Mid-West University

Examinations Management Office

Chance Examinations -2081

Master level/ M.Sc. (Physics)/4th Semester — Full Marks: 37.5

Time: 3 hrs — Pass Marks: 18.75

Subject : Electrodynamics-II (PHY652)

Candidates are required to give their answer in their own words as far as Practicable. The figures in the margin indicate full marks.

Attempt all the questions:

1. What do you mean by Coloumb collision? Explain the Density Effect in Collisional Energy Loss. **[10]**

   OR

   Develop covariant form of action integral and derive an expression Euler Langrangian equation of motion.

2. Define Bremsstrahlung. Discuss about Bremsstrahlung in coulomb collision and compare the result of classical and relativistic Bremsstrahlung. **[10]**

3. Explain the postulates of special theory of relativity. Derive a wave equation in covariant form that is invariant under Lorentz transformation. **[5]**

4. Discuss Langrangian of continous system in electromagnetic field. **[5]**

   OR

   Deduce the relation for the differential scattering cross section for Coulomb collision of charged particles.

5. If the particle moves through region where the magnetic field strength varies slowly in space then show that flux linked by particles obrit remains contant. **[5]**

6. Explain about Lienard-Wiechert potential with its significance. **[2.5]**

   OR

   Write the short notes on field strength tensor in matrix form.

The End