VIT

Vellore Institute of Technology

(Deemed to be University under section 3 of UGC Act, 1956)

SLOT: G2+TG2

SCHOOL OF ELECTRONICS ENGINEERING

B.Tech(BEC/BML/BVD), FALL Semester (2023-24), CAT-I

Course Code : BEEE102L **Duration** : 90 Minutes.

Course Name : Basic Electrical and Electronics Engineering

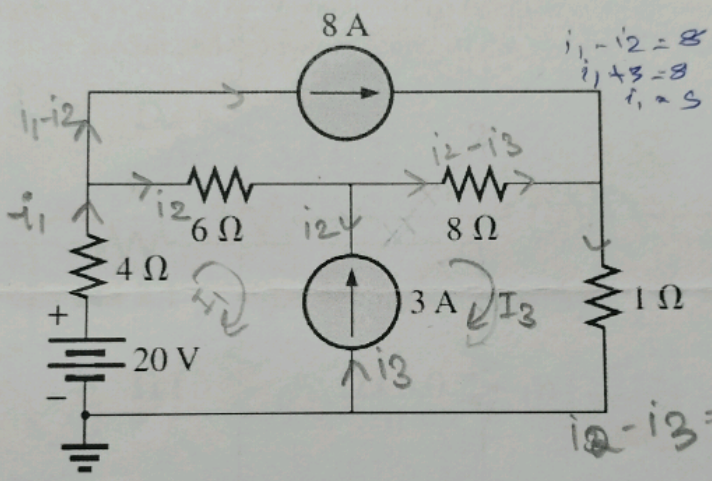
Course Mode: CBL **Max. Marks** : 50

Faculty Name: Dr. Penchalaiah Palla & Dr.Velmurugan V

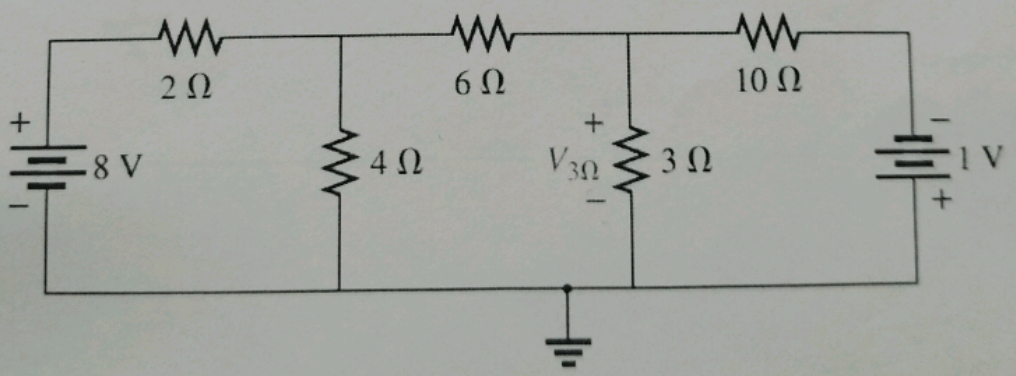
ClassNbr: VL2023240106700 & VL2023240106697

General Instructions: ***Answer all questions***

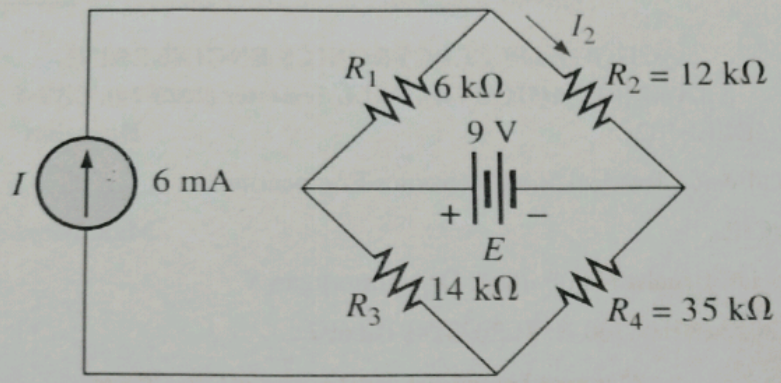
Q.No	Questions
1	Using the supermesh approach, find current through each element of the network. **[10 Marks]**



