

Reduced Syllabus : Class- XII : Mathematics : 80 Marks : 2020-2021

Deleted Portion of Syllabus

Unit/Chapter	Deleted Portion
UNIT-I : RELATIONS AND FUNCTIONS	
1. Relations and Functions	Totally Deleted
2. Inverse Trigonometric Functions	# Graphs of inverse trigonometric functions
UNIT-II : ALGEBRA	
1. Matrices	# Concept of elementary row and column operations. # Proof of the uniqueness of inverse, if it exists.
2. Determinants	# Consistency, inconsistency and number of solutions of system of linear equations by examples.
UNIT-III : CALCULUS	
1. Continuity and Differentialbility	# Rolle's theorem and langrange's Mean Vaule theorem (with proof) and their geometric interpretation.
2. Application of Derivatives	# Rate of change of bodies. # Increasing & Decreasing functions. # Use of derivatives in approximation.
3. Integrals	# Evaluation of integrals of the following types $\int \sqrt{ax^2+bx+c} \, dx,$ $\int (px + q)\sqrt{ax^2+bx+c} \, dx$ # Definite integrals as a limit of a sum.
4. Application of the Integrals	Area between Two Curves : # In finding the area under circles/parabolas 8.2 ellipses (in all other forms for each category of curves except centre having at the origin in case of circle & ellipse and vertex having at the origin in case of parabola).

5. Differential Equations	<p># Formation of differential equation whose general solution is given.</p> <p># Solutions of linear differential equation of the type :</p> $\frac{dx}{dy} + Px = Q,$ <p>where P and Q are functions of y or constants.</p>
UNIT-IV : VECTORS & THREE-DIMINSIONAL GEOMETRY	
1. Vectors	# Sealar triple product of vectors.
2. Three-Dimensional Geometry	# Angle between (i) Two planes, (ii) A line and a plane.
UNIT-V : LINEAR PROGRAMMING PROBLEM	
1. Linear Programming	# Totally Deleted.
UNIT-VI : PROBABILITY	
PROBABILITY	<p># Random variable & its probability distribution.</p> <p># Mean and variance of random variable.</p>

Blue Print of Question : Class- XII : Mathematics: 80 Marks: 2020-2021

Unit/Chapter		VSA 1 Mark	SA-I 2 Marks	LA-I 4 Marks	LA-II 6 Marks	Total Marks
I.	Inverse Trigonometric Functions	02	01	01	--	08
II.	(a) Matrices (7)	03	--	01	--	15
	(b) Determinants (8)	02	--	--	01	
III.	(a) Continuity and Differentiability (7)	01	01	01	--	35
	(b) Applications of Derivatives (9)	01	01	--	01	
	(c) Integrals (8)	04	--	01	--	
	(d) Applications of Integrals (6)	00	00	00	01	
	(e) Differential Equations (5)	01	--	01	00	
IV.	(a) Vectors (4)	02	01	00	00	14
	(b) Three Dimensional Geometry (10)	02	01	--	01	
V.	Probability	02	01	01	--	08
Total No. of Questions		20	06	06	04	36
Total Marks.		1×20=20	2×6=12	4×6=24	6×4=24	80

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Unit-I : RELATIONS & FUNCTIONS

2. Inverse Trigonometric Functions

2.1 Basic concepts : Definition, domain, range, principal value branch.

2.2 Elementary properties of inverse trigonometric functions.

Unit-II : ALGEBRA

3. Matrices

3.1 Concept, notation, order of a matrix.

Types of matrices : Column matrix, Row matrix, Square matrix, Diagonal matrix, Scalar matrix, Identity matrix, Equality of matrices.

3.2 **Operation on matrices** : Addition, multiplication with a scalar, multiplication.

Non-commutativity of multiplication of matrices and existence of non-zero matrices whose product is the zero matrix (restrict to square matrices of order 2).

3.3 Transpose of a matrix, symmetric matrix and skew-symmetric matrix.

4. Determinants

4.1 Determinant of a square matrix (up to 3×3 matrices).

4.2 Properties of determinants.

4.3 Application of determinants in finding the area of a triangle.

4.4 Minors and cofactors.

4.5 Adjoint and inverse of a square matrix.

4.6 Solving system of linear equations in two or three variables (having unique solution) using inverse of a matrix.

Unit-III : CALCULUS

5. Continuity and Differentiability

5.1 Continuity.

5.2 Differentiability, derivatives of composite functions, chain rule.

5.3 Derivatives of implicit functions, derivatives of inverse trigonometric functions.

- 5.4 Concept of exponential and logarithmic functions, derivatives of exponential and logarithmic functions.
- 5.5 Logarithmic differentiation.
- 5.6 Derivatives of functions expressed in parametric forms.
- 5.7 Second order derivative.

Unit-III : CALCULUS

6. Application of Derivatives

6.3 Tangents and Normals

6.5 Maxima and Minima (first derivative test motivated geometrically and second derivative test given as a probable tool).

Simple problems (that illustrate basic principles and understanding of the subject 'Maxima and Minima' as well as real-life situations).

7. Integrals

7.1 Integration as an inverse process of differentiation.

7.2 Integration of a variety of functions by substitution.

7.3 Integration using trigonometric identities.

7.4 Evaluation of simple integrals and problems based on them :

7.5 Integration by Partial Fractions.

7.6 Integration by Parts.

7.9 Fundamental theorem of calculus (without proof).

7.10 Evaluation of definite integral by substitutions.

7.11 Basic properties of definite integrals and evaluation of definite integrals.

8. Application of the integrals

8.1 Applications in finding the area under simple curves, especially lines, circles/ parabolas/ellipses (only in the form where centre is at the origin in case of circle & ellipse and in case of parabola, vertex being at the origin).

9. Differential Equations

9.1 Definition, order and degree of a differential equation.

9.2 General and particular solutions of a differential equation.

9.4 Solution of differential equations by method of separation of variables.

9.5 Solution of homogeneous differential equations of first order and first degree.

9.6 Solutions of linear differential equation of the type :

$$\frac{dy}{dx} + py = q, \text{ where } p \text{ and } q \text{ are functions of } x \text{ or constants.}$$

Unit-IV : VECTORS & THREE-DIMENSIONAL GEOMETRY

10. VECTORS

10.1 Vectors and scalars, magnitude and direction of a vector, Direction Cosines and Direction Ratios of a vector, Position vector of a point.

Types of vectors (equal, unit, zero, parallel and collinear vectors), negative of a vector.

10.2 Addition of vectors, multiplication of a vector by a scalar, components of a vector, position vector of a point dividing a line segment in a given ratio.

10.3 Definition, Geometrical Interpretation, properties and application of scalar (dot) product of vectors.

10.4 Vectors (cross) product of vectors.

11. Three-dimensional Geometry

11.1 Direction cosines and direction ratios of a line joining two points.

11.2 Cartesian equation and vector equation of a line in space.

Shortest distance between two lines, coplanar and skew lines.

11.3 Cartesian and vector equation of a plane. Distance of a point from a plane.

Unit-VI : PROBABILITY

13.1 PROBABILITY

13.1 Conditional probability.

13.2 Multiplication theorem on probability independent events.

13.3 Total probability, Baye's theorem.