MODEL PAPER

End Semester Examination Spring- 2025

Program: Diploma (MiE & CSE)
Course: Basic Electrical & Electronics Engineering
Subject Code: 8DESC105 & 3DESC102
Semester: II

UNIT-I

Section: I (All Questions Carries Five Marks)

1. What do you mean by Potential difference?
2. Define Electrical Current and Electrical Voltage.
3. What do you mean by open circuit and close circuit?
4. What do you mean by conductivity? State and explain Ohm's Law.

Section: II (All Questions Carries Ten Marks)

5. Describe the role of temperature in case of Resistance in details.
6. Describe the properties and application of High Resistive Materials
7. Define Electrical Power and Electrical Energy.
8. Define Following:
    i. Hardening
    ii. Annealing

Section: III (All Questions Carries Twenty Marks)

9. Derive the formula of equivalent Resistance of three resistances R_1, R_2 and R_3 when they are connected in (a) Series and (b) Parallel. (20)
10. What do you mean by low resistive material? Discuss the properties and applications of it?

UNIT II

Section: I (All Questions Carries Five Marks)

11. What do you understand by Fleming's right-hand rule?
12. Discuss the heating Effects of Electrical Current in a conductor in brief.
13. What is the difference in between Magnetic circuit & Electric circuit
14. Illustrate the Hysteresis Loss.
15. What do you understand by Fleming's right-hand rule?
16. Differentiate between Fleming's left-hand rule and right-hand rule.

Section: II (All Questions Carries Ten Marks)

17. Describe the origin of magnetism and discuss how the hysteresis loop is formed? What do you mean by Soft & Hard - Magnetic materials and describe its applications.
18. Derive how the magnetic field creates in case of Solenoid and a Toroid.
19. Explain in brief about Magnetic Effect of Electrical Current.
20. Explain Fleming's left-hand Rule and force between two parallel current carrying conductors.

Section: III (All Questions Carries Twenty Marks)

21. Derive the expression of Field pattern due to long straight current carrying conductor.
22. Write sort notes on

    A. Conductor B. Reluctance C. Permeability and flux D. Electrical Circuit

UNIT III

Section: I (All Questions Carries Five Marks)

23. State and explain the Faraday's laws and its historical background.
24. What do you understand Electro Magnetic Induction.
25. What is the difference between self-induction and mutual induction?
26. State and explain the laws of Electrostatics & Lenz law.
27. What do you mean by capacitance and dielectric constant?

Section: II (All Questions Carries Ten Marks)

28. What do you understand by Dielectrics? Write down its classifications, properties and applications.
29. Discuss the colour code method in order to study the value of resistors and capacitors with proper example.

Section: III (All Questions Carries Twenty Marks)

30. State and explain Gauss theorem and derive it rom Coulombs law.
31. Explain the series and parallel connections of Capacitors. The total capacitance is 0.03 μF when joined in series and 0.16 μF when connected in parallel. Find the capacitance of each capacitor.

UNIT IV

Section: I (All Questions Carries Five Marks)

32. Describe Insulating Materials & their properties.
33. What do you mean by Thermocouple? Describe its applications.
34. What do you understand by Semiconductor? Describe its classifications and describe its characteristic graphs.
35. Compare the Current gains of Transistor.

Section: II (All Questions Carries Ten Marks)

36. What do you mean by Insulation material? Describe its classification properties and applications of it.
37. Explain in Brief about Temperature Transducer as a Thermocouple.
38. What do you mean by Zener Diode? Describe its characteristics graphs.
39. What do you mean by PNP & NPN Transistor with diagram.

Section: III (All Questions Carries Twenty Marks)

40. Write comparison between common base, common emitter and common collector type transistor.
41. Describe the importance of fuse? Explain V-I Characteristics of P-N junction diode.

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Disclaimer: - This is a Model Paper. The Question in End term examination will differ from the Model Paper. This Model paper is meant for practice only.