

Schedule of Teaching

Department of Mathematics



Govt. College Jhandutta Distt. Bilaspur (H.P.)

Prepared by:

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Class: B.A./B.Sc First Year

Course: Differential Calculus (MATH101 TH)

Lectures per week: 3

Course Outcomes (CO):

The students will be well conversant with the following types of differential calculus:

- CO-1. Basic theory of differential calculus.
- Limit and Continuity, Types of discontinuities.
- Differentiability of functions.
- Indeterminate forms, Rolle's theorem.
- Concavity, Convexity & Points of Inflexion. Maxima and Minima with Lagrange Multipliers Method (two variables), Jacobian (upto three variables).

S.No.	Торіс	Week	Month
1.	Introduction about Syllabus, Choice based credit system	First Week	July
	(CBCS), Basic theory of differential calculus		
2.	Limit	Second Week	-
3.	Questions related to Limit	Third Week	
4.	Continuity	Fourth Week	
5.	Questions related to Continuity	First Week	August
6.	Types of discontinuities.	Second Week	
7.	Differentiability of functions	Third Week	
8.	Questions related to Differentiability of functions	Fourth Week	
9.	Successive differentiation	First Week	September
10.	Leibnitz's theorem	Second Week	-
11.	Indeterminate forms	Third Week	
12.	Rolle's theorem	Fourth Week	-
13.	Questions related to Rolle's theorem	First Week	October
14.	Lagrange's theorem	Second Week	1
15.	Questions related to Lagrange's theorem	Third Week	1

16.	Cauchy Mean Value theorem	Fourth Week	
17.	Questions related to Cauchy Mean Value theorem	First Week	November
18.	Taylor's theorem with Lagrange's and Cauchy's forms of	Second Week	-
	remainder, Taylor's series.		
19.	Questions related to these theorems	Third Week	
20.	Maclaurin's series of sin x, $\cos x$, e^x , $\log(l+x)$, $(l+x)^m$.	Fourth Week	-
21.	Concavity, Convexity & Points of Inflexion	First Week	December
22.	Curvature, Radius of curvature, center of curvature	Second Week	
23.	MTT	Third Week	
24.	MTT	Fourth Week	1
25.	Asymptotes, Singular points, Double point, Polar	Second Week	February
	coordinates, Relation between Cartesian and polar		
	coordinates		
26.	Functions of several variables (upto three variables): Limit	Third Week	-
	and Continuity of these functions		
27.	Partial differentiation, Euler's theorem on homogeneous	Fourth Week	-
	functions		
28.	Lagrange Multipliers Method (two variables), Jacobian (up	First Week	March
	to three variables).		
29.	Revision	Second Week	-
30.	Revision	Third Week	1
31.	Revision	Fourth Week	1

Course: Differential Equations (MATH102 TH)

Lectures per week: 3

Course Outcomes (CO):

The students will be well conversant with the following types of differential equations:

• Basic theory of linear differential equations, Wronskian, and its properties. First order exact differential equations. Integrating factors, rules to find an integrating factor.

- Methods for solving higher-order differential equations. Solving a differential equation by reducing its order. Linear homogenous equations with constant coefficients, Linear nonhomogenous equations.
- The method of variation of parameters with constant coefficients. The Cauchy-Euler equation and Legendre equation. Simultaneous differential equations, Total differential equations.
- Order and degree of partial differential equations, Concept of linear and non-linear partial differential equations. Formation of first order partial differential equations (PDE).
- Linear partial differential equation of first order, Lagrange's method. Classification of second order partial differential equations into elliptic, parabolic and hyperbolic through illustrations only.

