M.Sc. DEGREE EXAMINATION, EVEN SEMESTER 2021
II Year III Semester
Classical Mechanics

Max.marks :25

Answer any **FIVE** questions $(5 \times 5 = 25)$ Marks

1. Derive the Lagranges equations for a rigid body using the DAlemberts principle.
2. Show that the shortest distance between two points in a plane is a straight line.
3. Prove that the real orthogonal matrix specifying the physical motion of a rigid body with one point fixed always has the eigen value $+1$.
4. Write a note on Coriolis force.
5. Define the inertial tensor and show that it is self adjoint.
6. Illustrate the canonical transformation with an example.
7. Find the direct conditions for a restricted canonical transformation using the symplectic formulation of Hamiltons equation.