M.Sc. First Year (Physics) CBCS Pattern Semester-II

PSCPHYT08 - Core Paper-VIII : Electrodynamics-II

P. Pages : 1 **GUG/W/23/11223**

Time : Three Hours * 6 2 5 1 * Max. Marks : 80

Either:

1. a) Discuss Fresnel polarization on reflection and refraction. **8**

b) Explain the propagation of electromagnetic harmonic plane waves. **8**

OR

e) Explain Stokes parameters in details. **8**

f) Explain the propagation of plane wave in non-conducting and conducting medium. **8**

Either:

2. a) Obtain Maxwell's equation using field strength tensor and dual field tensor. **8**

b) Discuss Lorentz gauge condition. **8**

OR

e) Explain the conservation law for electromagnetic field interacting with charged particles. **8**

f) Explain relative field theory. **8**

Either:

3. a) Explain half wave and full wave antenna. **8**

b) Explain Lienard Wiechart potential. **8**

OR

e) Explain electric dipole, electric quadrapole. **8**

f) Explain angular distribution of radiation. **8**

Either:

4. a) Explain magnetic dipole and electric quadrapole field. **8**

b) Derive an expression for the field in TM mode in circular wave guide. **8**

OR

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

f) Discuss qualitatively Synchrotron radiation. **8**

5. Answer all following questions.

a) Explain phase velocity and group velocity. **4**

b) Write a short note on dielectric waveguide. **4**

c) Discuss motion of a charge in Em fields. **4**

d) Discuss cavity resonators. **4**

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