S.No.	Topic	Week	Month
1.	Introduction about Syllabus, Choice based credit system	First Week	July
	(CBCS), Basic theory of linear differential equations		
2.	Wronskian, and its properties	Second Week	
3.	Integrating factors	Third Week	
4.	Rules to find an integrating factor	Fourth Week	
5.	First order higher degree equations solvable for x, y, p.	First Week	August
6.	Clairut's form	Second Week	-
7.	Methods for solving higher-order differential equations	Third Week	-
8.	Solving a differential equation by reducing its order	Fourth Week	-
9.	Linear homogenous equations with constant coefficients	First Week	September
10.	Linear non homogenous equations	Second Week	-
11.	The method of variation of parameters with constant	Third Week	-
	coefficients		
12.	The Cauchy-Euler equation and Legendre equation	Fourth Week	-
13.	Simultaneous differential equations	First Week	October
14.	Total differential equations	Second Week	1
15.	Order and degree of partial differential equations	Third Week	1

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16.	Concept of linear partial differential equations	Fourth Week	
17.	Concept of non-linear partial differential equations	First Week	November
18.	Formation of first order partial differential equations(PDE)	Second Week	
19.	Linear partial differential equation of first order	Third Week	-
20.	Questions of Linear partial differential equation of first	Fourth Week	-
	order		
21.	Lagrange's method	First Week	December
22.	Questions related Lagrange's method	Second Week	-
23.	MTT	Third Week	
24.	MTT	Fourth Week	1
25.	Classification of second order partial differential equations	Second Week	February
	into elliptic		
26.	Classification of second order partial differential	Third Week	
	equations into elliptic		
27.	Classification of second order partial differential equations	Fourth Week	-
	into parabolic through illustrations only		
28.	Classification of second order partial differential equations	First Week	March
	into hyperbolic through illustrations		
29.	Revision	Second Week	-
30.	Revision	Third Week	
31.	Revision	Fourth Week	
			1

Class: B.A/B.SC 2nd Year

Course: Real Analysis (MATH201TH)

Lectures per week: 3

Course Outcomes (CO):

On completion of this unit of the course, the student will be able to develop a clear-cut idea on sequence and series of functions defined on a set after covering the following:

- Sequence of functions defined on a set, Point wise and uniform convergence. Cauchy 1st Theorem and 2nd Theorem, Cauchy criterion of uniform convergence. Weirstrass' M-test.
- Series of functions defined on a set, Point wise and uniform convergence. Cauchy criterion of uniform convergence. Weierstrass' M-test.
- Power series: Fundamental theorem of power series. Cauchy- theorem. Determination of radius of convergence. Uniform and absolute convergence of power series.

S.No.	Topic	Week	Month
1.	Introduction about Syllabus, Choice based credit system	First Week	July
	(CBCS), Real Line		
2.	Bounded sets	Second Week	-
3.	Suprema and infima	Third Week	
4.	completeness property of R	Fourth Week	
5.	Archimedean property of R	First Week	August
б.	Intervals	Second Week	
7.	Concept of cluster points and statement of Bolzano-	Third Week	
	Weierstrass theorem		
8.	Real Sequence	Fourth Week	
9.	Bounded sequence	First Week	September
10.	Cauchy convergence criterion for sequences	Second Week	
11.	Cauchy's theorem on limits	Third Week	
12.	Order preservation and squeeze theorem	Fourth Week	
13.	Monotone sequences and their convergence (monotone	First Week	October
	convergence theorem without proof).		
14.	Infinite series	Second Week	
15.	Cauchy convergence criterion for series	Third Week	-
16.	Positive term series, geometric series	Fourth Week	
17.	Comparison test, convergence of p-series	First Week	November
18.	Root test, Ratio test	Second Week	1
19.	Alternating series, Leibnitz's test	Third Week	1
20.	Definition and examples of absolute and conditional	Fourth Week	1
	convergence		

21.	Sequences of functions	First Week	December
22.	Series of functions	Second Week	-
23.	MTT	Third Week	-
24.	MTT	Fourth Week	-
25.	Pointwise and uniform convergence	Second Week	February
26.	M _n test, Results about uniform convergence	Third Week	-
27.	Power series	Fourth Week	-
28.	Radius of convergence	First Week	March
29.	Revision	Second Week	-
30.	Revision	Third Week	
31.	Revision	Fourth Week	-

Course: Algebra MATH202TH

Lectures per week: 3

Course Outcomes (CO):

Students will get an overall understanding of the following concepts:

- Elementary properties using definition of Group. Definition and examples of subgroups.
- Definitions and examples of Ring , Field.
- Concept of Vector space over a Field.
- Basic theorems of homomorphism
- Rings of matrices

