



SuccessClap

Best Coaching for UPSC Mathematics

Weekly Test Series for UPSC CSE 2025

Total 45 TESTS for Practice

Why you need?

- To Follow Year Long Strict Schedule: Time Bound Preparation for UPSC CSE 2025
- Weekly Testing your learning
- One Week Reasonable time frame for topics to be learnt and test it
- Total 45 Tests: Practicing at least 800 Questions

How it Works?

- Download Question paper from the portal and take test.
- Evaluation in 3 days
- Weekly Test Time duration is 2hrs which has 15 questions to be solved
- Full Length Test is 3hrs and as per UPSC model
- If you miss schedule, you can take Test on any other day

Schedule

Test No	Date	Topic Covered	References
		LINEAR ALGEBRA	
1	Sep 1 2024	Matrix: Find Rank of Matrices Given Matrix, Find Inverse and Express High order Matrix Polynomial in terms of A Find Inverse using ONLY ELEMENTART ROW OPERATION Given Matrices, find Eigen Values and eigen Vectors State and Prove Cayley Hamilton theorem Given Matrix A, Find A(power of 300) using Cayley Hamilton Given Homogeneous Equation, Find Dimension and Basis Linear Eqn , Find Condition for ---No Solution , Unique Solution , Infinite Solutions Theorems and Problems from Krishna Series Book Eigen Values, Vectors Orthogonality Similarity	Matrices-Krishna Series

		Diagonalizable Quadratic Form	
2	Sep 8 2024	<p>Vector Spaces, Subspaces Basis, Dimensions, Nullity</p> <p>Linear Transformation: Given Linear Transformation, Find a) Rank, b) Nullity c) Range Space d) Null Space Given Matrix Form of Linear Transformation, Find a) Rank, b) Nullity c) Range Space d) Null Space Given Linear Transformation with Two Different Bases Sets, Find Matrix Given Linear Transformation with Standard Basis. Find Matrix relative to New Basis Set</p>	<p>Any Graduation Text Book covers this Syllabus Schaum Series Linear Algebra : Selected Problem Solving SuccessClap Free Study material on Linear Algebra</p>
		CALCULUS	
3	Sep 15 2024	<p>Limits: Continuity, Types of Discontinuity, Heine Continuity method, Bolzano Intermediate Value Theorem, Uniform Continuity Differentiability, Indeterminants Max/ Min Single Variable Find Max/Min of function. Problems to find Max/Min Area, Surface, Height</p> <p>Max Min TWO Variables Find Max/Min of function Max/Min Multiple Variables Lagrange Multiplier Length of Arc Areas: Cartesian, Polar, Loop/Asymptotes Volumes: Cartesian, Polar , Spherical System Surface Areas Asymptote: General Method, Inspection method, Intersection of Curve and Asymptote Curve Tracing</p>	<p>Krishna Series : 1)Differential Calculus, 2)Integral Calculus</p>
4	Sep 22 2024	<p>Mean Value theorem: MVT, Taylor Maclurin Expansion, Generalized MVT Rolle Theorem Lagrange Theorem (Also proof) Cauchy MVT Function Increasing/Decreasing</p> <p>Jacobians Partial Differentiation Formation, Eulers Total Differentiation</p>	<p>Krishna Series : 1)Differential Calculus, 2)Integral Calculus</p>
5	Sep 29 2024	<p>Beta Gamma Properties Relation between Beta and Gamma Legendre Duplication Formula and Properties</p>	<p>Krishna Series : 1)Differential Calculus,</p>

		Beta Gamma Several Variables Evaluation of Integrals Definite Integral as Sum Differentiation under Integral Sign Multiple Integrals Change of Order of Integration Evaluation of Integrals	2)Integral Calculus
		REAL ANALYSIS	
6	Oct 6 2024	Riemann Integrals Summation of Series Theorems : Continuous is integrable Bounded and Finite Set of Discontinuity is integrable Bounded and Discontinuity point has fixed limit point is integrable Monotonic is integrable Integral Inequality Eqn First Mean Value Theorem Generalised Mean Value Theorem Second Mean Value Theorem Improper Integrals Limit Test Cauchy Test Absolute Convergence and conditional convergence Abel Test Dirichlet Test	Real Analysis by Raisinghania S.Chand
7	Oct 13 2024	Sequence Bolzano-Weistress Theorem Cauchy First Theorem on Limit Cauchy second Theorem on Limit Caseros Theorem Cauchy sequence Monotone Convergence Theorem Series Necessary Condition Comparison Test Comparison Test of Second Kind D Alembert Ratio Test Cauchy nTH Root Test Raabe Test Logarithmic Test DE Morgan and Bertrand Test Second Logarithmic Ratio Test Kummer Test Gauss Test	Real Analysis by Raisinghania S.Chand

