QP CODE: 24027338

24027338

Reg No : .....

Name : .....

B.Sc DEGREE (CBCS) REGULAR / IMPROVEMENT / REAPPEARANCE EXAMINATIONS, OCTOBER 2024

Third Semester

B.Sc Electronics Model III

Core Course - EL3CRT08 - ELECTROMAGNETIC THEORY

2017 Admission Onwards

9C07814D

Time: 3 Hours Max. Marks : 80

Part A

*Answer any **ten** questions.*

*Each question carries **2** marks.*

1. Define del operator.
2. Give the practical examples of diverging and curl field.
3. How is Laplacian of a scalar defined?What is its expression in Cartesian coordinates?
4. State and Explain Coulomb's Law.
5. Give the relation between electric field intensity and electric flux density.
6. Explain the properties of conductors.
7. List out the properties of dielectric materials.
8. What is significance of displacement current density?
9. Explain Lorentz force equation.
10. Define magnetic dipole.
11. Explain Gauss's law for magnetostatics.
12. What are the functions of antenna?

(10×2=20)

Part B

*Answer any **six** questions.*

*Each question carries **5** marks.*

13. Define divergence and its physical meaning.

14. Define stoke’s theorem.

15. Compare convection and conduction currents.

16. Two point charges-4μC and 5μC are located at (2,-1,3)and (0,4,-2),respectively.Find the potential at (1,0,1).

17. State and explain Biot Savart's law.

18. Compare the properties of para and ferro magnetic materials.

19. What is the significance of characteristic impedence in free space?What is its value?

20. Derive Maxwell's equation from Faraday's law (a)point form(b)integral form.

21. Explain the properties of isotropic radiator.

(6×5=30)

Part C

*Answer any **two** questions.*

*Each question carries **15** marks.*

22. Given a point P(-2,6,3) in cartesian coordinates ,express P in cylindrical and spherical coordinates.

23. Derive the boundary conditions at the interface between two perfect dielectrics.

24. Explain boundary conditions at the boundary of two dielectrics.Explain its significance.

25. (a) State and prove boundary conditions for E and H in accordance with Maxwell’s equations.
    (b) Explain Maxwell equations in point and integral form.

(2×15=30)