Course Code: 2MSCP1
Course: Quantum Mechanics II
Credit: 3
Last Submission Date: October 31 (for January Session)
April 30, (for July session)

Max. Marks:-30

Min. Marks:-11

Note:-attempt all questions.

Que.1   What do you mean by perturbation theory discuss the perturbation theory for non-degenerate levels in first and second orders.

Que.2   Describe W.K.B approximation method and give an application of this method.

Que.3   Discuss the first order time department perturbation theory and derive the Fermi golden rule for the transition rate from a given initial state to a final state of continuum.

Que.4   What are Einstein transition probabilities.

Que.5   What do you understand by scattering cross section? Deduce an expression for the scattering cross section of particles a spherically symmetric potential .

Que.6   Explain born approximation.

Que.7   Give a simple derivation of Klein – Gordon equation obtain expression for charge and current densities.

Que.8   Establish dark relativistic wave equation for a free partial and extend in to obtain the equation when electromagnetic field is present.

Que.9   Write short notes on :- (any two)

   (i)   Connection formulae
   (ii)   Sudden approximation
   (iii)   Pauli's spin matrices