25. (a) Distinguish between classical field and quantum field. Discuss quantaisation of wave fields.

Or

(b) Write down the Hamiltonian equations. Explain quantaisation of electromagnetic field energy.

SECTION C — (5 × 10 = 50 marks)

Answer ALL questions choosing either (a) or (b).

26. (a) Deduce Green's function for a free particle.

Or

(b) Discuss scattering by a coulomb potential.

27. (a) Outline the main features of Thomas Fermi modd.

Or

(b) Discuss Hantree's self consistent model.

28. (a) Derive energy value and eigen functions for the case of a hydrogen molecule ion.

Or

(b) Describe spin orbit interaction correction.

29. (a) Describe semiclassical theory of radiation and calculate Hamiltonian of charged particle in an e.m. field.

Or

(b) Calculate emission rate and absorption rate.

30. (a) Obtain quantum equation for the field quantisation.

Or

(b) Derive classical lagrangian equation.