S.No.	Торіс	Week	Month
1.	Introduction about Syllabus, Choice based credit system	First Week	July
	(CBCS), Definition of groups		
2.	Examples of groups	Second Week	
3.	Examples of abelian and non-abelian groups	Third Week	

4.	The group Z_n of integers under addition modulo n and the	Fourth Week]
	group U(n) of units under multiplication modulo n		
5.	Cyclic groups from number systems	First Week	August
6.	Complex roots of unity	Second Week	-
7.	Subgroups	Third Week	-
8.	Cyclic subgroups	Fourth Week	-
9.	Concept of a subgroup generated by a subset and the commutator subgroup of group,	First Week	September
10.	Examples of subgroups including the center of a group	Second Week	-
11.	Cosets	Third Week	-
12.	Index of subgroup	Fourth Week	-
13.	Lagrange's theorem, order of an element	First Week	October
14.	Normal subgroups: their definition	Second Week	_
15.	Normal subgroups: their definition, examples, and	Third Week	_
	characterizations		
16.	Quotient groups	Fourth Week	-
17.	Definition of Kernel	First Week	November
18.	Basic theorems of homomorphism	Second Week	-
19.	First theorem of Homomorphism	Third Week	-
20.	Definition and examples of rings	Fourth Week	-
21.	Examples of commutative and non-commutative rings	First Week	December
22.	Zn the ring of integers modulo n	Second Week	-
23.	MTT	Third Week	-
24.	MTT	Fourth Week	-
25.	Rings of matrices	Second Week	February
26.	Subrings	Third Week	
27.	Ideals	Fourth Week	-
28.	Definition of Integral domains and fields.	First Week	March
29.	Revision	Second Week	-
30.	Revision	Third Week	
31.	Revision	Fourth Week	

Course: Integral Calculus (MATH309TH)

Lectures per week: 2

- Evaluation of definite integrals.
- Integration as the limit of a sum.
- Reduction formulae for integrals.
- Definition of Improper Integrals: Statements of (i) μ-test (ii) Comparison test Simple problems only. Use of Beta and Gamma functions.
- Working knowledge of double integral.
- Applications in Rectification, Quadrature, volume and surface areas of solids formed by revolution of plane curve and areas problems only.

S.No.	Торіс	Week	Month
1.	Introduction about Syllabus, Choice based credit system	First Week	July
	(CBCS), Overview of Integration		
2.	Integration by Partial fractions	Second Week	-
3.	Questions related to Integration by Partial fractions	Third Week	-
4.	Integration of rational and irrational functions	Fourth Week	-
5.	Questions related to integration of rational and irrational	First Week	August
	functions		
6.	Properties of definite integrals	Second Week	-
7.	Questions related to Properties of definite integrals	Third Week	-
8.	Reduction Formulae	Fourth Week	-
9.	Questions related to Reduction Formulae	First Week	September
10.	Reduction Formulae, $\int Sin^n x dx$, $\int Cos^n x dx$,	Second Week	-
11.	Questions related to Reduction Formulae, $\int Sin^n x dx$	Third Week	-
12.	Reduction Formulae, $\int Sin^n x dx$	Fourth Week	
13.	Questions related to Reduction Formulae $\int \cos^n x dx$	First Week	October
14.	Reduction Formulae $\int e^{ax} x n dx$, $\int x^{n} (logx)^{m} dx$, $\int x$	Second Week	1
	ⁿ Sinxdx,∫x ⁿ cosxdx		

15.	Questions related to $\int e^{ax} x n dx$, $\int x^{n} (logx)^{m} dx$	Third Week	
16.	Questions related to , $\int x ^n Sinx dx$, $\int x ^n cosx dx$	Fourth Week	
17.	Reduction Formulae $\int Sin^n x \cos^n x dx$	First Week	November
18.	Questions related to Reduction Formulae $\int Sin^{n}x \cos^{n}x$	Second Week	-
	dx		
19.	Reduction by connecting two integrals (Smaller Index + 1	Third Week	-
	Method)		
20.	Questions related to Reduction by connecting two integrals	Fourth Week	-
	(Smaller Index + 1 Method)		
21.	Areas and lengths of curves in the plane, volumes and	First Week	December
	surfaces of solids of revolution		
22.	Questions related to Areas and lengths of curves in the	Second Week	-
	plane, volumes and surfaces of solids of revolution		
23.	MTT	Third Week	-
24.	MTT	Fourth Week	-
25.	Cartesian and parametric form	Second Week	February
26.	Questions related to Cartesian and parametric form	Third Week	-
27.	Double and Triple integrals	Fourth Week	-
28.	Questions related to Double and Triple integrals	First Week	March
29.	Revision	Second Week	-
30.	Revision	Third Week	-
31.	Revision	Fourth Week	-

