K26FY0250 Pages: 2 Reg No:.....
Name:.....

Fourth Semester FYUGP Degree (Reg) Examination April 2026

KU4DSCPHY203 - ELECTROMAGNETICS AND CIRCUIT THEORY

2024 Admission onwards

Time : 1.5 hours Maximum Marks : 50

Section A

Answer any 6 questions. Each carry 2 marks.

1. State and explain principle of superposition
2. State and explain Coulomb's law
3. Write down the equation for Biot Savart law for volume current and mention the terms.
4. What do you mean by steady current? Write down continuity equation for a steady current.
5. Is the solution to Laplace's equation unique if boundary conditions are given?
6. How does the potential of a dipole vary with distance?
7. State and explain Kirchhoff's Current law.
8. State Thevenin's theorem

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Section B

Answer any 4 questions. Each carry 6 marks.

9. What is the principle of Faraday cage? Explain in details
10. A charge +q is placed inside the cavity in a conductor. What are the charges on the surfaces of cavity and the conductor?
11. Derive the approximate expression for the potential of an electric dipole at large distances.
12. Convert the voltage source (10V) which is connected in series with 5 Ω resistor into an equivalent current source.
13. List the steps involved in finding the Norton equivalent of a given network

14. The four arms of a Wheatstone bridge have the following resistances in ohms. AB=100, BC=10, CD=5, DA=60. A galvanometer of 15 ohm resistance is connected across BD. Calculate the current through the galvanometer when a potential difference of 10V is maintained across AC.

Section C

Answer any 1 questions. Each carry 14 marks.

15. a) what is meant by electric potential? Derive an expression for electric potential b)Discuss the behaviour of electric potential inside and outside the the spherical shell

16. Explain the cycloidal motion of a charged particle.

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