

**ACADEMIC PLANNER & UNITIZATION OF SYLLABUS  
ACADEMIC YEAR 2022-23.**

DEPARTMENT: Mathematics

CLASS: 1 semester

**Paper 1**

MONTH/YEAR	CLASS	PORTIONS	Teachers
Sep 2022 Week 2	1	Elementary row and column transformations -equivalent matrices	DR
	2	Limits, continuity Problems on these	SBS
	3	Intermediate value theorems	SBS
	4	Functions of two or more variables	MSN
Sep 2022 Week 3	1	Theorems on matrices	DR
	2	Differentiability and Properties	SBS
	3	Rolle's theorem	SBS
	4	Explicit functions and implicit functions and partial derivatives	MSN
Sep 2022 Week 4	1	Row reduced echelon form, Normal form of a matrix, rank of a matrix-	DR
	2	Problems on Differentiability	SBS
	3	Problems on Rolle's theorem	SBS
	4	Explicit functions and implicit functions and partial derivatives	MSN
Oct 2022 Week 1	1	Rank of a matrix-Problems	DR
	2	Properties of continuous functions	SBS
	3	Lagranges 's Mean Value theorem	SBS
	4	Problems on Explicit functions and implicit functions and partial derivatives	MSN

MONTH/Y EAR	CLASS	PORTIONS	Teachers
Oct 2022 Week 2	1	Homogeneous and non-homogeneous system of m-linear equations in n -unknowns	DR
	2	Properties of continuous functions	SBS
	3	Problems on Lagranges 's Mean Value theorem	SBS
	4	Homogeneous functions- Euler's theorem-Problems	MSN
Oct 2022 Week 3	1	Consistency criterion-Problems	DR
	2	nth derivative of standard functions	SBS
	3	Cauchy's Mean Value theorem	SBS
	4	Euler's theorem-Problems	MSN
Oct 2022 Week 4	1	Consistency criterion for uniqueness of solutions-Problems	DR
	2	nth derivative of standard functions	SBS
	3	Problems on Cauchy's Mean Value theorem	SBS
	4	Euler's theorem-Problems	MSN
Nov 2022 Week 1	1	Eigen values and Eigen vectors of a square matrix of order 2	DR
	2	nth derivative of standard functions	SBS
	3	Taylor's theorem	SBS
	4	Extension of euler's theorem and problems	MSN
Nov 2022 Week 2	1	Eigen values and Eigen vectors of a square matrix of order 3	DR
	2	Problems on $e^{ax+b} \sin(bx + c), e^{ax+b} \cos(bx + c)$	SBS
	3	Problems on Taylor's theorem	SBS
	4	Total derivatives-differentiation of implicit and composite functions	MSN

Nov 2022 Week 3	1	Cayley-Hamilton theorem-with proof	DR
	2	Leibnitz theorem	SBS
	3	MacLaurin's series	SBS
	4	Total derivatives-differentiation of implicit and composite functions	MSN
Nov 2022 Week 4	1	Finding $A^{-1}$ using C-H theorem	DR
	2	Leibnitz theorem and problems	SBS
	3	Problems on MacLaurin's series	SBS
	4	Total derivatives-differentiation of implicit and composite functions	MSN
Dec 2022 Week 1	1	Finding $A^{-2}, A^3, A^2$	DR
	2	Leibnitz theorem and problems	SBS
	3	Indeterminate forms	SBS
	4	Jacobians and standard properties	MSN
Dec 2022 Week 2	1	Finding $A^4$ -Application problems	DR
	2	Indeterminate forms	SBS
	3	Evaluation of limits using L'Hospital's rule	SBS
	4	Jacobians and standard properties and problems on it	MSN
Dec 2022 Week 3	1	Question papers solved	DR
	2	Evaluation of limits using L'Hospital's rule	SBS
	3	Evaluation of limits using L'Hospital's rule	SBS
	4	Taylor's and Maclaurin's series for functions of two variables	MSN
Dec 2022 Week 4	1	Question papers solved	DR
	2	Question papers solved	SBS
	3	Question papers solved	SBS
	4	Maxima Minima of functions of two variables	MSN
Jan 2023 Week 1	1	Question papers solved	DR
	2	Question papers solved	SBS
	3	Question papers solved	SBS

	4	Quesriprn papers solved	MSN
Jan 2023 Week 2	1	Question papers solved	DR
	2	Question papers solved	SBS
	3	Question papers solved	SBS
	4	Question papers solved	MSN

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DEPARTMENT: Mathematics

CLASS: 3 semester

**Paper 3**

MONTH/Y EAR	CLASS	PORTIONS	Teachers
Sep 2022 Week 2	1	Infinite Series	DR
	2	Recapitulation of differential equations	SBS
	3	Linear differential equations of the $n^{\text{th}}$ order with constant coefficients	SBS
	4	Sequences: Sequences of real numbers	MSN
Sep 2022 Week 3	1	Definition of convergent, divergent and oscillatory series	DR
	2	differential equations of first order and first degree	SBS
	3	Solution of differential equations	SBS
	4	Bounded sequences. Limit of a sequence.	MSN
Sep 2022 Week 4	1	Series of non-negative terms,	DR
	2	Problems on differential equations	SBS
	3	Complementary Function of Differential equations	SBS
	4	Problems on Limit of a sequence	MSN
Oct 2022	1	Cauchy's general principle of convergence.	DR

