Reg. No.												

Question Paper Code	12529

B.E. / B.Tech. - DEGREE EXAMINATIONS, NOV / DEC 2023

Second Semester

Mechanical Engineering

(Common to Mechanical and Automation Engineering)

20ESEE201 - ELECTRICAL TECHNOLOGY WITH LABORATORY

(Regulations 2020)

Duration: 3 Hours Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

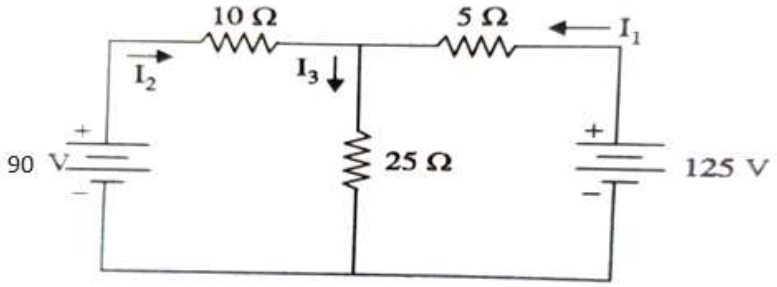
Answer ALL Questions

		Marks, K-Level, CO
1.	State Kirchoff's voltage and current law.	*2,K1,CO1*
2.	Recall the thevenin's equivalent circuit.	*2,K1,CO2*
3.	What is back EMF?	*2,K2,CO3*
4.	State the principle of operation of the transformer.	*2,K1,CO3*
5.	Write the torque equation of DC motor.	*2,K1,CO4*
6.	Show the advantages of a three phase induction motor.	*2,K2,CO4*
7.	Name the types of DC motor starters.	*2,K1,CO6*
8.	What is meant by electrical braking?	*2,K2,CO6*
9.	Draw the block diagram of an Electrical drive system.	*2,K1,CO5*
10.	List the various classes of duty for an electric motor.	*2,K1,CO5*

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

11.	a)	Explain the procedure to find Thevenin's equivalent circuit with neat circuit diagram.	*13,K2,CO2*
		OR	
	b)	Calculate the current I1, I2, I3 and supplied by a two batteries in the network using Kirchoff 's Law.	*13,K2,CO1*



12. a) Explain with neat sketches the working principle of DC motor. *13,K2,CO3*

OR

b) Explain the principle of operation, construction and working of a single-phase transformer. *13,K2,CO3*

13. a) Explain the construction and principle of operation of a synchronous machine. *13,K2,CO4*

OR

b) Derive the torque equation of three phase induction motor and explain its mechanical characteristics. *13,K3,CO4*

14. a) Draw and explain a three-point starter for DC motor. *13,K2,CO6*

OR

b) Describe the various starting methods of induction motors. *13,K2,CO6*

15. a) Illustrate the advantages and factors for selection of electric drive. *13,K2,CO5*

OR

b) Derive the expression for a thermal model of motor for cooling and draw the cooling curve. *13,K2,CO5*

PART - C (1 × 15 = 15 Marks)

16. a) Explain with a neat diagram 4 point starter used for a D.C shunt motor. Mention its advantages. *15,K3,CO6*

OR

b) Explain the various classes of motor duty with neat diagram. *15,K5,CO5*