1st Sessional Exam. 2021
B.Sc 5th Semester
Sub: Physics (Major).
Paper: 501

Full Marks. 20

Time: 45 min.

1. What is areal velocity of a particle (2)
2. What is the physical significance of the Hamiltonian of a particle (2)
3. Write down the expression for the Lagrangian of a free particle in cylindrical polar coordinates. (2)
4. For a particle subjected to a central force, prove that - 3+3=(6)
   (i) the angular momentum of the particle is a constant of motion.
   (ii) the particle moves in a fixed plane.
5. State the D'Alembert's principle. Deduce the Lagrange's equation of motion, for a conservative holonomic system using this principle. 2+6=(8)