



THE AMERICAN COLLEGE, MADURAI

(An Autonomous Institution Affiliated to Madurai Kamaraj University)

Re-accredited (2nd Cycle) by NAAC with Grade "A", CGPA – 3.46 on a 4-point scale

Backlog Arrear Examination, March 2021

PSP 4403

CLASSICAL MECHANICS

Time:3 Hrs

Max. Marks: 75

Backlog Arrears (March 2021)

PART – A

Answer any five of the following questions.

5 x 15 = 75

1. Derive Lagrange's equation from D'Alembert's principle.
 2. Write the Hamiltonian for a simple pendulum and deduce its equations of motion.
 3. Derive Kepler's third law using classical principles.
 4. Discuss the scattering of α -particles under a central force field.
 5. Derive the expression for angular momentum of a rigid body.
 6. Give in detail the theory of vibrations of linear triatomic molecule.
 7. Explain the logistic map model to describe the chaotic behavior.
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