SECTION C — 5 × 10 = 50 marks)

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

26. (a) Discuss Kronig-Penny model for the periodic potential.

Or

(b) Deduce equation of motion in Schrodinger picture and discuss the properties of the Schronginger picture.

27. (a) Apply variation method to H_2 molecule and discuss.

Or

(b) Calculate energy eigen value and energy eigen function for the I order time independent non-degenerate perturbation case.

28. (a) Give the theory of time dependent perturbation – I order.

Or

(b) Calculate the transition probability/unit time using time dependent perturbation theory.

29. (a) Calculate eigen values of J^2.

Or

(b) Calculate C.G. coefficients for $j_1 = \frac{1}{2}$; $j_2 = \frac{1}{2}$.

30. (a) Obtain Dirac's equation in electromagnetic field.

Or

(b) Derive K.G. equation for H-atom.

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