

Course Code: 1MSCP3
Course: Quantum Mechanics I
Credit: 3
Last Submission Date: April 30 (for January Session)
October 31, (for July session)

Max. Marks:-30

Min. Marks:-11

Note:-attempt all questions.

- Que.1 State and prove Ehrenfest's theorem.
- Que.2 Explain equation of continuity.
- Que.3 Explain linear vector space in detail.
- Que.4 Why and explain. Heisenberg's uncertainty relation by using operators.
- Que.5 Find the energy eigen values for linear harmonic oscillator. Explain the concept of zero point energy for it.
- Que.6 Establish Schrödinger's equation for hydrogen atom and explain its radial Eigen function and Eigen values of energy.
- Que.7 Determine the Eigen function of L^2 and L_z .
- Que.8 Derive the commutation relation for the components of angular momentum L_x , L_y , L_z , and show that all the three. Components commute with $L^2 = L_x^2 + L_y^2 + L_z^2$