

M.Sc. F.Y. (Physics) (CBCS Pattern) Semester-II
PSCPHYT08 - Core Paper-VIII - Electrodynamics-II

P. Pages : 2

Time : Three Hours



GUG/W/24/11223

Max. Marks : 80

Either:

1. a) Explain circular polarization with it's stokes parameter. 8
b) Explain Fresnel polarization for electro magnetic wave. 8

OR

- e) Explain the reflection and refraction of E. M. Waves at a plane interface between dielectrics. 8
f) Explain the propagation of plane wave in non-conducting and conducting medium. 8

Either:

2. a) Discuss Lorentz gauge condition. 8
b) Explain electrodynamics field tensor and its transformation. 8

OR

- e) Explain the conservation law for electromagnetic field interacting with charged particles. 8
f) Explain Covariance of electrodynamics. 8

Either:

3. a) Lienard – Wiechert potentials of point charge? Explain it. 8
b) Explain: 8
i) Electric dipole radiation ii) Magnetic dipole radiation

OR

- e) Discuss Larmor's formula. 8
f) Discuss the motion of a charge in electric and magnetic field and static E. M. Fields. 8

Either:

4. a) What is a wave-guide? Explain TM and TE modes in a rectangular wave guide. 8

- b) Explain Bremsstrahlung synchrotron radiation. 8

OR

- e) What is a cylindrical cavity? Explain electric dipole and magnetic dipole fields. 8
- f) Derive an expression for the field in TM mode in circular wave guide. 8

5. Answer all following questions.

- a) Discuss phase velocity group velocities and wave packets. 4
- b) Discuss Lorentz transformation. 4
- c) Explain half wave and full wave antenna. 4
- d) Discuss electric quadrupole fields. 4
