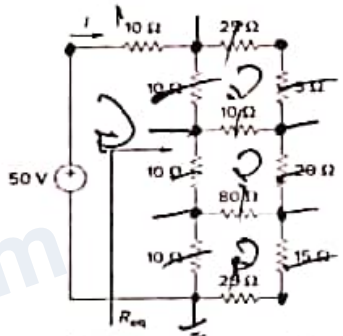
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Daffodil International University
Faculty of Science & Information Technology
Department of Computing and Information System
Final Examination, Fall-2024
Course Code: IoT325, Course Title: Electronic Devices and Circuits
Level: 3 Term: 1

Exam Duration: 2 Hours Marks: 40

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)	As a student of CIS, why do you study Electronic Devices and Circuits (EDC)? Give a proper explanation.	[3]	CO1 L-1,2 & 5
	(b)	What are the differences between **Active** and **Passive** components in electrical circuits? Briefly explain.	[3]	
	(c)	How many branches, nodes, junctions, and meshes are there in the circuit shown in **Figure 01?**  **Figure 01: Combination Circuit**	[4]	10
2.	(a)	Mr. Habib, a student of the CIS department, lives in Mirpur 11, Dhaka, with his family. He noticed that in their house, 3 bulbs of 30 watts each are used for 5 hours per day, a fridge of 300 watts runs for 24 hours per day, 4 tube lights of 50 watts each are used for 8 hours per day, and a washing machine of 400 watts is used for 90 minutes per day. **Calculate the electric bill for the month of 31 days using the following residential rate schedule:** ➢ First 50 kWh per month at 16 Tk/kWh. ➢ Next 100 kWh per month at 10 Tk/kWh. ➢ Over 150 kWh per month at 6 Tk/kWh.	[5]	CO2 L-1, 2&3

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	(b)	State the Ohm's Law. Compare Thevenin's Theorem with Norton's Theorem in the context of electrical circuit.	[5]	
3.	(a)	Determine the resistance between the terminals A and B of the network.	[5]	CO3 L-2&4

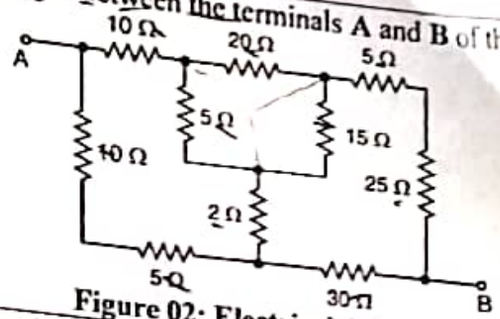


Figure 02: Electrical Circuit

	(b)	Find R_{ab} for the circuit in **Figure 03**.	[5]	

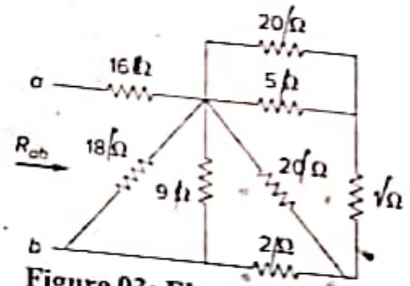


Figure 03: Electrical Circuit

	(c)	Find v and i in the circuit of **Figure 04**.	[5]	

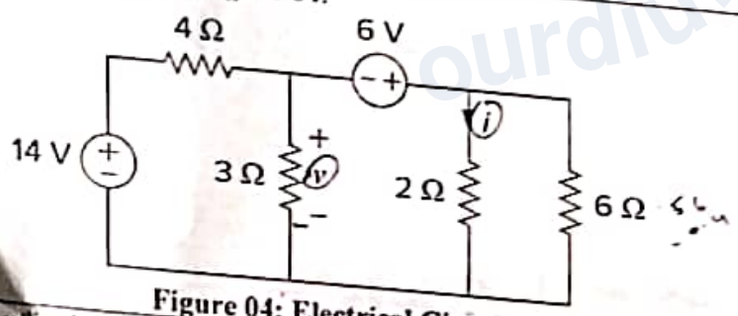


Figure 04: Electrical Circuit

	(d)	Find v_1 and v_2 in the circuit shown in **Figure 05**. Also calculate i_1 and i_2 and the power dissipated in the 12-Ω and 40-Ω resistors.	[5]	

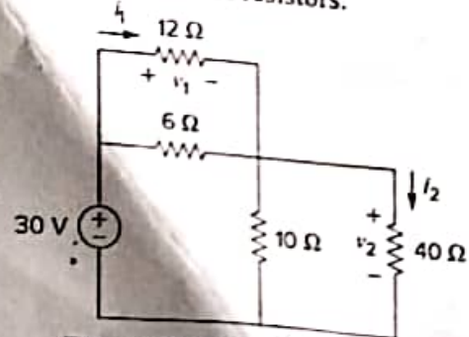


Figure 05: Electrical Circuit