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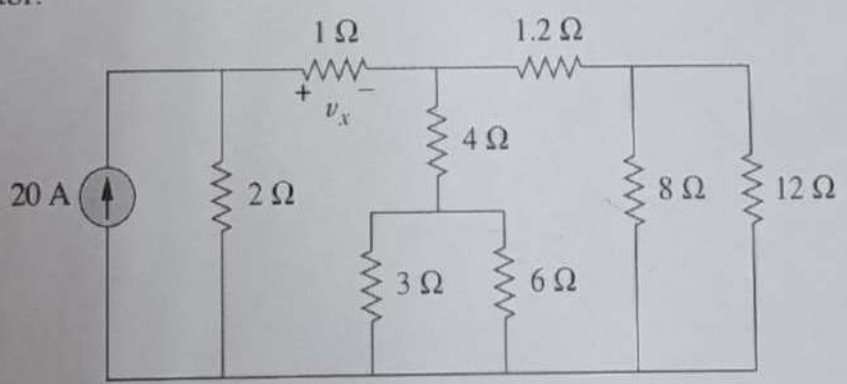
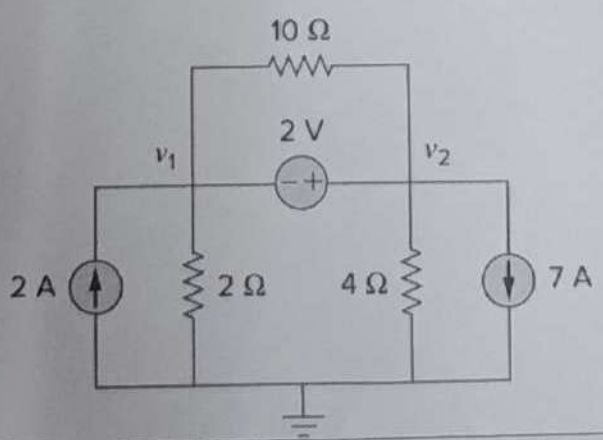
Daffodil International University

Faculty of Science & Information Technology
Department of Computer Science & Engineering
Midterm Examination, Fall 2025
Course Code: CSE 121 , Course Title: Electrical Circuits
Level:1 Term:3 Batch: 68

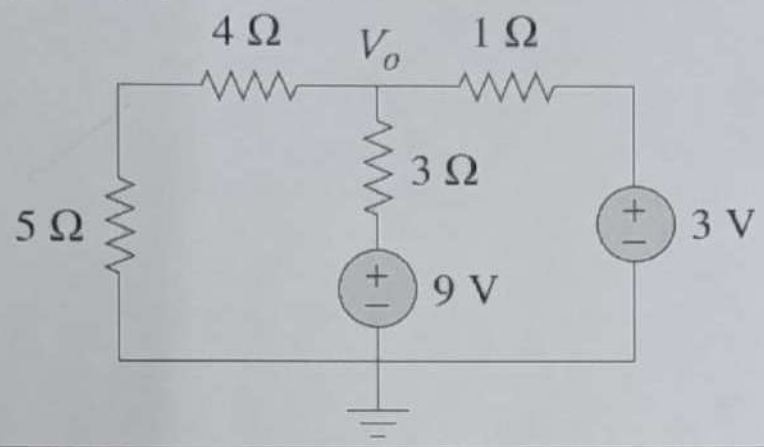
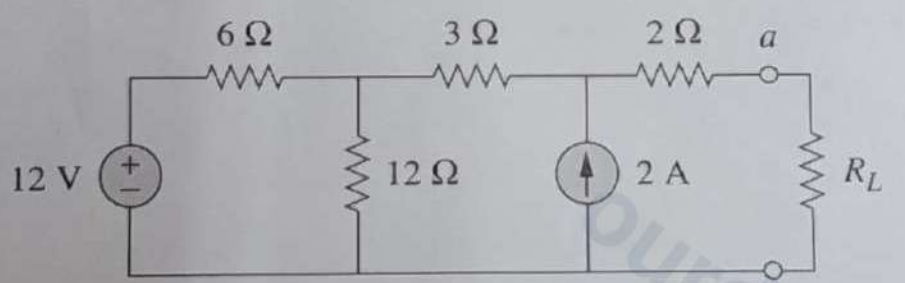
Time: 01:30 Hrs **Marks: 25**

Answer ALL Questions [Optional]

[The figures in the right margin indicate the full marks and corresponding course outcomes. All portions of each question must be answered sequentially.]

1.	*a)*	**What** is node and branch?	5×1=5	CO1
	b)	If the length of a conductor is doubled and its radius is reduced to half of its original value, **what** will be its new resistance?		
	c)	**Define** open and short circuit.		
	d)	**How** does temperature affect conductors and semiconductors?		
	e)	**Explain** the concept of a supernode in circuit analysis.		
2.	*a)*	**Solve** the following circuit to determine v_x and the power absorbed by the 2Ω resistor. 	5	CO2
	b)	**Solve** the following circuit using nodal analysis to identify node voltages. 	5	

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3.	*a)*	**Examine** the following circuit to determine the current through the 3 Ω resistor using the superposition theorem. 	5	CO3
	b)	**Analyze** the following circuits to- i) Determine the Thevenin equivalent resistance at terminals a-b. ii) Find R_L for maximum power deliverable to R_L. iii) Determine that maximum power. 	5	