		Cauchy Integral Test Cauchy Condensation Test	
8	Oct 20 2024	Uniform Convergence Cauchy Principle Mn Test Weierstrass Test Abel Test Dirichlet Test Properties on a) Sum b) Differentiability c) Integrability Functions of Several Variables Limit Continuity Differentiability Maxima and Minima	Real Analysis by Raisinghania S.Chand
		VECTOR ANALYSIS	
9	Oct 27 2024	Directional Derivative : Max/Min ,Angle made, Vector Identities: Proof -Curl (A X B), Div (A X ,Grad (A.B) ,Curl(curl A) Invariance under Transformation Green Theorem Stoke Theorem Divergence Theorem Work done. Differential Geometry: Derive Serret Frennet formula, Show curve lie in Plane, Find Curvature Vector, Problems on finding Radius of Curvature, Torsion	Krishna Series Vector Analysis Differential Geometry by Paramanda Gupta
		ODE	
10	Nov 3 2024	Formation of DE Eqn of 1 st Order, 1 st Degree Integrating Factors Linear Differential Eqns Eqn reducible to Linear form Bernoulli Eqn List of Important Results like Subnormal, subtangent, length of normal and tangent, Eqn of Tangent and Normal Tangent and Normal X and Y intercept Polar subtangent, subnormal, length of tangent, normal Orthogonal Trajectory/Oblique Trajectory Eqn Eqn of First Order but not of first degree Solvable for p, x, y Lagrange form Eqn in Clairaut Form Eqn reducible to Clairaut form Singular Solution	Ordinary and Partial Differential Equations by Raisinghania
11	Nov 10 2024	Linear Differential Equations with Constant Coefficients Method of variation of parameter Linear Equation of Second Order	Ordinary and Partial Differential

		Euler Cauchy Reduction with One known integral Reduction to Normal Changing independent variable	Equations by Raisinghania
12	Nov 17 2024	Laplace, Inverse Laplace Application to initial value problem for 2 nd order linear equations with constant coefficients	Ordinary and Partial Differential Equations by Raisinghania
		PDE	
13	Nov 24 2024	Formation of PDE of a given function Lagrange Equations: Various Methods Surface Orthogonal to a given Surface Charpit method Clairaut equations Jacobi method	Ordinary and Partial Differential Equations by Raisinghania Advance PDE by Raisinghania
14	Dec 1 2024	Homogeneous Linear PDE with Constant Coefficient Linear PDE of Second Order with Constant Coefficient Cauchy Method of Characteristic Strip (Total 10 Qns) Canonical Form	Ordinary and Partial Differential Equations by Raisinghania Advance PDE by Raisinghania
15	Dec 8 2024	Wave Eqn Initial Velocity is zero, Initial Displacement is Given Initial Velocity is Given, Initial Displacement is Zero Heat Eqn a) Initial Temperature $f(x)$.Both Ends suddenly changed to Zero Temperature b) Initial Temperature (T_1 , T_2) , suddenly change to (T_3 , T_4) c)Initial Temperature $f(x)$. Both Ends Insulated suddenly d)At $t=0$ distribution is $f(x)$. Suddenly One end is kept at T_1 and other end Insulated Laplace Eqns a) Three sides Temperature is 0, Other side $f(x)$ b) Two sides Temperature is 0, One side $f(x)$, Other side at Infinite Long c)One side Insulated (X-Axis) d)One Side Insulated (Opposite side of X-Axis) e) Two sides Insulated , X-axis side $f(x)$, Other side 0 f) Two sides Insulated, X-axis side 0, Other side $f(x)$ g) Three sides Insulated Laplace in Polar Coordinate Sysytem a) Semicircular Plate b) Circular Arc c) Circular Place d) Circular Annulus	Advance PDE by Raisinghania

