

Cheenta IIT JAM Crash course plan (1st Dec to 31st Jan)

Lecture 1: Sequences and Series of Real Numbers and functions (Convergence of sequences ,Bounded and monotone sequences, Cauchy sequences, Bolzano-Weierstrass theorem

Lecture 2: Sequences and Series of Real Numbers and functions (Tests for convergence of sequences, Power series

Week 2 (8 -15 dec)

Lecture 3: Functions of One Real Variable (I) Limit, Continuity, Intermediate value property, Differentiation, Rolle's Theorem, Mean value theorem

Lecture 4 Functions of One Real Variable (II) L'Hospital rule, Taylor's theorem, Taylor's series, maxima and min- ima, Riemann integration (definite integrals and their properties), fundamental the

Mock Test I

Week 3 (15-22 dec)

Lecture 5: Functions of Two or Three Real Variable(I) Limit, continuity, partial derivatives, total derivative, maxima and minima.

Lecture 6: Functions of Two or Three Real Variable(II) Problem session of Multivariable calculus

Week 4 (22- 29 dec)

Lecture 7 Integral Calculus(I) Double and triple integrals, Change of order of integration, calculating surface areas and volumes using double integrals, calculating volumes using triple integrals.

Lecture 8 Integral Calculus(II) Problem session of Integral Calculus

Mock Test II

Week 5 (29 dec- 5 Jan)

Lecture 9 Differential Equations (I) Important methods to solve first and second order ODE (Problem Driven session)

Lecture 10 Differential Equations (II) Problem session

Week 6 (5-12 Jan)

Lecture 11 Linear Algebra (I) Matrices: systems of linear equations, rank, nullity, rank-nullity theorem, inverse, determinant, eigenvalues, eigenvectors.

Lecture 12 Linear algebra (II) Problems session

Mock Test III

Week 7 (12-19 Jan)

Lecture 13 Linear algebra (III) Finite Dimensional Vector Spaces: linear independence of vectors, basis, dimension, linear transfor- mations, matrix representation, range

Lecture 14 Linear algebra (IV) Problem session

Week 8 (19- 26 Jan)

Lecture 15 Group theory (I) Groups: cyclic groups, abelian groups, non-abelian groups, permutation groups, normal subgroups, quotient groups, Lagrange's theorem for f

Lecture 16 Group theory (II) Problem sessions

Mock Test IV