lines. Family of straight lines - Concurrent lines. Condition for Concurrent lines. Angle between two lines. Length of perpendicular from a point to a Line. Distance between two parallel lines. Concurrent lines - properties related to a triangle.	
4.	**Pair of Straight lines:** Equations of pair of lines passing through origin, angle between a pair of lines. Condition for perpendicular and coincident lines, bisectors of angles. Pair of bisectors of angles. Pair of lines - second degree general equation. Conditions for parallel lines - distance between them, Point of intersection of pair of lines. Homogenizing a second degree equation with a first degree equation in X and Y.	
5	**Three Dimensional Coordinates :** Coordinates. Section formulas - Centroid of a triangle and tetrahedron.	
6.	**Direction Cosines and Direction Ratios :** Direction Cosines. Direction Ratios	
7.	**Plane :** Cartesian equation of Plane - Simple Illustrations.	
8.	**CALCULUS** **Limits and Continuity:** Intervals and neighborhoods.	

	Limits. Standard Limits. Continuity.	
9.	**Differentiation** : Derivative of a function. Elementary Properties. Trigonometric, Inverse Trigonometric, Hyperbolic, Inverse Hyperbolic Function - Derivatives. Methods of Differentiation. Second Order Derivatives	
10.	**Applications of Derivatives**: Errors and approximations. Geometrical Interpretation of a derivative. 10.3 Equations of tangents and normals. 10.4 Lengths of tangent, normal, sub tangent and sub normal. Angles between two curves and condition for orthogonality of curves. Derivative as Rate of change. Rolle's Theorem and Lagrange's Mean value theorem without proofs and their geometrical interpretation. Increasing and decreasing functions. Maxima and Minima.	

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2.	**Transformation of AXES**	Full	
4.	**Pair of Straight Lines**	Proofs of all Theorems and 4.3.4 including exercise 4(a)	91 – 97
6.	**D.Cs and D.Rs**	6.2.6 to 6.2.11 Angle between two lines and problems related to it	140 – 149
7.	**Plane**	7.1.12- Angle between two planes and problems related to it	159
10.	**Applications of Derivatives**	10.1 to 10.1.5 including exercise 10(a) ` Errors and approximations	255 – 261
		10.4 – Lengths of tangent, Sub tangent, Normal and subnormal including ex-10(c)	271 – 274
		10.6 – Derivate as a rate of change including ex-10(e) 10.7 – Rolle's and Legrange's Mean value theorems	278 – 290