

2220

April 2025

Time - Three hours
(Maximum Marks: 100)

- (N.B. 1. Answer any fifteen questions under Part-A. All questions carry equal marks (15X2=30)
2. Answer all questions, choosing any two sub-divisions from each question under Part-B. All questions carry equal marks.(5X14=70)(7+7))

PART-A

1. Mention any two uses of electricity in engineering.
2. State Lenz law.
3. What are the types of AC supply?
4. State Ohm's law.
5. What is a transformer?
6. List any two energy sources.
7. List out the types of lamps.
8. Expand TANGEDCO.
9. Draw the symbol of an inductor and give its unit.
10. Define mutual inductance.
11. Write the working principle of capacitor.
12. What are the uses of resistor?
13. Define energy band.
14. What are extrinsic semiconductors?
15. What is drift current?
16. Write any two applications of Zener diode.
17. Mention any two hazards of electricity.
18. What is earthing?
19. List any two PCB materials.
20. What are the types of solder?

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PART - B

21. (a) Discuss the duties of an electrical engineer.
(b) Derive an expression for equivalent resistance when three resistors are connected in parallel.
(c) Derive expressions for the following and give their units:
(i) Electric Power (ii) Electrical Energy
22. (a) Draw the block diagram of AC transmission system and explain its working.
(b) What are the main parts of a DC motor? Explain its working principle.
(c) Write short notes on Electric Vehicles (EV).
23. (a) Discuss about the various properties of resistor.
(b) Explain about colour coding of resistors.
(c) Explain the concept of self inductance with a neat diagram.
24. (a) Explain the construction of PN junction diode and its working.
(b) Write short notes on fermi level with neat diagram.
(c) Explain about the reverse bias operation of Zener diode.
25. (a) Discuss about the safety precautions to be taken during hazards of electricity.
(b) Explain the steps involved in the preparation of PCB.
(c) Write notes on safety precautions to be followed in soldering.