Course: Vector Calculus (MATH310TH)

Lectures per week: 2

Students will get an overall understanding of the following concepts:

- Scalar and vector product of three vectors. Product of four vectors. Reciprocal vectors. Vector differentiation, Scalar valued point functions, vector valued point functions.
- Gradient of a scalar point function. Divergence and curl of a vector point function. Gradient, Divergence and curl of sums and products.
- Orthogonal curvilinear coordinates. Conditions for orthogonality. Fundamental triads of mutually orthogonal unit vectors. Gradient, Divergence, Curl and Laplacian operators in terms of orthogonal curvilinear coordinators.
- Translation, Dilation, Rotation, Reflection in a point, line and plane. Matrix form of basic geometric transformations. Interpretation of eigenvalues and eigen vectors for such transformations and eigen spaces as invariant subspaces.

S.No.	Торіс	Week	Month
1.	Introduction about Syllabus, Choice based credit system	First Week	July
	(CBCS), Concepts of scalar and vector product		
2.	Scalar and vector product of three vectors	Second Week	-
3.	Questions related to Scalar and vector product of three	Third Week	-
	vectors		
4.	Product of four vectors.	Fourth Week	-
5.	Questions related to Product of four vectors	First Week	August
6.	Reciprocal vectors	Second Week	-
7.	Questions related to Reciprocal vectors	Third Week	-
8.	Vector differentiation	Fourth Week	-
9.	Questions related to Vector differentiation	First Week	September
10.	Scalar valued point functions	Second Week	-
11.	Questions related to Scalar valued point functions	Third Week	-
12.	Vector valued point functions	Fourth Week	-
13.	Derivative along a curve	First Week	October
14.	Directional derivatives	Second Week	1
15.	Gradient of a scalar point function	Third Week	1
16.	Questions related to Gradient of a scalar point function	Fourth Week	1
17.	Divergence and curl of a vector point function	First Week	November

18.	Questions related to Divergence and curl of a vector point	Second Week	
	function		
19.	Gradient, Divergence and curl of sums and products.	Third Week	-
20.	Laplacian operators in terms of orthogonal curvilinear	Fourth Week	-
	coordinators		
21.	Questions related to Laplacian operators in terms of	First Week	December
	orthogonal curvilinear coordinators		
22.	line integral	Second Week	-
23.	MTT	Third Week	-
24.	MTT	Fourth Week	-
25.	Surface integral	Second Week	February
26.	Questions related to Surface integral	Third Week	-
27.	Volume integral Theorems of Gauss, Green and Stokes	Fourth Week	-
	(without proof) and the problems based on these		
	theorems.		
28.	Questions related to Volume integral Theorems of Gauss,	First Week	March
	Green and Stokes		
29.	Revision	Second Week	-
30.	Revision	Third Week	-
31.	Revision	Fourth Week	-

Course: Matrices

MATH 301TH

Lectures per week: 3

Students will get an overall understanding of the following concepts:

- Types of matrices. Rank of a matrix. Invariance of rank under elementary transformations. Reduction to normal form, Solutions of linear homogeneous and non-homogeneous equations with number of equations and unknowns up to three.
- Matrices in diagonal form. Reduction to diagonal form upto matrices of order 3. Computation of matrix inverses using elementary row operations. Rank of matrix.
- Definition of Vector space, R, R2, R3 as vector spaces over R, Concept of Linear dependence/Independence, Standard basis for R, R2, R3, Examples of different bases. Subspaces of R2, R3.
- Translation, Dilation, Rotation, Reflection in a point, line and plane. Matrix form of basic geometric transformations. Interpretation of eigenvalues and eigen vectors for such transformations and eigen spaces as invariant subspaces.

