07 AUG 2023

Reg. No.													

Question Paper Code	12123

B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 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)

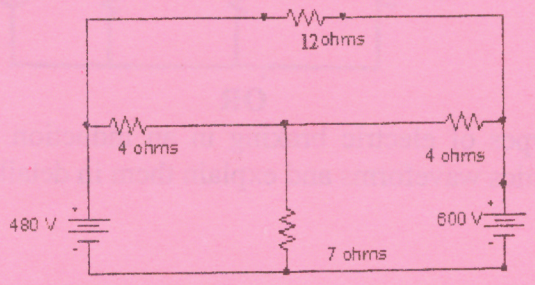
Answer ALL Questions

		Marks, K-Level, CO
1.	State Kirchhoff's laws.	2,K1,CO1
2.	Write the advantages of three phase system over single phase system.	2,K1,CO1
3.	Why transformer rating is expressed in terms of KVA.	2,K1,CO2
4.	A 250V, dc shunt motor takes a line current of 20A. Resistance of shunt field winding is 200Ω and resistance of the armature is 0.3 Ω. Find the armature current and the back e.m.f?	2,K2,CO2
5.	Define synchronous speed.	2,K1,CO3
6.	Compare salient pole rotor and cylindrical pole rotor.	2,K2,CO3
7.	Write the need for starter in an induction motor.	2,K1,CO4
8.	List the speed control method of DC motor.	2,K1,CO4
9.	Define electric drives.	2,K1,CO5
10.	Mention the factors affecting the selection of electrical drives.	2,K1,CO5

PART - B (5 × 13 = 65 Marks)

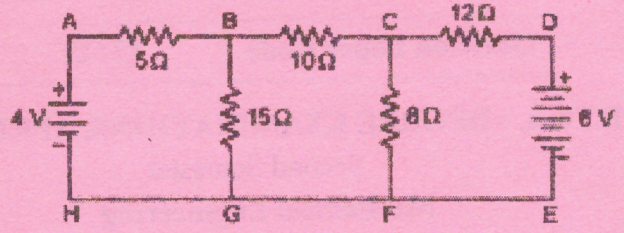
Answer ALL Questions

			Marks, K-Level, CO
11.	a)	Write the mesh equations for the circuit shown in the figure and determine the current in each resistor.	13,K2,CO1



OR

b) Determine the current through 10 ohm resistor by using Thevenin's theorem. *13,K2,CO1*



12. a) Describe the construction and working principle of DC motor. *13,K2,CO2*

OR

b) Explain the construction and working principle of a transformer. *13,K2,CO2*

13. a) Summarize the construction and working details of three phase induction motor. *13,K2,CO3*

OR

b) Describe the construction and working details of synchronous motor. *13,K2,CO3*

14. a) Describe the construction and working principle of DOL and autotransformer starter. *13,K2,CO4*

OR

b) Explain the construction and working principle of three point starters. *13,K2,CO4*

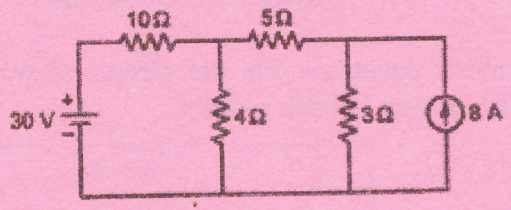
15. a) Summarise the various classes of motor duty with necessary diagrams and examples. *13,K2,CO4*

OR

b) Illustrate the heating and cooling curve of electric drives. *13,K2,CO5*

PART - C (1 × 15 = 15 Marks)

16. a) For the network shown in the figure, determine the current through the 5 Ω resistor using super position theorem. *15,K2,CO*



OR

b) List the types of electric braking in an induction motor. Draw their characteristics waveforms and explain them in detail. *15,K2,CO4*