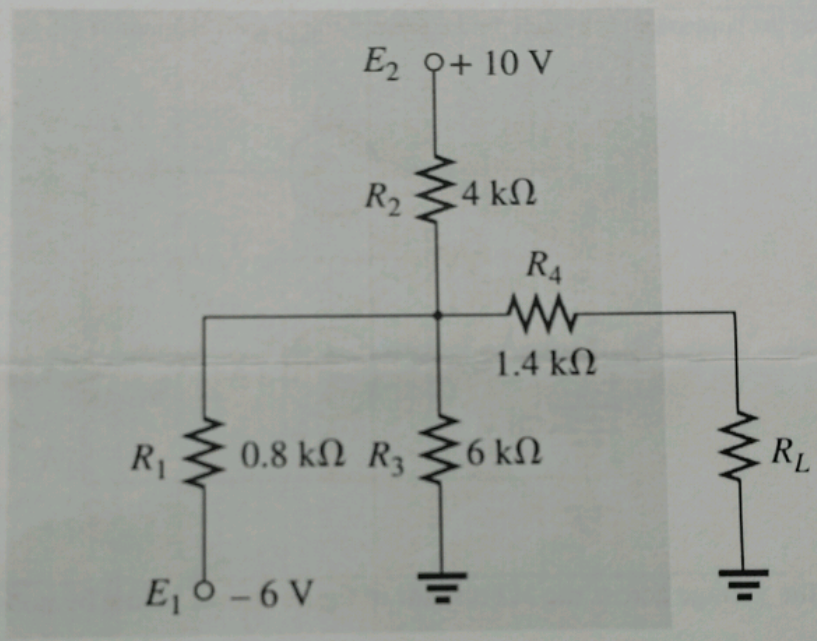
2	Find the voltage across the 3Ω resistor in figure shown below by nodal analysis **[10 Marks]**



3 (a)Using superposition theorem, determine the current through the R_2 resistor of Fig. shown below. **[5 Marks]**



(b) Find the Thevenin equivalent circuit for the shaded area. **[5 Marks]**



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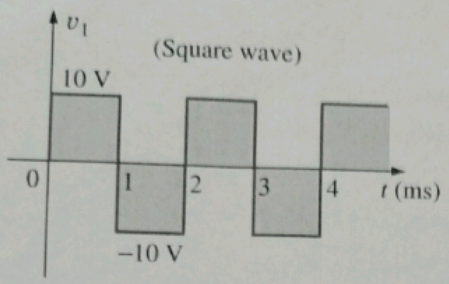
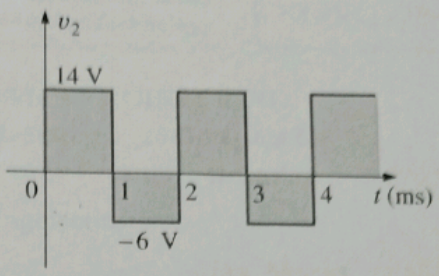
4 **(a)**Determine the average value of the wave forms shown below.**[5 Marks]**



(a)



(b)

avg $\frac{\sqrt{2}}{\sqrt{3}}$

avg = $\frac{A}{\sqrt{2}}$

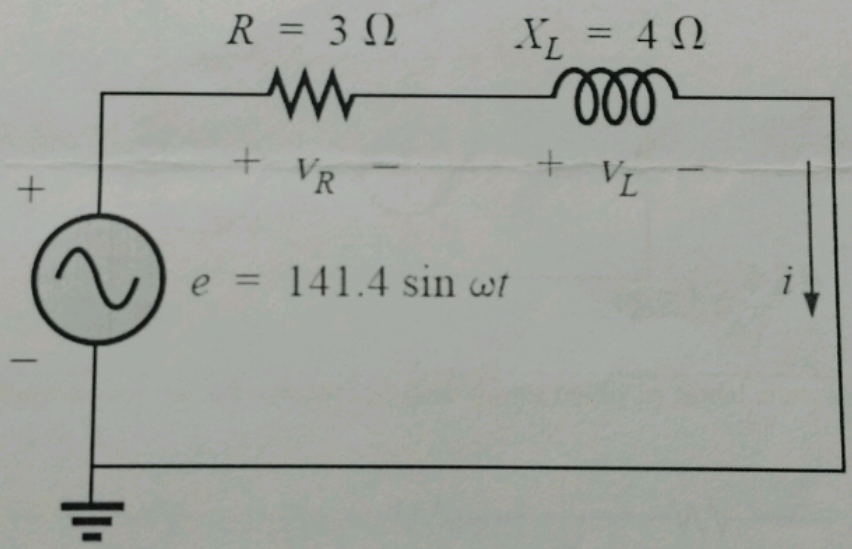
(b) Determine the average power delivered to networks having the following input voltage and current. **[5 Marks]**

$v = 100 \sin(\omega t + 40^\circ)$

$i = 20 \sin(\omega t + 70^\circ)$

$S = V \times I$

$V = 100 \angle 40$

$I = 20 \angle 70$

5 Determine the current i, v_L and v_R for the network of below shown figure. Also determine the total power delivered to the circuit and the power factor of the circuit. **[10 Marks]**