



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

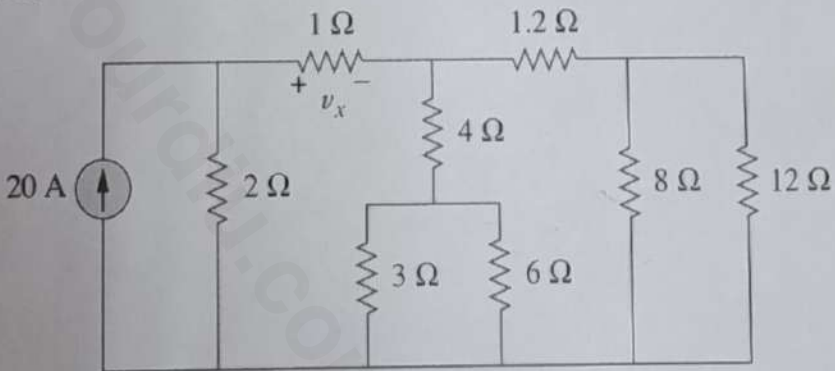
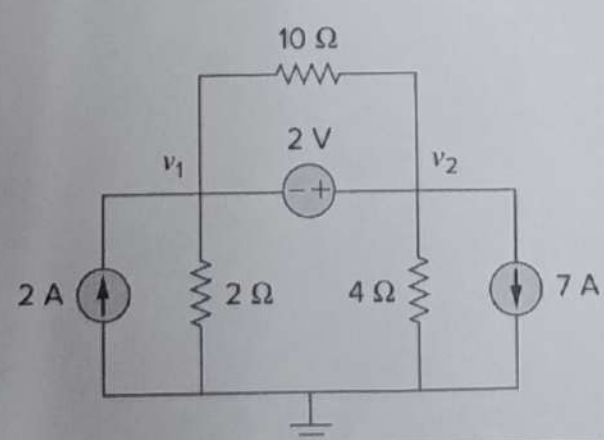
Level:1 Term:3 Batch: 68

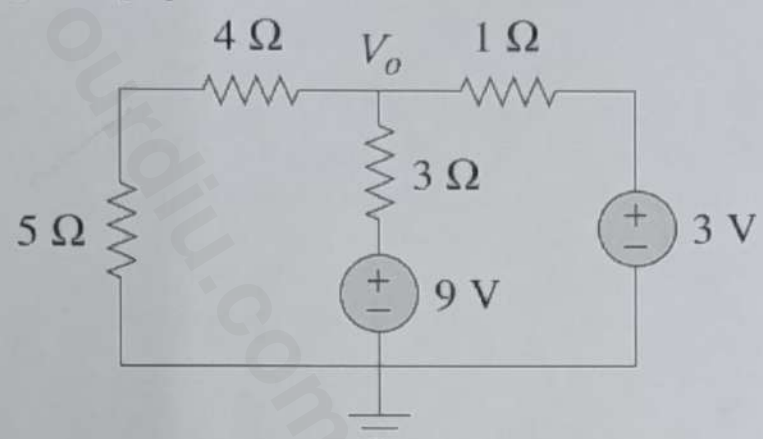
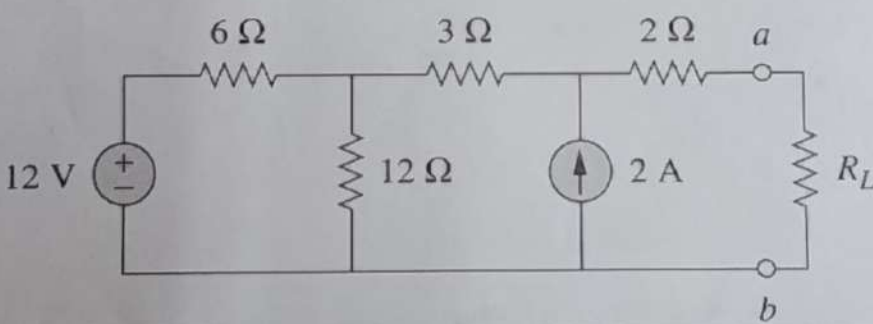
Time: 01:30 Hrs

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. 		

3. a)	Examine the following circuit to determine the current through the $3\ \Omega$ resistor using the superposition theorem. 	5	CO3
b)	Analyze the following circuits to- - Determine the Thevenin equivalent resistance at terminals a-b. - Find R_L for maximum power deliverable to R_L. <i>22V, 13.44W</i> - Determine that maximum power. 	5	