

Reg No.: _____



Jyothi Engineering College(Autonomous)
B. Tech Degree S2 (R) Examination, May 2026(2025 Scheme)
25EST205 - BASIC ELECTRICAL & ELECTRONICS ENGINEERING



Total Mark: 60

General Instructions

1. Use separate answer booklets for Part 1 and Part 2
2. No separate minimum marks are required to pass

CO MARK

PART A

Answer All Questions. Each question carries 3 marks

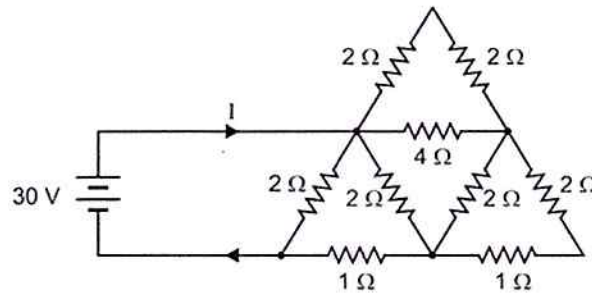
1. A series circuit consumes 2000 W at 0.5 leading power factor, when connected to 230 V, 50 Hz ac supply. Calculate (a) Current, (b) kVA, and (c) kVAR. CO1 (3)
2. Derive the relationship between phase and line values for voltages in a 3-phase star-connected system. CO1 (3)
3. Explain the need for earthing in electrical circuits. CO2 (3)
4. State the basic principle of operation of an electric motor. CO3 (3)

PART B

Answer any one full question from each module. Each question carries 9 marks

Module - 1

5. Find the equivalent resistance, current supplied by the DC source and the power consumed by the circuit shown in the figure. CO1 (9)



OR

6. Three equal impedances, each of $(8 + j10)$ ohms, are connected in star. This is further connected to a 440 V, 50 Hz, three-phase supply. Calculate (a) phase voltage, (b) phase angle, (c) phase current, (d) line current, (e) active power, and (f) reactive power. CO1 (9)

Module - 2

7. Explain how plate earthing and pipe earthing are carried out in electrical installations with diagrams. CO3 (9)

OR

8. With a neat diagram explain the working of hydroelectric power plant. CO2 (9)

PART C

Answer All Questions. Each question carries 3 marks

9. What is a resistor? List any 3 important specifications of a resistor. CO4 (3)
10. Define an amplifier and explain the mode in which an amplifier operates. CO4 (3)
11. Define an ultrasonic sensor and state its working principle. CO5 (3)
12. A thermometer consistently reads 39.3°C while the actual body temperature is 39.0°C. CO5 (3)
Identify whether the measurement is accurate or precise and justify your answer.

PART D

Answer Answer any one full question from each module. Each question carries 9 marksAll Questions

Module - 3

13. a) State and Prove Demorgans Law. CO4 (5)
- b) Draw and explain the output waveform of a rectifier after smoothing with a capacitor filter. CO4 (4)

OR

14. a) Compare Zener breakdown and Avalanche breakdown. CO4 (5)
- b) Write a short note on BJT. Also list any two advantages and applications of a BJT. CO4 (4)

Module - 4

15. a) Describe the construction and temperature measurement process of RTD with the help of a neat diagram. CO5 (5)
- b) List the applications and advantages of capacitive proximity sensors. CO5 (4)

OR

16. a) Explain in detail the structure and working of a piezoelectric accelerometer with a neat diagram. CO5 (5)
- b) Differentiate between a Bourdon tube and a strain gauge. CO5 (4)
