



K20U 0138

Reg. No. :

Name :

**VI Semester B.Sc. Degree (CBCSS-Reg./Supple./Improv.) Examination,
April 2020
(2014 Admission Onwards)
CORE COURSE IN PHYSICS
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. For diamagnetic materials magnetic susceptibility is
2. Write differential form of modified Ampere's circuital law.
3. Write an example for longitudinal wave.
4. Betatron are used to accelerate

SECTION – B

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

5. Draw hysteresis loop of Ferro magnetic materials.
6. Write boundary conditions in magneto statics.
7. Magnetic field is solenoidal. Why ?
8. What are gauge transformation ?
9. Prove that polarization current density obeys continuity equation.
10. A changing magnetic field induces electric field. Explain.
11. Show that mutual inductance is a purely geometrical quantity.
12. Derive three dimensional wave equation for E.
13. What is mass spectrometer ?
14. What is Hall effect ?

P.T.O.

SECTION – C

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

15. A long copper wire of radius 2 mm carries a uniformly distributed free current 2mA. Find magnitude and direction of H at a loop of radius 1 mm inside the wire.
16. Explain physical significance of bound currents in magnetic materials.
17. Derive Poynting theorem.
18. Find self inductance per unit length of a solenoid of radius R, carrying N number of turns per unit length.
19. Calculate amplitude of electric field E due to light, 2 m away from a 100 W lamp radiating equally in all direction.
20. Distinguish between cyclotron and betatron.

SECTION – D

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

21. Describe :
 - 1) Ferro magnetism, hysteresis loop
 - 2) Curie point
 - 3) Dia magnetism.
 22. Derive boundary conditions in electrodynamics for linear media.
 23. Explain reflection and transmission of electromagnetic waves at normal incidence.
 24. Explain :
 - 1) Electrostatic generator
 - 2) Hall effect
 - 3) Auto transformer.
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