



SCHOOL OF ELECTRICAL ENGINEERING
CONTINUOUS ASSESSMENT TEST - I
FALL SEMESTER 2025-2026

Programme Name & Branch : B. Tech & Computer Science and Engineering,
Information Technology

Course Code and Course Name : BAEEE101 BASIC ENGINEERING

Faculty Name(s) : Dr. INDRAGANDHI V, Dr. ALBERT ALEXANDER S, Dr. ANUSUYA BHATACHARYA, Dr. VIVEKANANDAN S, Dr. MUKUL CHANKAYA, Dr. JAGANATHA PANDIAN B, Dr. SONAM SHRIVASTAVA, Dr. SELVAKUMAR K and Dr. MALLIKARJUNA GOLLA

Class Number(s) : VL2025260106173, VL2025260106167, VL2025260106169, VL2025260106265, VL2025260106164, VL2025260106263, VL2025260106377, VL2025260106255 and VL2025260106274

Date of Examination : 17/08/2025

Exam Duration : 90 minutes

Maximum Marks: 50

General instruction(s):

- Answer All Questions
- Rough work should not be done on question paper. It will be treated as malpractice.
- M - Max mark; CO - Course Outcome; BL - Blooms Taxonomy Level (1 - Remember, 2 - Understand, 3 - Apply, 4 - Analyse, 5 - Evaluate, 6 - Create)

Course Outcomes Statements:

CO. 1: Analyse the electrical circuits, electrical motors and the role of power electronics in industrial applications

Q. No	Question	M	CO	BL
1.	Apply mesh analysis to find current through the resistors R1 and R5 as shown in Fig.1. Fig.1	10	1	3
2.	Find the current I_2 as shown in Figure 2 by the application of Thevenin's theorem.	10	1	3

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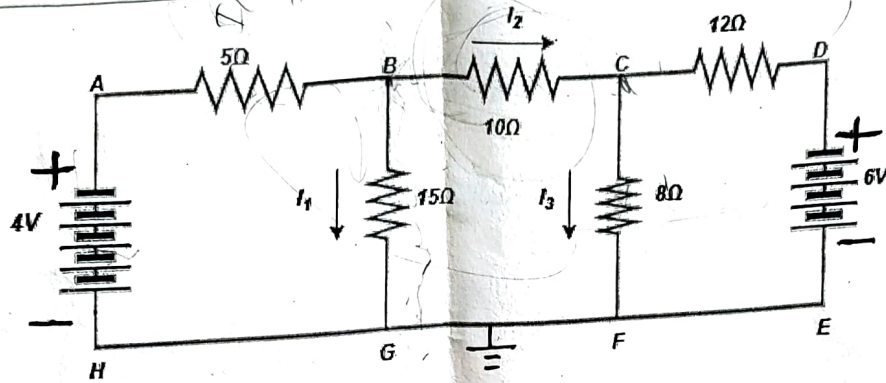


Fig.2

3. Find the value of voltage across 3Ω for the circuit given in Figure 3 using superposition theorem.

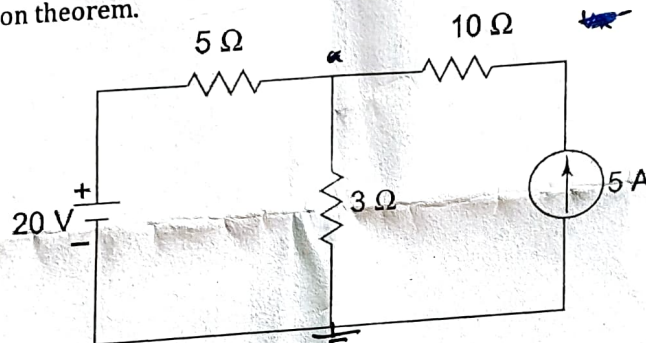


Fig.3

4. Voltage, $V(t) = 100 \sin(314t + 20^\circ)$ is applied to a series RL circuit having $R = 10\Omega$, $L = 15\text{mH}$ as shown in Figure 4. Calculate: (i) current $i(t)$, (ii) voltage drop across the resistor, (iii) power factor, (iv) active power consumed by the circuit, and (v) reactive power delivered by the inductor.

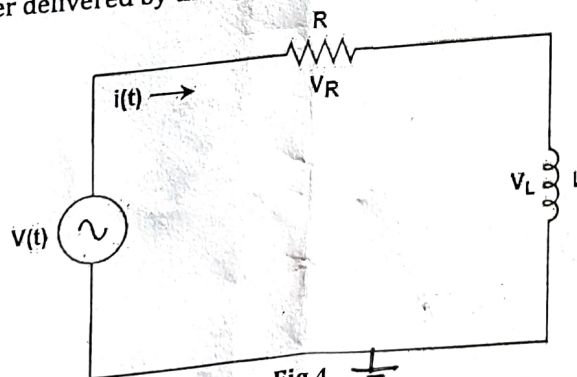


Fig.4

5. With a neat sketch explain the construction and working principle of an electrical machine which always rotates less than the synchronous speed and referred as 'asynchronous motor'. Based on which factor, this motor is classified? Illustrate its types and indicate the practical applications of this motor.