



SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

AN AUTONOMOUS INSTITUTION



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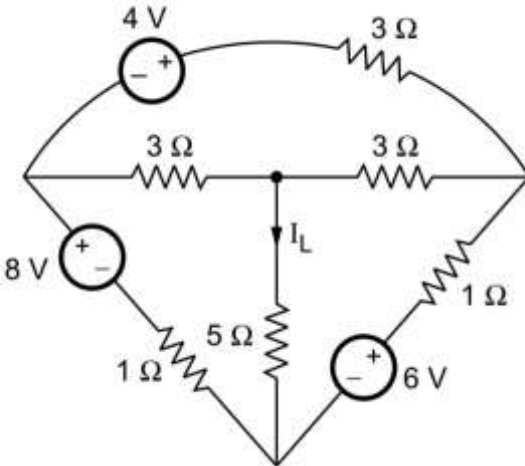
I Semester

B.E-Electrical and Electronics Engineering

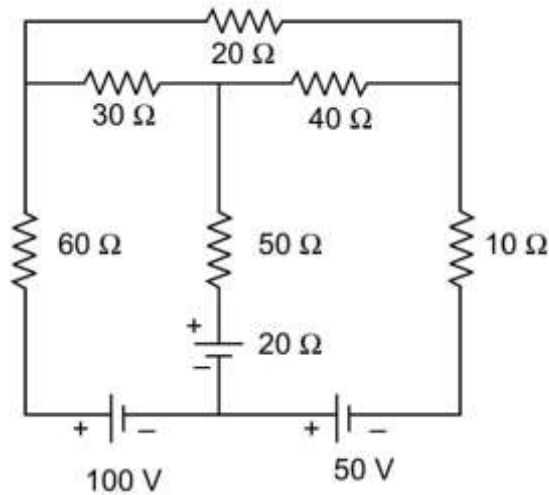
19EE201 – Circuit Theory

Regulations 2019

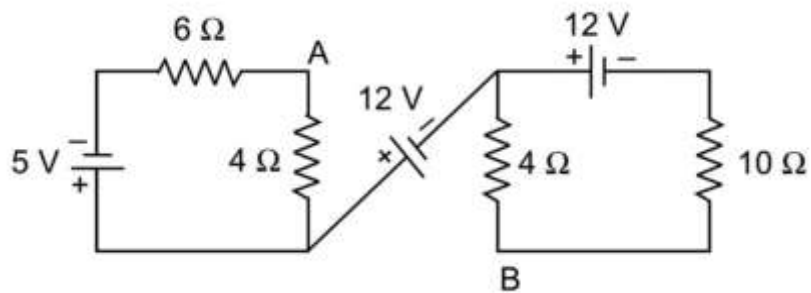
QUESTION BANK FOR IAE 1

PART A	
1	State Kirchhoff's Current law and Voltage Law.
2	Distinguish between series and parallel circuit.
3	State the limitations of ohms law.
4	Define Ohm's Law.
5	State ideal voltage source and current source.
6	A lamp can work on a 50 V main taking 2 A. What value of the resistance must be connected in series with it so that it can be operated from 200 V main giving the same power.
7	Illustrate the equivalent voltage source for a current source of 15 A when connected in parallel with 5 Ω resistance.
8	Three resistors R_{ab} , R_{bc} and R_{ca} are connected in delta. Re-write the expression for resistors in equivalent star.
9	Two resistors 4 Ω and 6 Ω are connected in parallel. If the total current is 12 A. Find the current through each resistor.
10	Draw the Delta connected equivalent circuit for the star connected circuit, whose resistance is 30 Ω , 20 Ω and 50 Ω .
11	Compare Mesh and Loop.
12	Write current division rule.
PART B	
1	Illustrate the mesh currents and also the current through 5 Ω resistance I_L in the circuit shown in fig. 

