

CRM08

Rev 1.11

<Dept>

<QP prepared Date>

**CONTINUOUS INTERNAL EVALUATION - 1/2/3**

Dept:EC	Sem / Div:I ABC	Sub:Basic Electrical Engineering	S Code:21ELE13
Date:12/01/22	Time:3:00-4:30	Max Marks: 40	Elective: N

Note: Answer any 2 full questions, choosing one full question from each part.

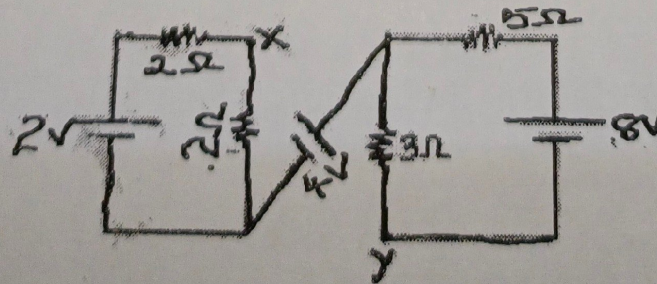
QN	Questions	Marks	RBT	CO's
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**PART A**

1	a State and explain Ohm's Law. Briefly discuss its limitations.	6	L2	CO1
	b Derive an expression for an equivalent resistance of two resistances connected in parallel. Also derive the expression for current in each branch.	7	L2	CO1
	c Two lamps rated at 40W and 80W each, are designed to work on 200V and connected in parallel. Find the current drawn from the source. If the lamps are connected in series across the same supply, what is the current drawn?	7	L3	CO1

**OR**

2	a Find the potential between XY for the network shown below	6	L3	CO1
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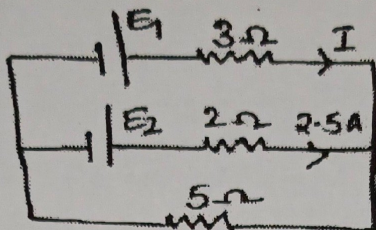


	b With a neat diagram explain the generation of sinusoidal alternating voltage.	7	L2	CO1
	c Derive the expression for current and instantaneous	7	L2	CO1

power for an A.C with pure R circuit. Derive the average power consumed and represent all the waveform.

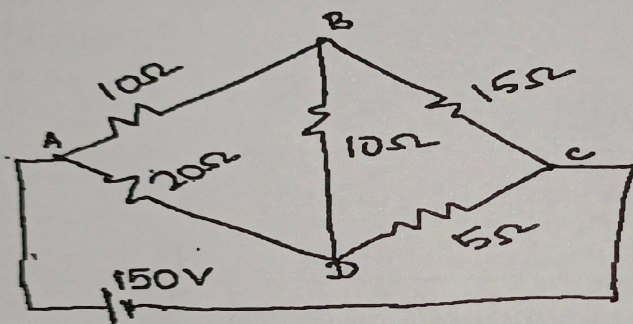
**PART B**

3 a Find  $E_1$ ,  $E_2$  and  $I$  when power dissipated in the  $5\Omega$  is  $125W$ .



7 L3 CO1

b Find the current in each branch



6 L3 CO1

c Define RMS value. Derive an expression for RMS value of sinusoidal voltage.

6 L2 CO2

**OR**

4 a The equation for an AC voltage is given as  $V=0.04\sin(2000t+60^\circ)V$ . Determine the frequency, the angular frequency, instantaneous voltage when  $t=160\mu s$ . What is the time represented by a  $60^\circ$  phase angle

6 L3 CO1

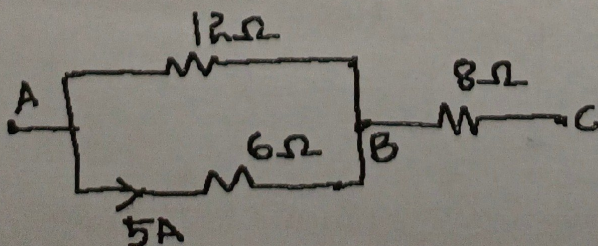
$$\theta = \omega t \Rightarrow t = \frac{\theta}{\omega} = \frac{\pi/3}{2000} = \frac{\pi}{6000} \times \frac{1}{3} \times \frac{1}{2000}$$

b Find the average value, r.m.s. value, and form factor for half wave rectified alternating current

6 L2 CO2

c Determine the i) Current through 12 and 6 resistor ii) Total power dissipated iii) Power dissipated in all resistors.

7 L3 CO2



*hant*