MONTH/Y EAR	CLASS	PORTIONS	Teachers
Week 1	2	Exact Differential equations, Necessary and sufficient condition for the equations to be exact.	SBS
	3	Particular Integrals when the RHS is of the form $e^{ax}$ , $\sin(ax+b)$ , $\cos(ax+b)$ .	SBS
	4	Algebra of convergent sequences. Problems	MSN
Oct 2022 Week 2	1	Geometric series,	DR
	2	Differential equations of the first order and higher degree:problems	SBS
	3	Particular Integrals when the RHS is of the form $x^n$ , $e^{ax} V$ and $x V$ , where $V$ is a function of $x$ .	SBS
	4	Bolzano Weierstrass theorem for sequence (statement only),	MSN
Oct 2022 Week 3	1	Geometric series, P-series (Harmonic series). PROBLEMS	DR
	2	Problems on first order de	SBS
	3	Problems on second order de	SBS
	4	Cauchy's first and second theorem on limits of a sequence.	MSN
Oct 2022 Week 4	1	Comparison tests for positive term series PROBLEMS	DR
	2	Equations solvable for $p$ . problems	SBS
	3	Method of variation of parameters.	SBS
	4	Problems Cauchy's first and second theorem on limits of a sequence.	MSN
Nov 2022 Week 1	1	D'Alembert's ratio test	DR
	2	Equations solvable for $x$ , $y$ .	SBS
	3	Simultaneous differential equations with two variables	SBS
	4	Cauchy's first and second theorem on limits of a sequence	MSN

Nov 2022 Week 2	1	Raabe's test, Cauchy's Root test	DR
	2	Clairaut's equation and singular solution. Orthogonal trajectories of Cartesian and polar curves.	SBS
	3	Condition for integrability of total differential equations $Pdx + Qdy + Rdz = 0$ .	SBS
	4	Problems on Cauchy theorem	MSN
Nov 2022 Week 3	1	Alternating series,	DR
	2	Clairaut's eqn problems	SBS
	3	Problems on simultaneous de	SBS
	4	Problems on Cauchy theorem	MSN
Nov 2022 Week 4	1	Leibnitz's theorem.	DR
	2	singular solution problems	SBS
	3	Problems on total de	SBS
	4	Cauchy's general principle for convergence of a sequence.	MSN
Dec 2022 Week 1	1	Absolute convergence and conditional convergence of a series.	DR
	2	Orthogonal trajectories of Cartesian and polar curves	SBS
	3	Problems on differential equations	SBS
	4	Cauchy's general principle for convergence of a sequence.problems	MSN
Dec 2022 Week 2	1	Summation of series: Binomial, exponential and logarithmic	DR
	2	Orthogonal trajectories of Cartesian curves problems	SBS
	3	Problems on total differential equations	SBS
	4	Cauchy's general principle for convergence of a sequence.problems	MSN
Dec 2022 Week 3	1	Problems of model papers	DR
	2	Orthogonal trajectories of polar curves problems	SBS
	3	Problems of model papers	SBS
	4	Problems of model papers	MSN
	1	Question papers solved	DR

Dec 2022 Week 4	2	Question papers solved	SBS
	3	Question papers solved	SBS
	4	Question papers solved	MSN
Jan 2023 Week 1	1	Question papers solved	DR
	2	Question papers solved	SBS
	3	Question papers solved	SBS
	4	Quesriprn papers solved	MSN
Jan 2023 Week 2	1	Question papers solved	DR
	2	Question papers solved	SBS
	3	Question papers solved	SBS
	4	Question papers solved	MSN

**ACADEMIC PLANNER & UNITIZATION OF SYLLABUS  
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DEPARTMENT: Mathematics

CLASS: V semester

**Paper V**

MONTH/Y EAR	CLASS	PORTIONS	Teachers
Oct 2022 Week 1	1	Rings ,Types of Rings, Properties of Rings	MSN
	2	Scalar field- Gradient of Scalar Field	SBS
	3	<b>Finite Differences. Definition and properties. Construction of difference table.</b>	KSR
Oct 2022 Week 2	1	Theorems on Rings	MSN
	2	Geometrical meaning of scalar field- Problems on gradient	SBS
	3	<b>Relation between the different operators. nth difference of a polynomial.</b>	KSR
Oct 2022 Week 3	1	Problems on rings	MSN
	2	Directional derivative –maximal directional derivative	SBS