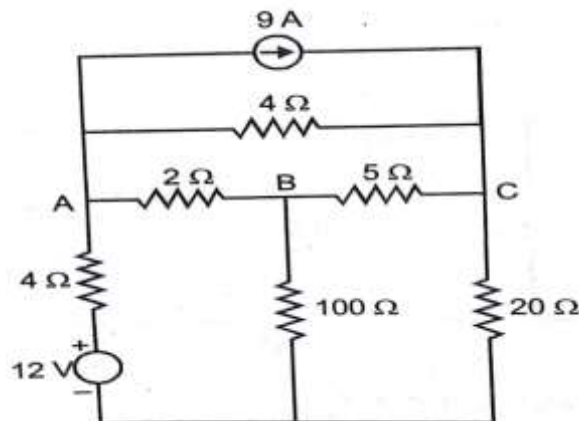
- 2 Calculate the current in the $50\ \Omega$ resistor in the network shown in fig using mesh analysis. Also determine the voltage drop across the $20\ \Omega$ resistor.



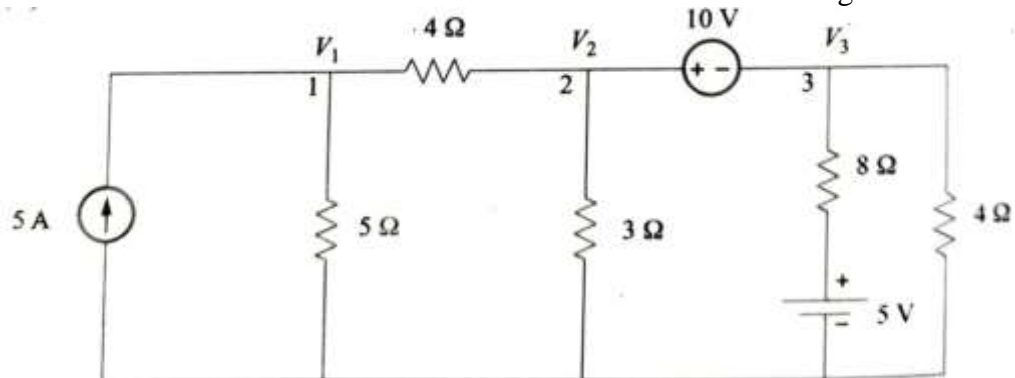
- 3 Find the voltage across A and B in the circuit shown in fig.



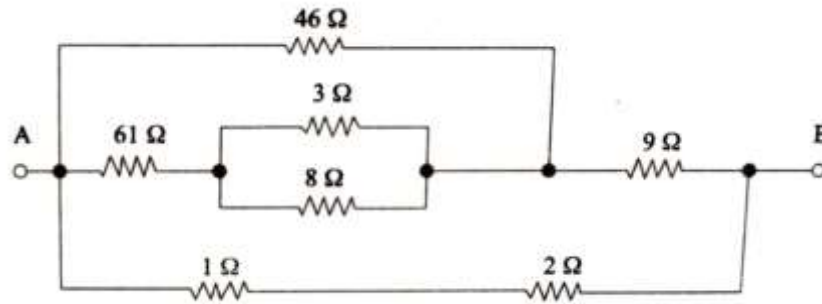
- 4 Use nodal analysis to determine the voltage across $5\ \Omega$ resistance and the current in the $12\ \text{V}$ source.



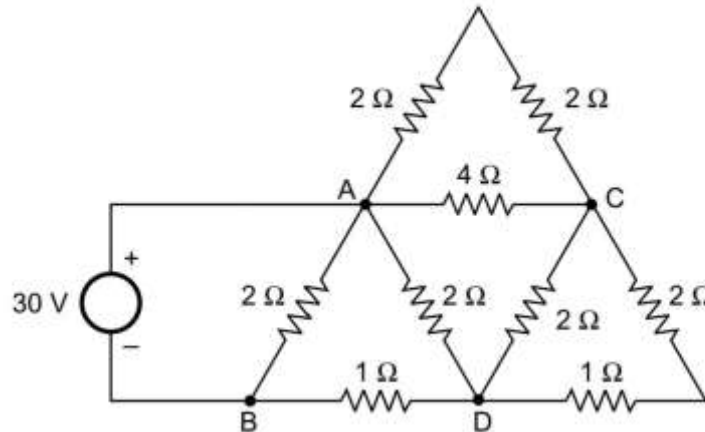
- 5 Determine the current in the $8\ \Omega$ resistor for the circuit shown in fig.



