



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 5409

SPECTROSCOPIC TECHNIQUES

Time:3 Hrs

Max. Marks: 75

Backlog Arrears (March 2021)

PART – A

Answer any five of the following questions.

5 x 15 = 75

1. Explain about the rotational energy levels and spectrum of a rigid rotating diatomic molecule.
 2. Describe the anharmonic oscillator behavior of the vibrating diatomic molecule.
 3. Explain the classical and quantum theories of Raman Effect.
 4. Explain the intensity of vibrational electronic spectra using Frank-Condon principle.
 5. Outline the principle of photoelectron spectroscopy and mention some of its applications.
 6. Derive Bloch equations.
 7. Explain the various contributions to Total Hamiltonian in ESR spectroscopy.
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