FPYC-605FUNDAMENTALS OF QUANTUM MECHANICS-II

UNIT-I

Eigen function and Eigenvalues of operatorEigen values spectrum,degeneracy,Eigenvalues and eigen function of hermitian operators.Orthonormality of eigen function,linear dependancer.The Schmidt method of Orthogonalization of degenerate eigen function.

eigen function expansion com pleteness and closer relation.Properties of eigen function of operators with continous spectrum,Compatibility.

Proof of uncertainity relation Δx, $\Delta p_x \geq \hbar/2$ and the minimum uncertainity wave packet.The time energy uncertainty relation.

Unit-II

The time independent Schrodinger equation in three dimension and stationary states ,constants of motion in quantum mechanics,Ehrenfest theorems using quantum equation of motion.

The time independent Schrodinger equation in one dimension ,boundary and continuity equation, on degenerate energy level for one dimensional problems.

UNIT-III

Symmetry and antisymmetry of Ψ and the parity operator. Properties of parity operator .properties of parity operator, projection operator

Unit-IV

General feature of solutions of one dimensional problems particle in a one dimensional box, the free particles, the potential step and rectangular potential barrier(evaluation of transmission and reflection co-efficient)The finite square well(bound states)Linear Harmonic oscillator.

Books:

1. Quantum Mechanics S. Gasiorowicz
2. Quantum Mechanics J. Sukurai
3. Quantum Mechanics R. Shankar
4. Quantum Mechanics S.N. Biswas
5. Quantum Mechanics A. Das
6. Quantum Mechanics A. Ghatak and S. Lokanath
7. Quantum Mechanics (Non Relativistic theory) L.D. Landau and E.M. Lifshitz
8. Principles of Quantum Mechanics P.A.M. Dirac
9. Quantum Mechanics, concepts and application, N Zettili