K19U 0133

Reg. No. : .....

Name : .....

VI Semester B.Sc. Degree (CBCSS-Reg./Supple./Improv.) Examination, April 2019
(2014 Admission Onwards)
CORE COURSE IN PHYSICS
6B11PHY : Electrodynamics – II

Time : 3 Hours

Max. Marks : 40

SECTION – A

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

1. After removing _____, Ferromagnetic materials retain their magnetism.
2. S.I. unit of inductance is
3. Write an expression for displacement of sinusoidal waves.
4. Betatron are used to accelerate

SECTION – B

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

5. Derive the relation connecting magnetic field (H) and magnetic flux density (B).
6. For uniformly magnetized materials volume current density is zero. Why ?
7. Define Poynting theorem.
8. Discuss Faradays law of electromagnetic induction.
9. Write boundary conditions in electrodynamics.
10. Derive continuity equation.

P.T.

11. Write d' Alembertian operator. In static conditions how it reduces ?

12. What are plane of polarization and plane of vibration ?

13. Describe the concepts of autc transformer.

14. What is Hall effect ?

SECTION – C

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

15. Describe the effect of magnetic field on Atomic orbital.

16. A long copper wire of radius 2 mm carries a uniformly distributed free current 2 mA. Find magnitude and direction of H at a loop of radius 1 mm inside the wire.

17. How Maxwell modified Ampere's circuital law ?

18. Find self inductance per unit length of a solenoid of radius R, carrying N number of urns per unit length.

19. Derive a relation between refractive index and dielectric constant. Find dielectric constant of water for visible light.

20. Find angular frequency of proton of mass 1.667×10^{-27} kg through the cyclotron with a magnetic field of 2T.

SECTION – D

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

21. Describe :
    1) Ferromagnetism
    2) Hysteresis loop
    3) Curie point

22. Explain Maxwell's equations in matter.

23. Show that direction of E, B and direction of propagation of electromagnetic waves are mutually perpendicular to each other.

24. Explain the working principle of electrostatic generator and cyclotron.
