PRACTICE SET

End Semester Examination, Spring- 2026

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

UNIT-I

Section: II (All Questions Carries Ten Marks)

1. Define Electrical Current and Electrical Voltage.
2. Describe the properties and application of High resistive materials and Low resistive materials.
3. A wire has resistance 10 Ω at 20°C and 12 Ω at 60°C. Find temperature coefficient? State and explain Ohm's Law.
4. What do you mean by open circuit and close circuit?
5. Distinguish between conductor , insulator and semiconductor.

Section: III (All Questions Carries Twenty Marks)

6. Deduce the equivalent Resistance of Four resistances R_1, R_2, R_3, and R_4 when they are connected in (a) Series and (b) Parallel.
7. a) A wire of length 2 m and area $1\ mm^2$ has resistivity $1.7 \times 10^{-8} \Omega m$. Find resistance.

   b) A heater of resistance 20Ω draws 5A current. Find: i)Power ii)Energy consumed in 2 hours

UNIT II

Section: II (All Questions Carries Ten Marks)

8. What is the difference in between Magnetic circuit & Electric circuit.
9. Explain the types of magnetics materials? What do you mean by Soft & Hard - Magnetic materials.
10. A conductor of length 0.5 m carries 3 A current in magnetic field 0.2 T. Find force (θ = 90°).
11. A magnetic circuit has flux 5×10^{-3} Wb and reluctance 1000. Find MMF.
12. Explain i) B-H Curve ii) hysteresis Loop

Section: III (All Questions Carries Twenty Marks)

13. Derive the expression of Field pattern due to long straight current carrying conductor.
14. Derive how the magnetic field creates in case of Solenoid and a Toroid.

UNIT III

Section: II (All Questions Carries Ten Marks)

15. State Faraday's Laws of Electromagnetic Induction. A coil has 200 turns and flux changes from 0.02 Wb to 0 Wb in 0.1 s. Find induced EMF.
16. What is the difference between self-induction and mutual induction?
17. States Lenz's Law. Derive formula for inductances in series.
18. Derive energy stored in inductor: $W = \frac{1}{2}LI^2$.
19. Define polarization and dielectric loss. A capacitor of 10 μF is charged to 100 V. Find energy stored.
20. Define capacitance. Derive formula for capacitors in series and parallel.

Section: III (All Questions Carries Twenty Marks)

21. Define electric field and flux density. State Gauss's Theorem. A charge of $5 \times 10^{-6}C$ produces field at 0.2 m distance. Find electric field intensity.

UNIT IV

Section: II (All Questions Carries Ten Marks)

22. What is Semiconductor? Explain the types of semiconductor.
23. What do you mean by Insulating materials? Describe its classification properties and applications of it.
24. What is PN junction? How it is work?
25. What do you mean by Zener Diode? Show how it behaves like a voltage regulator.
26. What is transistor? Explain npn & pnp transistor with diagram.
27. Describe the importance of fuse? Explain V-I Characteristics of P-N junction diode.

Section: III (All Questions Carries Twenty Marks)

28. Write comparison between CB, CE and CC configuration in transistor.

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