Mid-West University
Examinations Management Office
End Semester Examinations-2080

Master level/ M.Sc.(Physics)/2nd Semester   Full Marks: 37.50
Time: 3 hours   Pass Marks: 18.75
Subject: Electrodynamics I (PHY554)

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. Define electrical image? Derive an expression for the potential due to a point charge near the conducting sphere. [10]

2. What is molecular polarizability? Established the Clausius – Mossotti Relation in Dielectric.

    OR

    Define self-inductance. Derive an expression for the energy in magnetic field. [10]

3. What is energy flow? State and explain the Maxwell equations of transverse and parallel components for hollow cylindrical wave guide.

    OR

    State and explain Fresnel's formula in case of electric field perpendicular to the plane of incident in two media. [5]

4. Discuss the phenomenon of linear and circular polarization. [5]

5. What is Poynting theorem? Also discuss about the conservation of energy and momentum for a system of charged particles. [5]

6. Discuss the quasi-static magnetic field in conductors.

    OR

    Write a short note on energy flow and attenuation in waveguides. [2.5]

The End