Daffodil International University

Faculty of Science & Information Technology
Department of Computer Science and Engineering
Midterm Examination, Fall-2024
Course Code: CSE121, Course Title: Electrical Circuits
Level: 1   Term: 2   Batch: 66

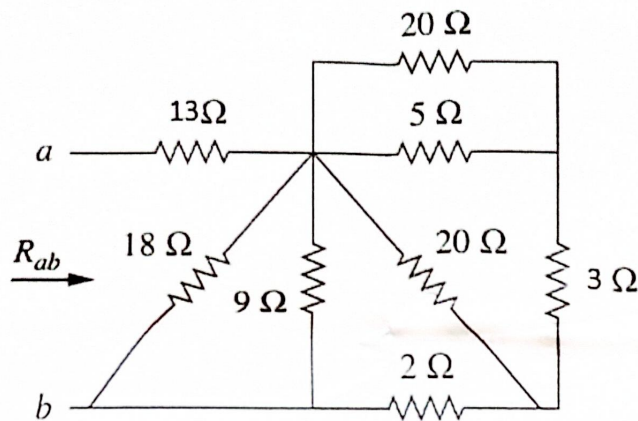Time: 1 Hour and 30 Minutes   Marks: 25

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 term 'Branch' in an electric circuit.	5×1=5	CO1
	b)	**List** the factors that affect the resistance of a conductor.		
	c)	**Illustrate** the Thevenin equivalent circuit.		
	d)	**Recall** Kirchhoff's Voltage Law.		
	e)	**Show** the 'Node and Loop' in an electric circuit.		
2.	a)	**Solve** the following circuit to determine	2×5=10	CO2
		a. The total resistance R_T.		
		b. The source current I_s and indicate its direction on the circuit.		
		c. The voltage across resistor R_2.		

$$- \; V_2 \; +$$

$R_1 = 7\,\Omega$ $R_2 = 4\,\Omega$

$E = 60\,V$ $R_3 = 5\Omega$

R_4

$4.5\,\Omega$

b) **Solve** the following circuit to determine the total resistance R_{ab}.
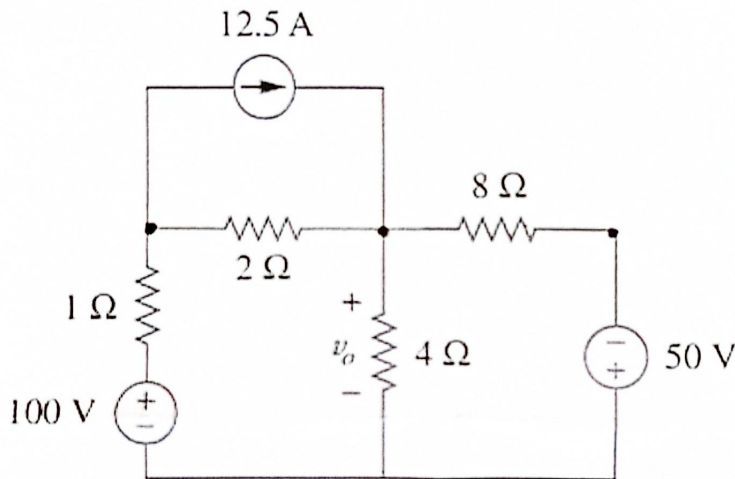
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3/ **a)** **Analyze** the following circuit to determine the voltage V_0 using nodal analysis. | **2×5=10** | **CO3**

35

b) **Examine** the following circuit to obtain the Thevenin equivalent at terminals a-b using the Thevenin theorem.