Code No.: EE401ES	R20	H.T.No.			8	R						

CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
II–B.TECH–II–Semester End Examinations (Supply) - July - 2024
BASIC ELECTRICAL AND ELECTRONICS ENGINEERING
(MECH)

[Time: 3 Hours] **[Max. Marks: 70]**

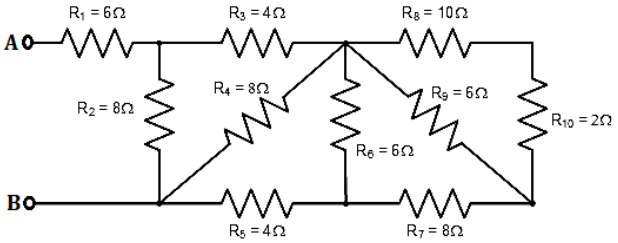
Note: This question paper contains two parts A and B.
Part A is compulsory which carries 20 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A **(20 Marks)**

1.	a)	Define circuit.	[2M]
	b)	Show the representation of sinusoidal waveform.	[2M]
	c)	What is the function of wire?	[2M]
	d)	List any two household appliances with power rating.	[2M]
	e)	What is the function of DC generator?	[2M]
	f)	Classify electrical machines.	[2M]
	g)	Interpret diode current equation and mention how it supports reverse bias condition.	[2M]
	h)	Summarize the operation of full-wave rectifier.	[2M]
	i)	Among CE, CB, CC configurations which one is most popular? Justify.	[2M]
	j)	Compare BJT and FET.	[2M]

PART-B **(50 Marks)**

2.	a	Explain electrical circuit elements and sources.	[5M]
	b	Solve for the equivalent resistance between terminals A and B of the network shown below.	[5M]



OR

3.	a	Relate voltage and currents in star and delta connections.	[4M]
	b	The rms current in a single phase AC network is given by 6 A when the applied rms voltage is 110 V and the power factor is 0.8. Evaluate the apparent, reactive and the real powers.	[6M]
4.	a	Discuss the working of SFU with neat diagram.	[6M]
	b	Estimate the electricity bill amount for a month of 30 days, if the following appliances are used as specified. (i) 2 LED bulbs of 9 W for 5 hours, (ii) 2 tube lights of 50 W for 4 hours, (iii) A T.V. of 80 W for 6 hours, (iv) 2 fans of 60 W for 10 hours. Take the rate of electricity is Rs. 3.00 per unit.	[4M]

OR

5.	a	Illustrate the important battery characteristics.	[6M]
	b	Discuss about the earthing.	[4M]

6.a	Explain the construction of transformer with neat sketch.	[4M]
b	A 6-pole, 1500 rpm, DC generator has 800 conductors on its armature. The flux per pole is 0.035 Wb. Solve the generated EMF when the armature is (i) Lap wound (ii) Wave wound.	[6M]
	OR	
7.a	Discuss about the speed control of DC motors.	[6M]
b	Explain the working principle 3-phase induction motor.	[4M]
8.a	Explain the Volt-Ampere characteristics of PN junction diode.	[4M]
b	With the help of circuit diagram and waveforms explain the full wave bridge rectifier operation.	[6M]
	OR	
9.a	Distinguish between static and dynamic resistances of a diode.	[6M]
b	Explain the Zener effect and the characteristics of Zener diode.	[4M]
10.a	Show the CB configuration of BJT and explain in detail.	[6M]
b	What is transistor? Explain the working of BJT.	[4M]
	OR	
11.a	What is FET? Explain the construction of FET.	[6M]
b	Illustrate the biasing of FET.	[4M]

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