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Daffodil International University
Department of Electrical and Electronic Engineering
Faculty of Engineering

Midterm Examination, Fall-2026

Course Code: 0713-121 | Course Title: Electrical Circuits II
Section: A, B, C, D, E, F | Level-Term: L1-T2 | Teacher's Initial: MSA, KNA, MW
Full Marks: 25 | Exam Date: 28 October, 2026 | Time: 1.5 Hours

Answer ANY TWO from Questions 1 – 3, and ANY THREE from Questions 4 – 7.

Q1. In a series R-L-C circuit, $R = 100\ \Omega$, L = 67 mH and C = 33 μF. If the supply voltage is, $v(t) = 120\sin(377t)$ V, **compute** – CO-1 C(3)

(a) Real and Reactive power of the circuit. 3

(b) The expression of instantaneous power of the circuit. 2

Q2. The voltage source $v(t)$ of **Fig. 2(b)** has the waveform shown in **Fig. 2(a)**. CO-1 C(3)

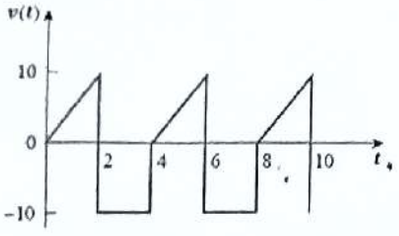


Fig. 2(a)

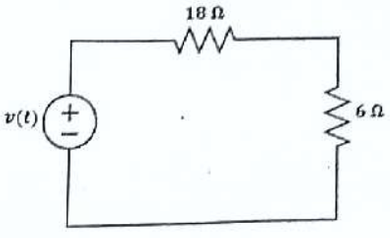


Fig. 2(b)

(a) Determine the RMS value of voltage $v(t)$. 3

(b) Calculate the average power absorbed by the 6 Ω resistor. 2

Q3. **Calculate** I, I_1, I_2 in the circuit **of Fig. 3.** Also **determine** the power factor, real and reactive power supplied by the source. Consider f = 50 Hz. CO-1 C(3) 5

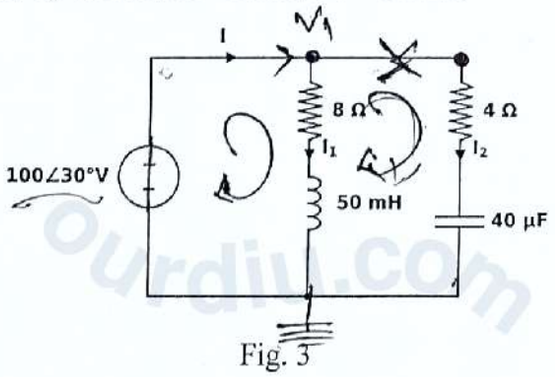


Fig. 3

Q4. **Determine** the value of v_o, and i_o in the circuit of **Fig. 4**. CO-2 C(3) 5

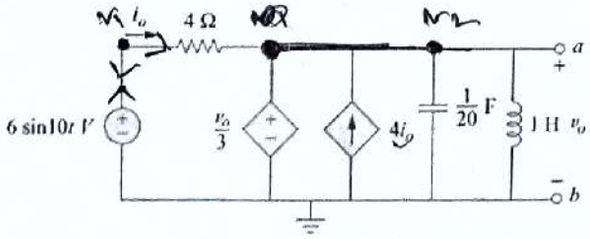


Fig. 4

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Q5. **(a)** For the following circuit, **find V_o**, if $I_o = 0$. CO-2 C(3) 2

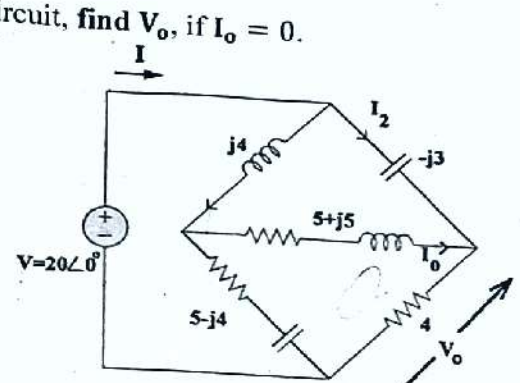


Fig. 5(a)

(b) For the following circuit:

(i) **Calculate V_1** using voltage divider rule, and

(ii) **Calculate I_o** using current divider rule. 1+2

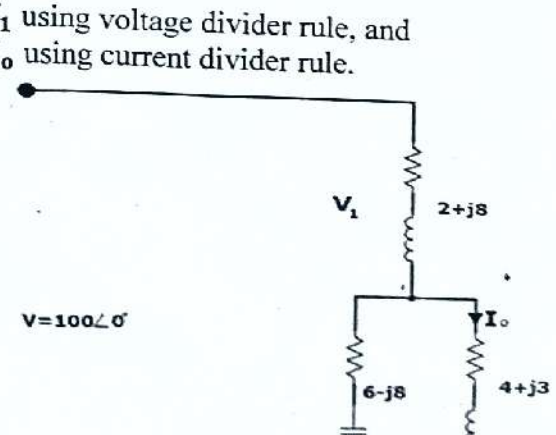


Fig. 5(b)

Q6. **Find** the Thevenin equivalent of the circuit in **Fig. 6** as seen from terminals a-b. CO-2 C(3) 5

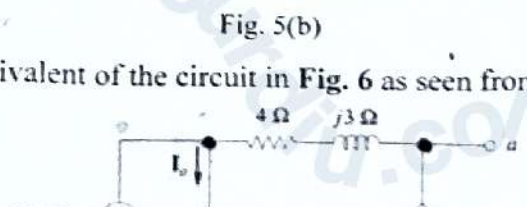


Fig. 6

Q7. **Determine i_o** in the circuit of **Fig. 7** using appropriate method of analysis. CO-2 C(3) 5

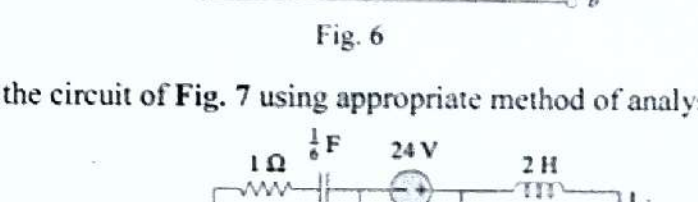


Fig. 7