S.No.	Торіс	Week	Month
1.	Introduction about Syllabus, Choice based credit system	First Week	July
	(CBCS), definition of matrices		
2.	Types of matrices	Second Week	
3.	Rank of a matrix	Third Week	
4.	Invariance of rank under elementary transformations	Fourth Week	
5.	Reduction to normal form	First Week	August
6.	Solutions of linear homogeneous equations	Second Week	
7.	Solutions of non-homogeneous equations with number of	Third Week	
	equations and unknowns up to three		
8.	Matrices in diagonal form. Reduction to diagonal form	Fourth Week	
	upto matrices of order 3. Computation of matrix inverses		
	using elementary row operations. Rank of matrix. Solutions		
	of a system of linear equations using matrices. Illustrative		
	examples of above concepts from Geometry, Physics,		
	Chemistry, Combinatorics and Statistics.		
9.	Reduction to diagonal form upto matrices of order 3.	First Week	September
10.	Computation of matrix inverses using elementary row	Second Week	
	operations		

11.	Rank of matrix	Third Week	
12.	Solutions of a system of linear equations using matrices	Fourth Week	
13.	Illustrative examples of above concepts from Geometry,	First Week	October
	Physics, Chemistry, Combinatorics and Statistics		
14.	Definition of Vector space, R, R2, R3 as vector spaces over	Second Week	
	R		
15.	Concept of Linear dependence/Independence	Third Week	
16.	Standard basis for R, R2, R3, Examples of different bases.	Fourth Week	
17.	Subspaces of R2, R3.	First Week	November
18.	Translation, Dilation, Rotation, Reflection in a point, line	Second Week	
	and plane		
19.	Rotation, Reflection in a point, line and plane	Third Week	
20.	Questions related to Rotation, Reflection in a point, line	Fourth Week	
	and plane		
21.	Questions related to Rotation, Reflection in a point, line	First Week	December
	and plane		
22.	Matrix form of basic geometric transformations	Second Week	
23.	MTT	Third Week	
24.	MTT	Fourth Week	
25.	Interpretation of eigen values	Second Week	February
26.	Interpretation of eigen vectors for these transformations	Third Week	
27.	Eigen spaces as invariant subspaces.	Fourth Week	
28.	Questions related to eigenvalues and eigen vectors	First Week	March
29.	Revision	Second Week	
30.	Revision	Third Week	
31.	Revision	Fourth Week	

Course: Numerical Methods (MATH304TH)

Lectures per week: 3

The student will get an overall idea of

- To find a real root of an algebraic or transcendental equation. Location of root (tabular method), Bisection method, Newton-Raphson method with geometrical significance, Numerical Problems.
- Newton's Backward interpolation Formula, Lagrange's Interpolation Formula.
- Numerical differentiation, Central difference method
- Numerical Integration: Trapezoidal and Simpson's one-third formula (statement only). Problems on Numerical Integration.

S.No.	Торіс	Week	Month
1.	Introduction about Syllabus, Choice based credit system	First Week	July
	(CBCS), Algorithms		
2.	Algorithms	Second Week	
3.	Convergence with questions	Third Week	-
4.	Bisection method with questions	Fourth Week	-
5.	False position method with examples	First Week	August
6.	Fixed point iteration method with questions	Second Week	-
7.	Newton's method and questions	Third Week	-
8.	Secant method	Fourth Week	-
9.	LU decomposition	First Week	September
10.	Gauss-Jacobi iterative methods	Second Week	-
11.	Gauss-Siedel and SOR iterative methods	Third Week	-
12.	Lagrange and Newton interpolation	Fourth Week	-
13.	Newton interpolation	First Week	October
14.	Finite difference operators	Second Week	-
15.	Numerical differentiation	Third Week	-
16.	Newton's forward difference method	Fourth Week	-
17.	Backward difference method	First Week	November
18.	Sterling's Central difference method	Second Week	
19.	Questions related to Newton's forward difference method	Third Week	-