COMPLEX ANALYSIS			
16	Dec 15 2024	<p>Analytic Function: Cauchy Riemann Equation Given Function and Given Point a) Show it satisfy Cauchy Riemann eqn b) Show Analytic or Non-Analytic c) Show Existence of Derivative or Not Given U or V as Harmonic Function, find its Conjugate and also Function</p> <p>Complex Integration: Cauchy Integrals, Zeroes, Singularity, Poles, Rouché theorem</p>	Krishna Series Complex Analysis
17	Dec 22 2024	<p>Series Expansion Expand in Taylor Series Expand in Laurent Series Power Series representation Use Cauchy Residue Theorem, to Evaluate the Integral Contour Integrations</p>	Krishna Series Complex Analysis
ANALYTIC GEOMETRY			
18	Dec 29 2024	<p>Straight Lines Find coordinate the foot of perpendicular from given point to a plane. And also find distance Plane and St line: Parallel/ Perpendicular / Coincide Projection of Line on Plane Condition for Coplanar Lines Determine Eqn of St Line intersecting two given Lines Find Perpendicular distance of a point from line and its foot coordinate. Intersection of 3 Planes</p> <p>Shortest Distance Find SD between two lines and obtain eqn of SD (Very Imp) Projection Method Two Lines in Symmetric Form One-line General, Other Symmetric Form Two lines in General Form</p> <p>Skew Lines Find locus of line, which intersects set of lines or function.</p> <p>Planes Eqn of plan through 3 points Angle between planes Variable Plane Problems Bisecting Planes Combined Eqn of Planes Projection of planes</p>	Krishna Series 3D Geometry
19	Jan 5 2025	<p>Spheres Sphere touching plane. Sphere through Circle</p>	Krishna Series 3D Geometry

		<p>Eqn of tangent plane to sphere and its condition Polar plane eqn and find pole. Intersection of Spheres and orthogonality condition</p> <p>Cylinder Eqn parallel to line and guiding curve Right Circular Cylinder Tangent Plane Enveloping Cylinder</p> <p>Cone Find eqn of cone with Vertex origin cone Find cone, with non origin vertex Condition for second degree to represent cone and find coordinates Tangent Line and Tangent Plane of Cone Condition for Tangency Reciprocal cone Angle between lines in which plane cuts Cone Condition for 3 mutually perpendicular generators Condition for 3 mutually perpendicular tangent planes Right Circular Cone Enveloping Cone</p>	
20	Jan 12 2025	<p>Central Conicoids Find Eqn of Tangent plane Condition for Tangency Director Sphere Polar Planes, Pole Locus of Chord Bisected at a given point Normal to Conicoid Prove 6 normal to ellipsoid Find cubic curve through feet of normal Diametral Plane Problems on Semi conjugate diameter properties</p> <p>Paraboloid Generating Lines</p>	Krishna Series Analytic Geometry (Slim Book)
		LPP	
21	Jan 19 2025	<p>Formulation of LPP Graphical Method of Solution Simplex Method Big M Method Construct Dual and Solve</p>	Operation Research by Taha ANY BOOK
22	Jan 26 2025	<p>Transportation Problem Assignment Problem</p>	Operation Research by Taha
		NUMERICAL ANALYSIS	
23	Feb 2 2025	<p>Obtain derivation (a) Quadrature Formula, (b) Trapezoid Rule, (c) Simpson 1/3, (d) Simpson 3/8. Rule and also</p>	Krishna Series Numerical Analysis

	<p>(e) derive their Error Formula for ALL RULES.</p> <p>Newton Raphson Method a) Derivation, b) Find Condition for its convergence c) Show rate of convergence is quadratic d) Explain its merits and demerits</p> <p>Bisection Method Regula Falsi Method Secant Method Iteration Method and its Convergence Derive Newton Gregory Forward interpolation formula, and its Error.</p> <p>Derive Newton Gregory's Backward Interpolation formula and its Error</p> <p>Lagrange Interpolation Derivation of formula and derive its Error formula Prove that Lagrange's formula can be put in the form of</p> $P_n(x) = \sum_{r=1}^n \frac{\phi(x)f(x_r)}{(x-x_r)\phi'(x_r)}$ <p>where $\phi(x) = \prod_{r=0}^n (x-x_r)$. Show that the sum of Lagrangian coefficient is unity. Use Lagrange's interpolation formula to express the function $\frac{x^2+x-3}{x^3-2x^2-x+2}$ as sums of partial fractions. Find the parabola passing through points (0,1) (1,3) and (3,55) using Lagrange's formula</p> <p>Gauss Quadrature Formula. Derive formula for n=3,4,5</p> <p>Solve ODE Problems a) Euler b) Euler Modified c) Runge Kutta Order 1, 4</p> <p>Solve Linear Eqns a) Gauss Elimination b) Gauss Jordan c) Gauss Seidel d) Gauss Jacobi</p> <p>Use Gauss Jordan to Find Inverse Conversion Decimal to Octogonal and Vice versa Decimal to Hexadeceimal and vice versa Solve Boolean Expression</p> <p>Algorithms and Flow Chart</p>	<p>Numerical Analysis by Iyenger (Few Questions)</p> <p>Numerical Analysis by Sastry</p> <p>Flow Charts: Free Study Material by SuccessClap</p>