MONTH/YEAR	CLASS	PORTIONS	Teachers
	3	Factorial notations	KSR
Oct 2022 Week 4	1	Definition of Sub rings-Necessary and sufficient conditions	MSN,
	2	Problems on directional derivative -	SBS
	3	Separation of symbols.	KSR
Nov 2022 Week 1	1	Problems on sub rings	MSN
	2	Angle between surfaces problems	SBS
	3	Divided differenced and related theorems.	KSR,
Nov 2022 Week 2	1	Ideals theorems on ideals	MSN
	2	Divergence of a vector field	SBS
	3	Newton Gregory forward interpolation formula and related problems	KSR,
Nov 2022 Week 3	1	Standard properties of Ideals	MSN
	2	Divergence problems and properties	SBS
	3	Newton's divided difference formula and related problems.	KSR,
Nov 2022 Week 4	1	Homomorphism and examples on it	MSN
	2	Solenoidal field and problems	SBS
	3	Lagrange's interpolation formula for unequal intervals and related problems	KSR,
Dec 2022 Week 1	1	Theorems on homomorphism	MSN
	2	curl of a vector field	SBS
	3	Inverse interpolation.	KSR,



Dec 2022 Week 2	1	Isomorphism of rings and problems	MSN
	2	Irrrotational field problems	SBS
	3	Numerical Integration: Trapezoidal Rule,	KSR,
Dec 2022 Week 3	1	Quotient rings-Fundamental theorem of homomorphism	MSN
	2	laplacian of a scalar field;	SBS
	3	Simpson's 1/3 <sup>rd</sup> rule and problems on it	KSR,
Dec 2022 Week 4	1	Revision of portions	MSN
	2	vector identities	SBS
	3	Simpson's 3/8 <sup>th</sup> rule. Problems on it.	KSR,
Jan 2022 Week 1	1	Question paper revision	MSN
	2	Standard properties	SBS
	3	Continuation of problems on numerical integration	KSR,
Jan 2022 Week 2	1	Question paper revision	MSN
	2	Harmonic functions	SBS
	3	Revision of question of papers	KSR,

<b>ACADEMIC PLANNER &amp; UNITIZATION OF SYLLABUS</b> <b>ACADEMIC YEAR 2022-23.</b>			
DEPARTMENT: MATHEMATICS		CLASS: V Semester	
Paper VI			
Week/M	CLASS	Portions Planned for 1 hour	Teacher

Month			
Oct 2021 Week 1	1	Line Integral over a plane curve –Basic properties- Problems on it	KSR
	2	Line integral over a space curve-independent of path.	KSR
	3	Functional-Variation of a functional	DR
Oct 2021 Week 2	1	Definition: Double integral –Evaluation of double integral	KSR
	2	Change of order in double integral and problems on it.	KSR
	3	Properties of Variation of functional Euler’s equation-Derivation of necessary condition	DR
Oct 2021 Week 3	1	Change of variable in double integral and problems on it. Double integral in polar form	KSR
	2	Application of Double integral to find Area-Surface areas as double integrals and problems on it .	KSR
	3	Euler’s equation-Derivation of necessary condition	DR
Oct 2021 Week 4	1	Computation of areas in Cartesian form	KSR
	2	Volume underneath surface-volume of revolution using double integrals	KSR
	3	Euler’s equation and its particular form-	DR
Nov 2021 Week 1	1	Triple integrals- Change of variables in triple integrals	KSR
	2	Triple integrals in cylindrical polar coordinates-spherical coordinates	KSR
	3	Euler’s equation and its particular form-Problems on vibrational problem	DR
Nov 2021 Week 2	1	Computation of volume by triple integrals	KSR
	2	Green’s theorem in the plane-proof of Green’s theorem	KSR
	3	Geodesics-Plane -Sphere	DR
Nov 2021 Week 3	1	Extension of Green’s theorem	KSR
	2	Problems on Green’s theorem	KSR
	3	Geodesics-cylinder- Cone	DR
Nov 2021 Week 4	1	Gauss Divergence theorem –Proof of Gauss Divergence theorem	KSR
	2	Problems on Gauss Divergence theorem	KSR
	3	Minimal surface of revolution	DR
Dec 2021 Week 1	1	Verification of Gauss Divergence theorem	KSR
	2	Problems Evaluation using Gauss Divergence theorem	KSR
	3	Brachistochrone problem	DR
Dec 2021	1	Stokes theorem- Proof of it	KSR

Week 2	2	Stokes theorem-verification of Stokes theorem	KSR
	3	<b>Hanging chain</b>	DR
Dec 2021	1	Problem on Stokes theorem	KSR
	2	Evaluation of integral using Stokes theorem	KSR
Week 3	3	<b>Isoperimetric problems</b>	DR
Dec 2021	1	Revision of portions	KSR
	2	Solving Previous question papers	KSR
Week 4	3	<b>Revision of portions</b>	DR
Jan 2021	1	Solving Previous question papers	KSR
	2	Solving Previous question papers	KSR
Week 1	3	<b>Revision of question papers</b>	DR
Jan 2021	1	Solving Previous question papers	KSR
	2	Solving Previous question papers	KSR
Week 2	3	<b>Revision of question papers</b>	DR