

M.Sc SEMESTER-II, MODEL PAPER

CC-4(QUANTUM CHEMISTRY AND CHEMICAL DYNAMICS)

LONG QUESTIONS

- Q.1-What are the criteria of spontaneity and condition of equilibrium.
- Q.2- Discuss partial molar properties with its physical significance.
- Q.3-How partial molar quantities are determined discusses by direct and intercepts method.
- Q.4-Describe in brief the postulates of quantum mechanics explain normalized and un normalized wave functions.
- Q.5- Solve the Schrodinger wave equation for particle in one dimensional box.
- Q.6-What do you understand by step-up and step-down operators? Mention the eigenvalues for angular momentum.

SHORT QUESTIONS

- Q.7-Discuss (a) Eigen values and Eigen functions (b) Orthogonality.
- Q.8-Write short notes on (a) Hamiltonian Operator (b) Hermitian Operators.
- Q.9- Explain activity and activity coefficient.
- Q.10- What do you mean by fugacity discuss.
- Q.11-What are electron spin and antisymmetry? Explain in the light of Pauli's principle.
- Q.12-Explain the following terms: (i) Spin-orbit coupling (ii) Zeeman splitting.