

SYNERGY SCHOOL OF ENGINEERING, DHENKANAL

Department- All	Semester- 2nd	Name Of the Teaching Faculty- Biswajit Mishra No. of weeks- 15 Session- 2024-25
Subject- Mathematics- II	No. of days per week- 04	
Week	Class	Topic to be taught
1.	1.	Introduction, Types of Matrices
	2.	Algebra of matrices
	3.	Questions on Matrices
	4.	Determinants up to 3x3 matrices and its properties
2.	5.	Minor, Co-factor, adjoint and inverse of matrices
	6.	Questions on Inverse of Matrices
	7.	System of Linear Equations, its matrix form, consistency and inconsistency
	8.	Cramer's rule and its examples
3.	9.	Solution of linear system using inverse of matrix
	10.	Exercise Questions and Doubt Clear
	11.	Introduction to integration and simple problems
	12.	Standard Formulae and Problems on integration
4.	13.	Integration using substitution
	14.	Integration of fractions
	15.	Integration by partial fractions
	16.	Integration by parts
5.	17.	Overall discussion and exercise questions
	18.	Use of $\int_0^{\frac{\pi}{2}} \sin^n x$, $\int_0^{\frac{\pi}{2}} \cos^n x$, $\int_0^{\frac{\pi}{2}} \sin^m x \cos^n x$
	19.	Some more problems on previously discussed topics
	20.	Evaluation of area under plane curves using integration
6.	21.	Evaluation of volume of solids using integration
	22.	Questions on area and volume
	23.	Exercise Questions and Doubt Clear
	24.	Introduction of geometry in two dimension, Distance formulae
7.	25.	Slope of a line, angle between two lines, condition of perpendicularity and parallelism
	26.	Different forms of straight lines i) One point form, (ii) two point form
	27.	(iii) slope form, (iv) intercept form, (v) Perpendicular form
	28.	Intersection of two lines and perpendicular distance formula
8.	29.	Exercise questions and doubt clear
	30.	Monthly Test-I
	31.	Equation of a circle (i) centre radius form
	32.	(ii) general equation of a circle (iii) end point of diameter form
9.	33.	Circle passing through three points
	34.	Exercise of Circle

	35.	Definition of conics, parabola and its questions
	36.	Ellipse and its questions
10.	37.	Hyperbola and its questions
	38.	Exercise Questions and Doubt Clear
	39.	Introduction, Types of vectors (null vector, parallel vector, collinear vectors)
	40.	Representation of vector, Position vector, Magnitude and direction of vectors
11.	41.	Addition and subtraction of vectors, Scalar multiplication of vector
	42.	Exercise Questions
	43.	Scalar product of two vectors and its properties
	44.	Angle between two vectors, problems on dot product
12.	45.	Exercise of dot product
	46.	Vector product and its properties
	47.	Geometrical meaning (Area of triangle and parallelogram)
	48.	Questions on area of triangle and parallelogram
13.	49.	Exercise Questions and Doubt Clear
	50.	Introduction to differential equations
	51.	Order and degree of DE
	52.	Solution of DE (Variable Separable Method)
14.	53.	Variable Separable Method questions
	54.	More questions on variable separable method
	55.	Order more than 1
	56.	Exercise Questions and Doubt Clear
15.	57.	Monthly Test-II
	58.	Previous Year Question Discussion
	59.	Selective questions practice
	60.	Doubt Clear Class & Quiz Test

Prepared By

Biswajit Mishra

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(Lect. In Math)