20.	Questions related to Backward difference method methods	Fourth Week	
21.	Questions related to Sterling's Central difference method	First Week	December
22.	Questions related to Sterling's Central difference method	Second Week	•
23.	MTT	Third Week	•
24.	MTT	Fourth Week	•
25.	Trapezoidal rule	Second Week	February
26.	Questions related to Trapezoidal rule	Third Week	-
27.	Simpson's rule, Euler's method	Fourth Week	-
28.	Questions related to Simpson's rule, Euler's method	First Week	March
29.	Revision	Second Week	-
30.	Revision	Third Week	
31.	Revision	Fourth Week	

Class: B.A./B.Sc. Third Year

Course: Probability and Statistics (MATH313TH)

Lectures per week: 2

After completion of this course, the students will be able to understand & apply the concepts of probability & statistics covered in the following Units:

- Random experiment, Sample space, probability as a set function, probability axioms, probability space. Finite sample spaces. Conditional probability, Bayes theorem, independence.
- Real random variables (discrete and continuous), cumulative distribution function, probability mass/density functions, mathematical expectation, moments, moment generating function, characteristic function.
- Discrete distributions: uniform, binomial, Poisson, geometric, negative binomial, Continuous distributions: uniform, normal, exponential.
- Joint cumulative distribution function and its properties, joint probability density functions, marginal and conditional distributions, expectation of function of two random

variables, moments, covariance, correlation coefficient, independent random variables, joint moment generating function.

• Measures of central tendency and measures of dispersion, moments, skewness and kurtosis.

S.No.	Торіс	Week	Month
1.	Introduction about Syllabus, Choice based credit system	First Week	July
	(CBCS), Sample space		
2.	Probability axioms	Second Week	
3.	Real random variables (discrete and continuous),	Third Week	-
4.	Cumulative distribution function	Fourth Week	_
5.	Probability mass/density functions.	First Week	August
6.	Mathematical expectation	Second Week	-
7.	Moments	Third Week	-
8.	Questions related to Mathematical expectation and	Fourth Week	-
	Moments		
9.	Moment generating function	First Week	September
10.	Questions related to Moment generating function	Second Week	-
11.	Characteristic function	Third Week	-
12.	Questions related to characteristic function	Fourth Week	-
13.	Binomial distributions	First Week	October
14.	Questions related to Binomial distributions	Second Week	_
15.	Questions related to Binomial distributions	Third Week	
16.	Poisson distributions	Fourth Week	
17.	Questions related to Poisson distributions	First Week	November
18.	Continuous distributions	Second Week	
19.	Questions related to Continuous distributions	Third Week	
20.	Joint cumulative distribution function and its properties	Fourth Week	-
21.	Questions related to Continuous distributions	First Week	December
22.	Joint probability density functions	Second Week	-
23.	MTT	Third Week	-
24.	MTT	Fourth Week	-

25.	Marginal and conditional distributions	Second Week	February
26.	Expectation of function of two random variables	Third Week	
27.	Conditional expectations	Fourth Week	
28.	Independent random variables.	First Week	March
29.	Revision	Second Week	
30.	Revision	Third Week	
31.	Revision	Fourth Week	

Course: Theory of Equations{ MATH316TH}

Lectures per week: 2

After completion of this course, the students will be able to understand & apply the concepts of probability & statistics covered in the following Units:

- General properties of polynomials, Graphical representation of a polynomials, maximum and minimum values of a polynomials, General properties of equations.
- Descarte's rule of signs for positive and negative roots, Relation between the roots and the coefficients of equations.
- Symmetric functions, Applications symmetric function of the roots, Transformation of equations. Solutions of reciprocal and binomial equations.
- Algebraic solutions of the cubic (Carden's method) and biquadratic (Descarte's & Ferrari's method). Properties of the derived functions.