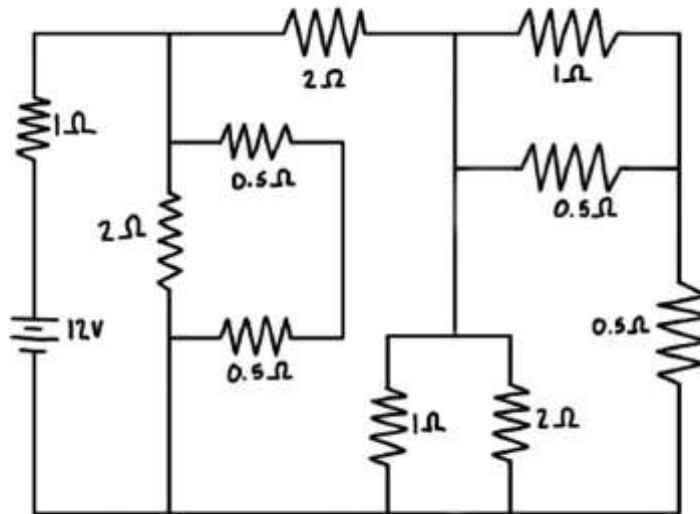
- 6 Determine the amount of total resistance between points A and B of the circuit shown in fig.



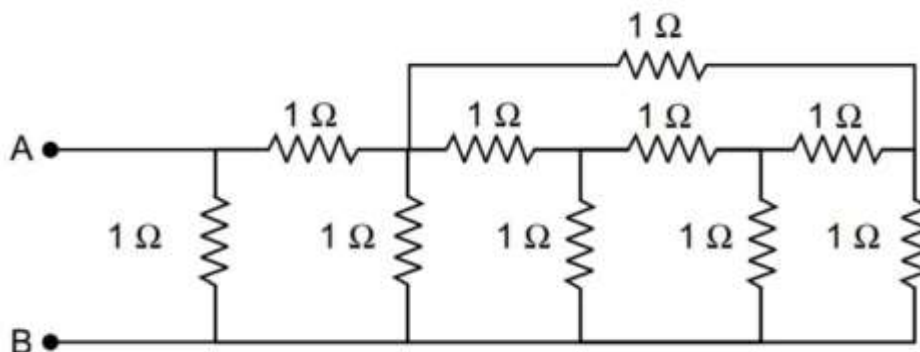
- 7 Determine the current delivered by the source in the circuit shown below



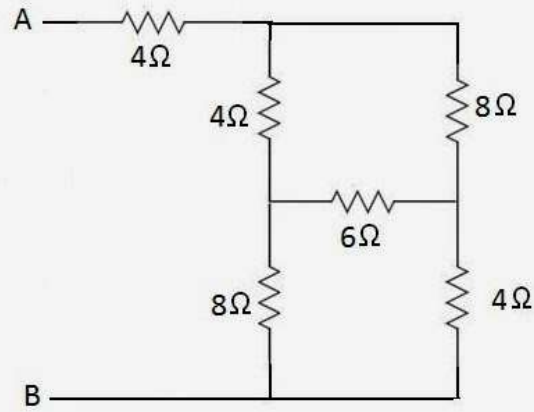
- 8 Find the current delivered by the source for the network shown in fig. using network reduction techniques,



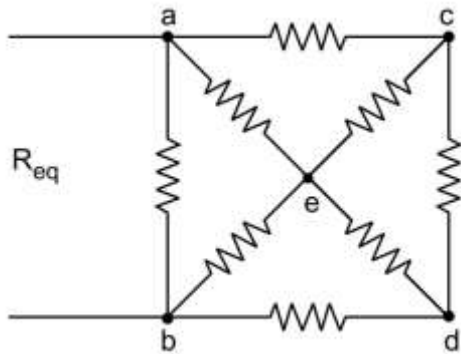
- 9 Using Star – Delta Conversion, find the equivalent resistance between the terminals A and B of circuit shown in fig.



10 Using Star – Delta Conversion, find the equivalent resistance between A & B.



11 Using Star – Delta Conversion, Calculate the resistance R_{ab} when all the resistance values are equal to $1\ \Omega$ for the circuit shown in fig.



12 Using Star – Delta transformation, obtain the voltage to be applied across AB in order to drive a current of 5 A into the circuit.

