Reg. No.

ANNA UNIVERSITY (UNIVERSITY DEPARTMENTS)

B.E / B. Tech (Full Time) END SEMESTER EXAMINATIONS – NOV/ DEC 2024

EE7251 & BASIC ELECTRICAL ENGINEERING AND MEASUREMENT

(Regulation 2015)

Time: 3 Hours | Answer ALL Questions | Max. Marks 100

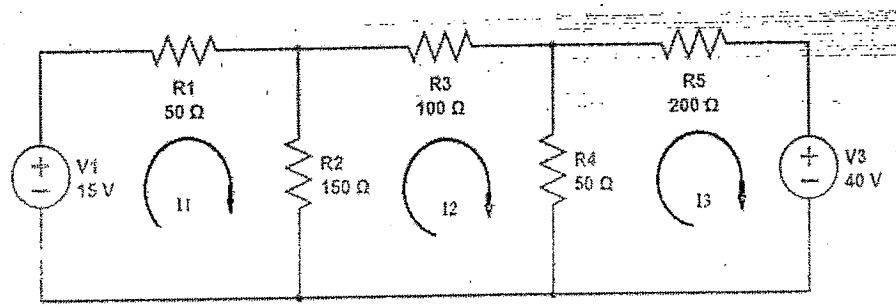
PART- A (10 x 2 = 20 Marks)

Q.No	Questions	Marks
1.	Difference between balanced and unbalanced circuits.	2
2.	State the superposition theorem.	2
3.	What is Commutator and its function in DC Machine?	2
4.	Why the single-phase Induction motor is not self-starting?	2
5.	List the applications of Brushless DC Motor.	2
6.	Compare Switched reluctance motor with Induction motor.	2
7.	List the types of Dynamometer Wattmeter.	2
8.	What are the features of Megger?	2
9.	Define Active and Passive transducer.	2
10.	What is Piezo-electric effect?	2

PART- B (5 x 13 = 65 Marks)

(Restrict to a maximum of 2 subdivisions)

Q.No	Questions	Marks
11.	a) (i) Find the current through each branch using mesh analysis. Assume (8)	13



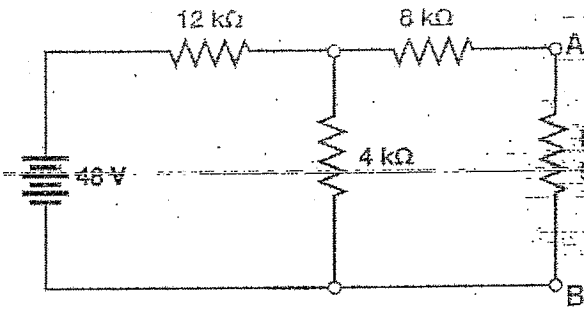
a) (ii) Define and derive RMS value. (5)

	b) Derive the Power Measurement by two-Watt meter method with neat Phasor diagram. Also discuss the case study on power factor.	13
12.	a) Explain the construction and Working of DC Generator. Also derive its EMF equation.	13
	OR	
	b) Explain the construction and working of Transformer. Also derive EMF Equation.	13
13.	a) Explain the construction and working of Synchronous Motor. Also derive the Torque Equation.	13
	OR	
	b) Explain the construction and working of Switched reluctance motor. Also discuss the types.	13
14.	a) Explain and derive the equation for measurement of self-inductance by maxwell's bridge.	13
	OR	
	b) (i) Explain the construction and working of Energy Meter in detail. (8) (ii) compare Moving coil and moving iron instruments. (5)	13
15.	a) Explain in detail about the construction and working of LVDT and RTD.	13
	OR	
	b) Explain in detail about the construction and working of Piezo-electric transducer and Fiber optic transducers.	13

PART- C (1 x 15 = 15 Marks)

(Q. No 16 is Compulsory)

Q.No	Questions	Marks
16.	(i) Calculate the V_{th} and R_{th} for the following circuit. (7)	15



(ii) Three impedance each of 10 ohm resistance and 5 ohm inductive reactance are connected in delta to a 400V,3 Phase supply. Determine the current in each phase and in each line. Also Calculate the total power drawn from the supply and the power factor of the load. (8)