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# List of Topics Covered

### UNIT 1 MATRICES

**12** 

Characteristic equations- Eigen values and eigen vectors of the real matrix- Properties- Cayley-Hami theorem(Excluding proof)- Orthogonal transformation of a symmetric matrix to diagonal form- Quadrotrom Reduction of quadratic form to canonical form by orthogonal transformation.

#### UNIT II THREE DIMENSIONAL ANALYTICAL GEOMETRY

12

Equation of a Sphere- Plane section of a sphere- Tangent plane- Equation of cone- Right circular content Equation of a cylinder- Right circular cylinder.

### UNIT III DIFFERENTIAL CALCULUS

12

Curvature in Cartesian coordinates- Centre and radius of curvature- Circle of curvature- Evolutes-Envelo Applications of Evolutes and Envelopes.

## UNIT 1V FUNCTIONS OF SEVERAL VARIABLES

12

Partial derivatives- Euler's theorem for homogeneous functions- Total derivatives- Differentiation of imp functions- Jacobians- Taylor's expansion- Maxima and Minima- Method of Lagrangian multipliers.

### UNIT V MULTIPLE INTEGRALS

12

Double integration- Cartesian and Polar coordinates- Change of order of integration- Change of varia between Cartesian and Polar coordinates- Triple integration in Cartesian coordinates- Area as double integral.