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PACE INSTITUTE OF TECHNOLOGY & SCIENCES::ONGOLE
(AUTONOMOUS)

I B.TECH I SEMESTER END SUPPLEMENTARY EXAMINATIONS, FEB - 2023
BASIC ELECTRICAL AND ELECTRONICS ENGINEERING
(Common to CE,ME,AME,CSE(IOTCSBT),AIDS,AIML Branches)

Time: 3 hours

Max. Marks: 60

Note: Question Paper consists of Two parts (Part-A and Part-B)

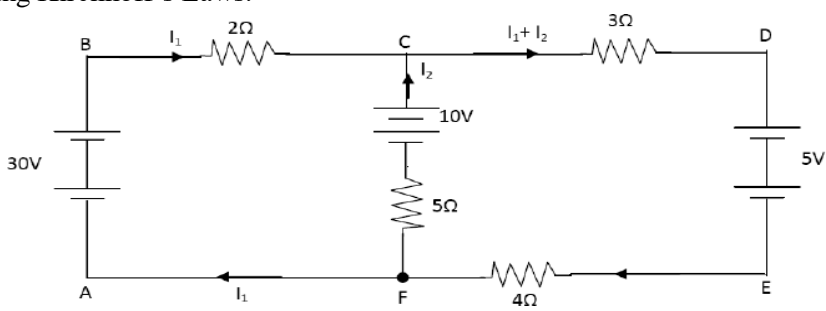
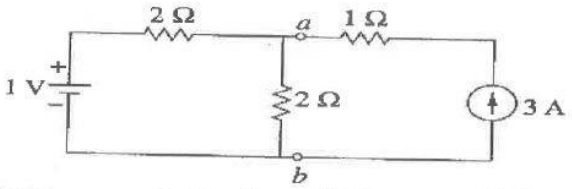
PART-A

Answer all the questions in Part-A (5X2=10M)

Q.No.	Questions	Marks	CO	KL
1	a) State Kirchoff's Laws.	[2M]	1	
	b) A Sinusoidal Voltage is represented as $141.42 \sin 314t$. What are the RMS value and Frequency of Voltage?	[2M]	2	
	c) On what factors the induced emf of transformer depends?	[2M]	3	
	d) What are the methods of Speed control of DC Motor?	[2M]	4	
	e) Differentiate PNP and NPN Transistors.	[2M]	5	

PART-B

Answer One Question from each UNIT (5X10=50M)

Q.No.	Questions	Marks	CO	KL
UNIT-I				
2.	a) Explain in detail the volt-ampere relationship of R, L and C elements with neat diagrams.	[5M]	1	
	b) For the circuit shown in Figure 1, find the current flowing in all the branches Using Kirchoff's Laws.	[5M]	1	
 <p>Figure 1</p>				
OR				
3.	a) State and explain superposition theorem	[4M]	1	
	b) Find the voltage across terminals 'a' and 'b' of the network shown in Figure -2 using source transformation theorem	[6M]	1	
 <p>Figure -2</p>				

UNIT-II				
4.	a)	Define –i) form factor and ii) peak factor	[4M]	2
	b)	Find the average value for the following wave form.	[6M]	2
OR				
5.		In a series circuit consisting of pure resistance and a pure inductance, the current and the voltage are expressed as $i(t)=5\sin(314t + 2\pi/3)$ and $v(t)=15\sin(314t + 5\pi/6)$. Determine the (i) Impedance, (ii) Resistance, (iii) Inductance, (iv) Average Power, (v) Power Factor in the Circuit	[10M]	2
UNIT-III				
6.	a)	Define i). MMF , ii). Flux , and iii). Reluctance.	[5M]	3
	b)	Compare magnetic circuit with electric circuit.	[5M]	3
OR				
7.	a)	Explain about the constructional features of transformer.	[5M]	3
	b)	Obtain an expression for induced emf in transformer.	[5M]	3
UNIT-IV				
8.	a)	Explain the functions of the following w r t DC Generator. i) Field pole system ii) Yoke and iii) Commutator	[5M]	4
	b)	Write the c.m.f equation of a D.C generator and derive it	[5M]	4
OR				
9.	a)	A Slip-Ring Induction Motor runs at 960 rpm at full load, when connected to 50-Hz supply. Determine the number of Poles and Slip	[5M]	4
	b)	Explain the Principle of operation of alternator.	[5M]	4
UNIT-V				
10.		Describe the different characteristics of the PN junction diode. Mention its applications.	[10M]	5
OR				
11.	a)	Discuss the different types of Transistors.	[5M]	5
	b)	Describe the Characteristics of Operational Amplifiers.	[5M]	5
