



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
	(b)	What are the differences between Active and Passive components in electrical circuits? Briefly explain.	[3]	L-1,2 & 5
	(c)	How many branches, nodes, junctions, and meshes are there in the circuit shown in Figure 01?	[4]	

Figure 01: Combination Circuit

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
----	-----	---	-----	-----

- (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.

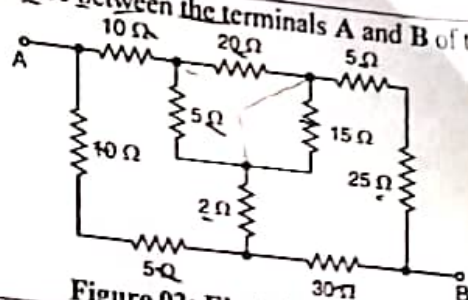


Figure 02: Electrical Circuit

- (b) Find R_{ab} for the circuit in Figure 03.

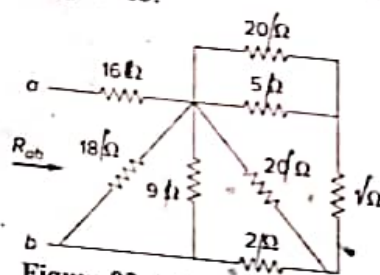


Figure 03: Electrical Circuit

- (c) Find v and i in the circuit of Figure 04.

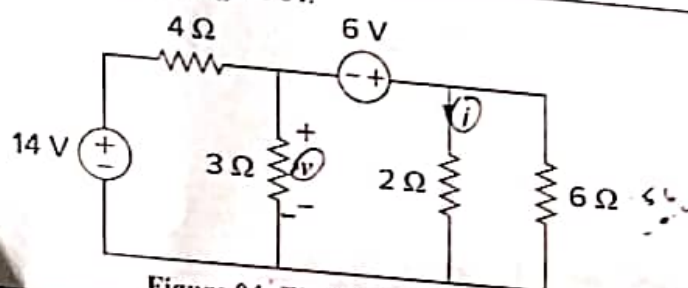


Figure 04: Electrical Circuit

- (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.

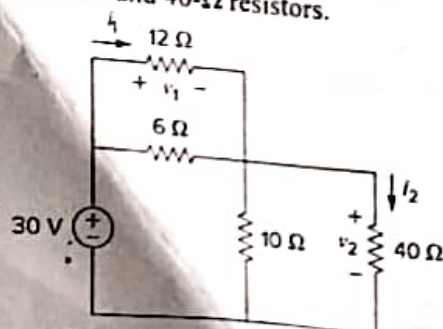


Figure 05: Electrical Circuit