MARRI LAXMAN REDDY
INSTITUTE OF TECHNOLOGY AND MANAGEMENT
(AN AUTONOMOUS INSTITUTION)
(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)
Accredited by NBA and NAAC with 'A' Grade & Recognized Under Section2(f) & 12(B)of the UGC act,1956

MLRS

I B.Tech I Sem Supply Examination, December 2021
BASIC ELECTRICAL ENGINEERING
(EEE, CSE & IT)

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

Note: 1. This question paper contains two parts A and B.
　　　2. Part- A is Compulsory. Answer all Questions which carries 20 marks.
　　　3. Part – B consists 5 units. Answer any one question from each unit. Each question
　　　　 carries 10 marks and may have a, b as sub questions.

PART- A
(10*2 Marks=20Marks)

|				
1. a)	Define Active element and give example.	2M	CO1	BL1
b)	State Kirchhoff's of current law .	2M	CO1	BL1
c)	What is the phase angle between voltage and current in pure inductor?	2M	CO2	BL3
d)	Define resonance. What is the condition for series resonance?	2M	CO2	BL1
e)	What are the losses in transformer?	2M	CO3	BL1
f)	Write different connections of three phase transformers.	2M	CO3	BL2
g)	Draw torque slip characteristic of three phase induction motor.	2M	CO4	BL1
h)	What are the applications of single phase induction motor?	2M	CO4	BL2
i)	Define Earthing.	2M	CO5	BL1
j)	What are the types of cables?	2M	CO5	BL2

PART - B
(5*10 Marks=50Marks)

UNIT-I

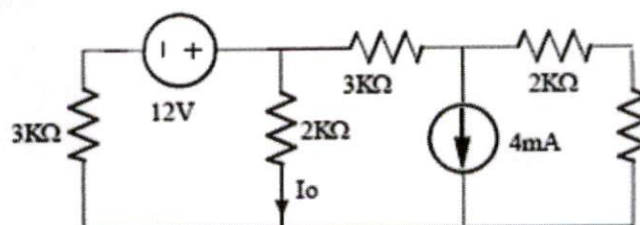Find the power loss in 1Ω resistor shown in figure

2 a)
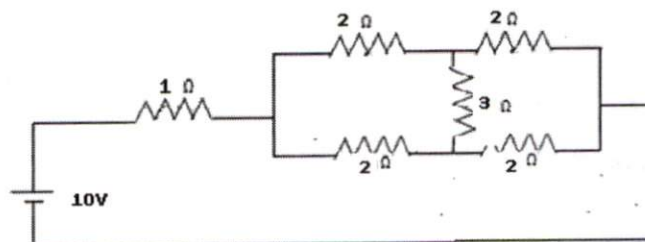
5M   CO1   BL3

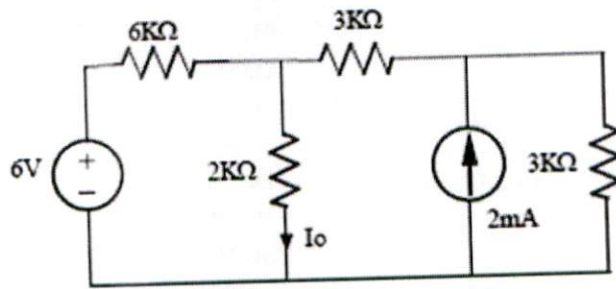Using Thevenin theorem find I_0 for circuit shown below

b)

5M   CO1   BL3

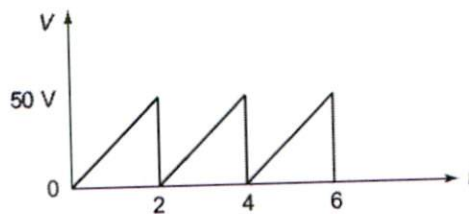|				
3	a)	Derive the expression for current flowing through first order RL circuit for DC excitation.	5M CO2 BL3
	b)	Using Norton theorem find I_0 for circuit shown below	5M CO2 BL3

UNIT-II

Find the Average value of the periodic waveform shown in below figure

4	a)		5M CO2 BL3
	b)	A series circuit consisting of a10Ω resister, 100μF capacitor and a 10 mH inductor is driven by 50Hz a.c voltage source of maximum value 100 volts. Calculate the equivalent impedance, current in the circuit, power factor and power dissipated in the circuit.	5M CO2 BL3

OR

Determine RMS value of the wave form shown in below figure
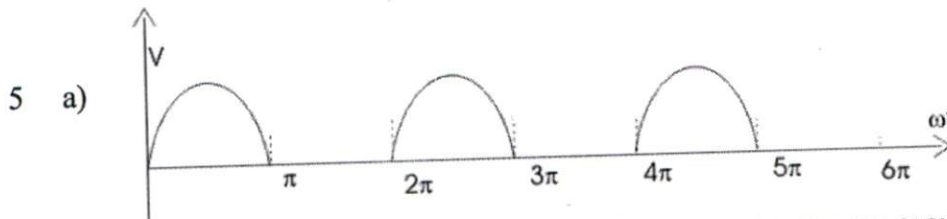
5	a)		5M CO2 BL3
	b)	The impedances of parallel circuit are $Z_1=(8+j10)$ & $Z_2=(10-j12)$.If the applied voltage is 120V, find i. Current & power of each branch. ii. Overall current & power factor of the combination	5M CO2 BL3

UNIT-III

6	a)	Explain operation of single phase ideal transformer.	10M CO2 BL2

OR

7	a)	Describe working of Auto transformer.	5M CO2 BL1
	b)	Draw the equivalent circuit of transformer and explain the significance of each term in it.	5M CO2 BL1

UNIT-IV

8	a)	Explain Construction and working of synchronous generators.	10M CO3 BL2

OR

9	a)	Describe star delta method of starting of a squirrel cage three phase induction motor.	5M CO3 BL1

b)	Discuss how to control the speed of separately excited dc motor below the rated speed.	5M	CO3	BL1

UNIT-V

10	a)	Explain working principle of MCB.	5M	CO4	BL2
	b)	What are the types of Batteries? Discuss Important Characteristics for Batteries.	5M	CO4	BL2

OR

11	a)	Explain working principle of ELCB.	5M	CO4	BL2
	b)	Describe Elementary calculations for energy consumption.	5M	CO4	BL2

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