



Daffodil International University

Faculty of Science & Information Technology

Department of Computer Science & Engineering

Midterm Examination, Spring 2026

Course Code: CSE121

Course Title: Electrical Circuits

Level:1

Term:3

Batch: 69

Time: 01:30 Hrs.

Marks: 25

Answer ALL Questions

[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)	Define the Maximum Power Transfer Theorem.	[1]	CO1
	b)	Explain the concept of a super node in circuit analysis.	[1]	
	c)	State the Power Conservation Theorem in DC circuits.	[1]	
	d)	Interpret the physical meaning of a short circuit and open circuit in an electrical network.	[1]	
	e)	Illustrate the Norton equivalent circuit.	[1]	
2.	a)	Solve for the value of equivalent resistance, R_{eq} and current, i_o in the circuit in Fig. 2(a).	[5]	CO2
	b)	Apply source transformation to find V_x in the circuit of Fig. 2(b).	[5]	

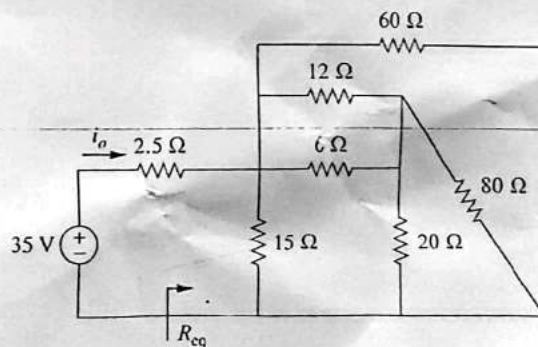


Fig. 2(a)

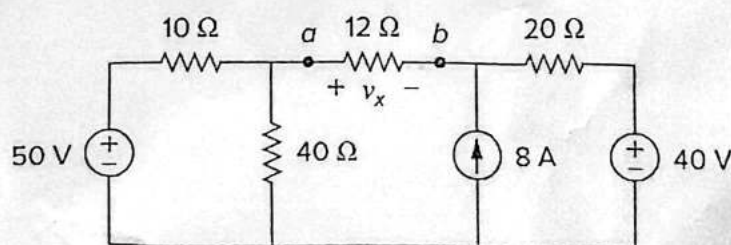


Fig. 2(b)

3. a) Using Mesh analysis, Examine voltage across $4\ \Omega$ resistor in the circuit of Fig. 3(b)

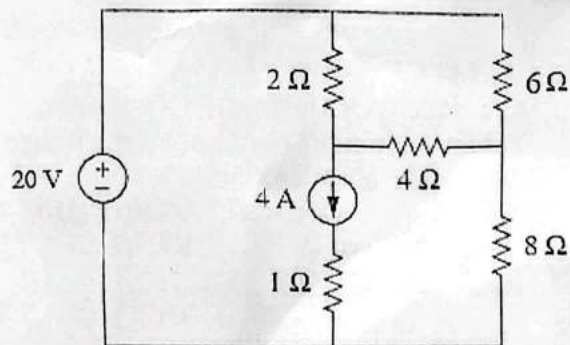


Fig.3(b)

[5]

- b) Analyze the following circuits to-

- Determine the Thevenin equivalent at terminals a-b.
- Find R_L for maximum power deliverable to R_L .
- Determine that maximum power.

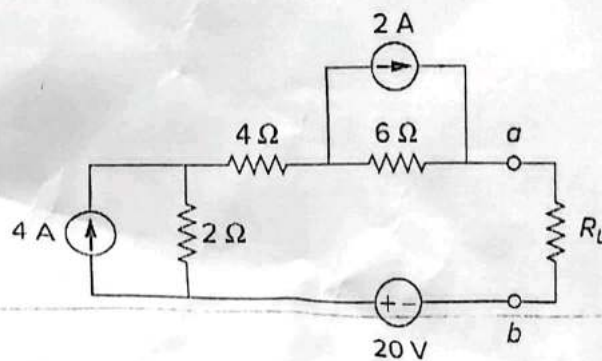


Fig. 3(c)

[5]

CO3

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~~2/1/22~~