MECHANICS			
24	Feb 9 2025	Solving Problems on Lagrange Eqns Solving Problems on Hamilton Eqns	Classical Mechanics by JC Upadhyay, Krishna: Rigid Dynamics Vol1
25	Feb 15 2025	D Alembert Principle Problems Moment of Inertia Fixed Axis Motions(Important questions Only) Motion in 2Dimension (Important questions Only)	Krishna : Rigid Dynamics Vol 1 and Vol 2
FLUID DYNAMICS			
26	Feb 23 2025	Learn Basics: Del,div,curl in catesian, spherical, cylindrigal, general coordinate system Kinematics Continuity Equation of motion Boundary Problems Path Line Vector Potential Vortex Line, vector Euler Eqns Energy Conservation Bernoulli Eqns and Application Stream Fns Source Sink problem	Fluid Dynamics: Raisinghanian Chapter 1,2,3,4,5
27	Mar 2 2025	Irrotational Motion Circular Cylinder Motion Irrotational 3D Vortex Navier Stoke Laminar Flow	Fluid Dynamics: Raisinghanian Chapter 6, 7,10,11,14,16
DYNAMICS			
28	Mar 9 2025	Rectilinear Motion SHM Projectile Motion Constrained Motion Motion in a Plane, Circle Work, Energy, Impulse	Krishna Series Dynamics
29	Mar 16 2025	Kepler Laws, Problems on Central Forces Planetary Motion Motion in resisting medium	Krishna Series Dynamics
STATICS			

30	Mar 23 2025	Force Eqns, Moments Equilibrium of Rigid Body Frictions Catenary	Krishna Series Statics
31	Mar 30 2025	Virtual Work Stable and Unstable Equilibrium	Krishna Series Statics
ABSTRACT ALGEBRA			
32	Apr 6 2025	Group Theory Groups SubGroups Cosets, Lagrange Theorem Cyclic Group Normal Subgroups Quotient Groups Homomorphism Fundamental Theorem of Homomorphism 1,2,3 Permutation Groups Cayley's theorem	Any State B.Sc Text Book Group Theory by R Kumar SuccessClap Free Study material on Algebra Don't waste time on Galian, Khanna Bhambri or any book
33	Apr 13 2025	Ring Theory Rings SubRings Ring Homomorphism Embedness Max Ideal Prime Ideal PID Divisibility in Rings, prime, Irreducible element Euclidean Domain, UFD, Einstein criteria	Any State B.Sc Text Book Ring Theory by R Kumar SuccessClap Free Study material on Algebra
FULL LENGTH TESTS			
34	Apr 20 2025	Full Length Test Paper 1	Paper 1
35	Apr 20 2025	Full Length Test Paper 2	Paper 2
36	Apr 27 2025	Full Length Test Paper 3	Paper 1
37	Apr 27 2025	Full Length Test Paper 4	Paper 2
PRELIMS BREAK			
All Full-Length Test Question Paper 5,6,7,8,9,10,11,12 will be uploaded on June 1, 2025			
38	June 1 2025	Full Length Test Paper 5	Paper 1

39	June 1 2025	Full Length Test Paper 6	Paper 2
40	June 1 2025	Full Length Test Paper 7	Paper 1
41	June 1 2025	Full Length Test Paper 8	Paper 2
42	June 1 2025	Full Length Test Paper 9	Paper 1
43	June 1 2025	Full Length Test Paper 10	Paper 2
44	June 1 2025	Full Length Test Paper 11	Paper 1
45	June 1 2025	Full Length Test Paper 12	Paper 2

NOTE:

- The validity of Test Series is till UPSC Mains 2025 Exam.
- All Papers will be Evaluated before the validity.
- After UPSC Mains 2025 Exam, papers will not be evaluated.

TIPS:

- Always Study from Standard Text Books ONLY
- Always Prefer Krishna Series, Rai Singhania books because UPSC asks questions directly from standard books
- Download SuccessClap Free Study material which will be useful for reference.
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