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Daffodil International University

Department of Electrical and Electronic Engineering

Faculty of Engineering

Mid-Term Examination, Fall – 2026

Course Code: 0713-111 Course Title: Electrical Circuits I
Section: A, B, C, D, R Level-Term: L1-T1 Teacher's Initial: MRK, FHT, GJF
Full Marks: 25 Exam Date: November 4, 2026 Time: 1.5 Hours

[Answer all questions. Figures in the right margin indicates full marks.]

Q1. (a) **State** KCL and KVL with an example. CO1 C(1) 2

(a) A homeowner consumes **800 kWh** in the month September. **Determine** the electricity bill for the month using the following residential rate schedule: CO1 C(2) 3

Base monthly charge of **35.00 Tk.**
First 200 kWh per month at **3.19** Tk/kWh.
Next 400 kWh per month at **5.22** Tk/kWh.
Over 600 kWh per month at **8.88** Tk/kWh.

Find out the total electricity bill for the month September and also **calculate** the average cost per kWh.

Q2. For the circuit in Fig. 1, **determine** i_1 to i_5, the voltage drop across each resistor, and the total power dissipated by the circuit. CO1 C(2) 5

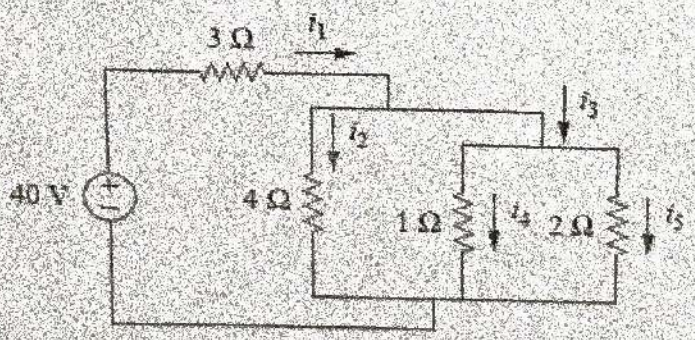


Fig.1

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Q3. **Obtain** the equivalent resistance for the circuit in Fig. 2 and use it to **find** current i. CO1 C(2) 5

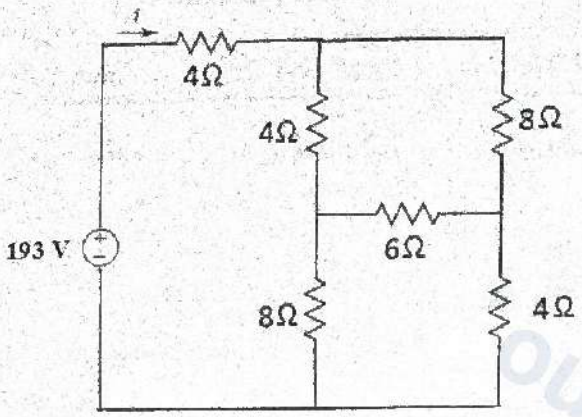


Fig. 2

Q4. **Using** nodal analysis, **find** node voltages in the circuit shown of following **Fig.3.** CO2 C(3) 5

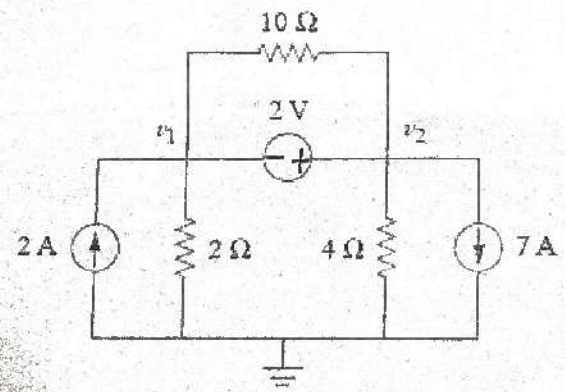


Fig. 3

Q5. Use mesh analysis to **find** V_{ab} and i_o in the circuit of **Fig.4.** CO2 C(3) 5

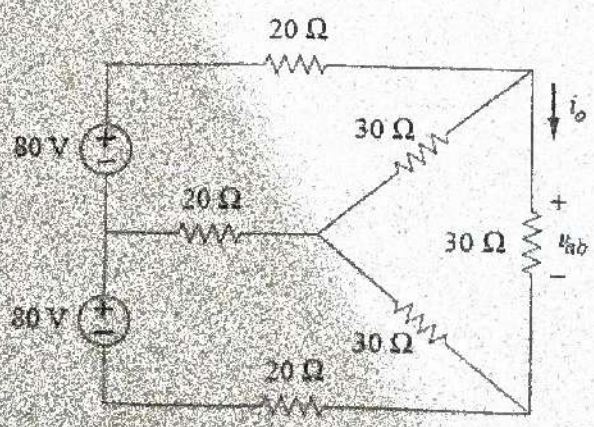


Fig. 4