



K17U 0378

Reg. No.:

Name:

VI Semester B.Sc. Degree (CBCSS – Regular) Examination, May 2017
Core Course in Physics
(2014 Admn.)
6B11 PHY : ELECTRODYNAMICS – II

Time : 3 Hours

Max. Marks : 40

SECTION – A

(Answer **all** questions. Very short answer type, **each** question carries 1 mark)

1. Total current density inside a magnetized material is the sum of _____
2. A time varying magnetic field induces _____
3. Write down continuity equation.
4. Give one example for electrostatic generator. (1×4=4)

SECTION – B

(Answer **any seven** questions. Short answer type, **each** question carries 2 marks)

5. Prove that $\nabla \times \mathbf{H} = \mathbf{J}_f$.
6. Write down boundary condition for magneto static fields inside a matter.
7. Define self-inductance of a coil.
8. Write down four Maxwell's equations in electrodynamics.
9. Define Poynting theorem.
10. State and explain Ohm's law.
11. Write down possible waveform of sinusoidal wave.
12. Define polarization.

P.T.O.



13. What is the working principle of electrostatic voltmeter ?

14. How auto transformer differ from ordinary transformer ?

(2×7=14)

SECTION – C

(Answer **any four** questions. Short essay/problem type, **each** question carries **3** marks)

15. Write a note on ferromagnetism.

16. A long copper rod of radius R carries a uniform distributed free current I. Find H outside the rod.

17. How Maxwell modified Ampere's circuital law ?

18. For Silver, Hall coefficient is $-0.84 \times 10^{-10} \text{ Vm}^3/\text{AWb}$.

a) Write down the type of charge carriers in it.

b) What is the number density of charge carriers ?

19. Explain radiation pressure. What will be the radiation pressure of a perfect absorber, when sunlight of intensity 1300 W/m^2 hit on it ?

20. Explain working of mass spectrometer and velocity selector.

(3×4=12)

SECTION – D

(Answer **any two** questions. Long essay type, **each** question carries **5** marks)

21. What are bound currents ? Explain their physical significance.

22. Explain electromagnetic boundary conditions.

23. Explain reflection and transmission of electromagnetic waves at normal incidence.

24. Explain theory and working of cyclotron.

(5×2=10)