S.No.	Topic	Week	Month
1.	Introduction about Syllabus, Choice based credit system	First Week	July
	(CBCS), concepts of polynomials		
2.	General properties of polynomials	Second Week	•
3.	Graphical representation of a polynomials,	Third Week	-
4.	maximum and minimum values of a polynomials	Fourth Week	-
5.	Questions related to maximum and minimum values of a	First Week	August
	polynomial		

and negative rootsImage: Second Week10.Questions related to Descarte's rule of signs f o r positive and negative rootsSecond Week11.Relation between the roots and the coefficients of equations.Third Week12.Questions related to Relation between the roots and the coefficients of equationsFourth Week13.Questions related to Relation between the roots and the coefficients of equationsFirst Week14.Symmetric functionsSecond Week15.Questions related to Symmetric functionsThird Week16.Applications symmetric function of the rootsFourth Week17.Questions related to Applications symmetric function of the rootsFirst Week18.Questions related to Applications symmetric function of the rootsSecond Week19.Transformation of equationsThird Week20.Questions related to Transformation of equationsFourth Week	6.	General properties of equations	Second Week]
9. Questions related to Descarte's rule of signs f o r positive and negative roots First Week September and negative roots 10. Questions related to Descarte's rule of signs f o r positive and negative roots Second Week and negative roots Second Week and negative roots Second Week and negative roots 11. Relation between the roots and the coefficients of equations. Third Week coefficients of equations Fourth Week coefficients of equations Fourth Week coefficients of equations 13. Questions related to Relation between the roots and the coefficients of equations Second Week Symmetric functions Second Week 14. Symmetric functions Second Week First Week October 15. Questions related to Applications symmetric function of the roots Fourth Week November 17. Questions related to Applications symmetric function of the roots Fourth Week November 18. Questions related to Applications symmetric function of the roots Fourth Week Pourth Week 19. Transformation of equations First Week Pourth Week 21. Solutions of reciprocal and binomial equations First Week Pourth Week 22. Questions related to Solutions of reciprocal and binomial equations	7.	Questions related to General properties of equations	Third Week	
and negative rootsImage: Second Week and negative rootsSecond Week and negative rootsSecond Week and negative rootsSecond Week and negative rootsSecond Week and negative roots and the coefficients of rhird Week equations.11.Relation between the roots and the coefficients of equations.Third Week coefficients of equationsFourth Week coefficients of equationsSecond Week for the coefficients of equations13.Questions related to Relation between the roots and the coefficients of equationsSecond Week for the coefficients of equations for the coefficients of equations of the coefficients of the rootsSecond Week for the coefficients of the coefficients of equations symmetric function of first Week for coefficients of equations of reciprocal and binomial equationsSecond Week for the coefficients of reciprocal and binomial equationsSecond Week for the coefficients of reciprocal and binomial equationsSecond Week for the coefficients of the cubic (Carden's method)Second Week for the coefficients of the cubic (Carden's method)Second Week for the cubic (Carden's method)Second Week for the cubic (Carden's method)23.MTTSolutions of the cubic (Carden's method)Second Week for the cubic (Carden's method)Second Week for the cubic (Carden's method)Second Week for the cubic (Carden's m	8.	Descarte's rule of signs f o r positive and negative roots	Fourth Week	-
10. Questions related to Descarte's rule of signs f o r positive and negative roots Second Week and negative roots 11. Relation between the roots and the coefficients of equations. Third Week coefficients of equations 12. Questions related to Relation between the roots and the coefficients of equations Fourth Week 13. Questions related to Relation between the roots and the coefficients of equations First Week October 14. Symmetric functions Second Week First Week October 15. Questions related to Symmetric functions Third Week November 16. Applications symmetric function of the roots Fourth Week November 17. Questions related to Applications symmetric function of the roots First Week November 18. Questions related to Applications symmetric function of the roots Second Week Inird Week 20. Questions related to Transformation of equations Fourth Week Pourth Week 21. Solutions of reciprocal and binomial equations First Week Pourth Week 22. Questions related to Solutions of reciprocal and binomial equations Second Week Pourth Week 23. MTT Third Week	9.	Questions related to Descarte's rule of signs f o r positive	First Week	September
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27. Biquadratic (Descarte's & Ferrari's method). Properties of Fourth Week		(Carden's method)		
	27.	Biquadratic (Descarte's & Ferrari's method). Properties of	Fourth Week	

	the derived functions		
28.	Questions related to Biquadratic (Descarte's & Ferrari's	First Week	March
	method). Properties of the derived functions		
29.	Revision	Second Week	
30.	Revision	Third Week	
31.	Revision	Fourth Week	