

ECM32 Electrical Circuits and Instrumentation

825 /

REG. NO

OCTOBER 2021

Time: Three hours

Maximum Marks: 75

- Note:
1. Answer ALL the questions in PART-A (1 mark each)
 2. Answer any ONE question from each unit in PART-B (3 marks each)
 3. Answer any ONE question from each unit in PART-C (10 marks each)
 4. The question paper contains TWO Pages

PART-A (1x10=10)

1. Define Conductance.
2. Define Ohm's law.
3. Define power factor.
4. What is resonance?
5. Define DC Generator.
6. Define the efficiency of a transformer.
7. Define Absolute Static error.
8. Mention any two applications of CRO.
9. Define Passive Transducer.
10. Mention any two advantages of digital instrument over Analog Instrument.

PART-B (3x5=15)

UNIT-I

11. Calculate the current and resistance of a 50W, 100V electric bulb.
12. A lamp having a resistance of 500 ohm works on 220V supply system. Determine the energy consumed by operating 30 days at the rate of four hours a day.

UNIT-II

13. State the applications of resonance.
14. Derive the Bandwidth of a series resonant circuit.

UNIT-III

15. Mention the applications of a Stepper Motor.
16. What are the applications of a transformer?

UNIT-IV

17. List out the types of CRO.
18. What are the advantages of PMMC instrument?

UNIT-V

19. State any three applications of LVDT.
20. Define Strip Chart Recorder.

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PART-C (10x5=50)

UNIT-I

21. Resistors of values 2,3,4 and 5 ohm are connected in parallel. If the total power absorbed by all the resistors is 200W, find the voltage applied to the circuit.
22. State Norton's theorem and write the step by step procedure of Norton's theorem.

UNIT-II

23. Derive an expression for the impedance in RC series circuit.
24. What is the condition for parallel resonance? Derive an expression for frequency at resonance.

UNIT-III

25. Explain the working principle of a single phase transformer with neat diagram.
26. With neat diagram explain the working of stepper Motor. Mention the types of Stepper Motor.

UNIT-IV

27. Explain the principle of operation of DC Ammeter with neat diagram.
28. Explain with neat sketch, the construction and working of dual beam CRO.

UNIT-V

29. Explain the construction and working of a Load cell with necessary diagram.
30. Explain the working of a digital multimeter with a block diagram.
