



Daffodil International University
Department of Electrical and Electronic Engineering
Faculty of Engineering
Midterm Examination, Spring-2026

Course Code: 0713-121
Section: A,B,C,D,E,F,G
Full Marks: 25

Course Title: Electrical Circuits II
Level-Term: L1-T2
Exam Date: February 22, 2026

Teacher's Initial: MSA,KMT,KNA
Time: 1.5 Hours

Question no. 1 is Compulsory. Answer ANY FOUR from the remaining Questions.

- Q1. **Derive** the relationship between load impedance and thevenin equivalent impedance for maximum average power transfer through a load impedance Z_L in Fig. 1. CO-1 5
C(2)

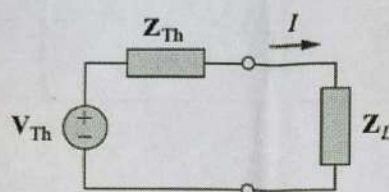


Fig. 1

- Q2. A current source $i(t)$ has the waveform shown in Fig. 2. CO-1 3
C(3)

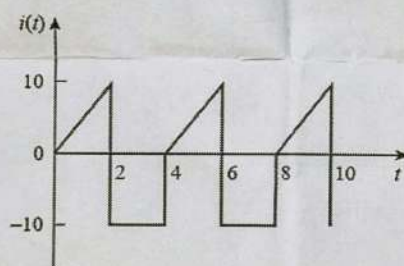


Fig. 2

- (a) **Determine** the RMS value of current source $i(t)$.
(b) **Calculate** the average value of the current source $i(t)$. 2
- Q3. (a) **Apply** an appropriate circuit analysis technique and find the value of i_o in Fig. 3. CO-2 5
C(3)

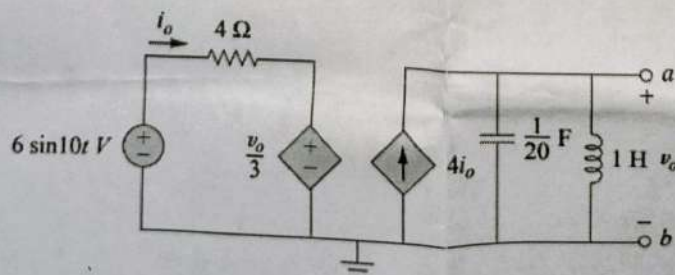


Fig. 3

- Q4. In an R-L-C series circuit, $R = 100 \Omega$, $L = 67 \text{ mH}$ and $C = 33 \mu\text{F}$. If the supply voltage, $v(t) = 35 \sin(150t) \text{ V}$, **compute**
- (a) Real and Reactive power of the circuit.
- (b) The expression of instantaneous power of the circuit.

CO-1 3
C(3)

- Q5. **Find** the equivalent impedance of the following circuit, when $\omega = 10^3 \text{ rad/s}$ in the Fig 5.

CO-1 5
C(3)

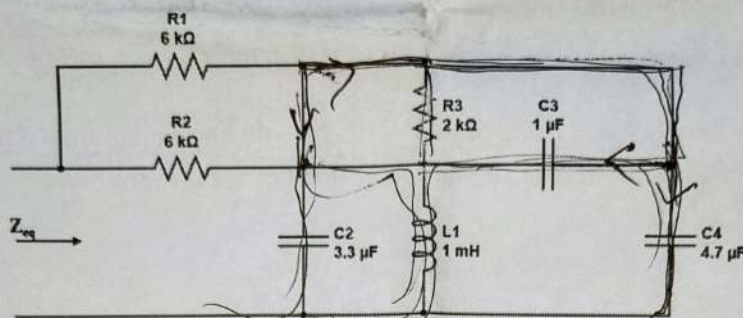


Fig. 5

- Q6. **Determine** the Thevenin equivalent of the circuit seen from terminal a-b in the Fig 6.

CO-2 5
C(3)

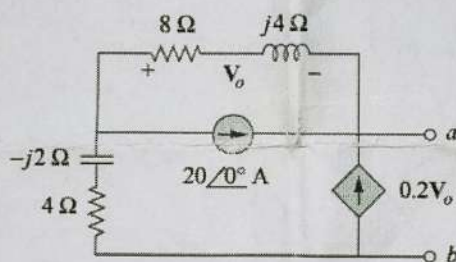


Fig. 6

- Q7. Given the parallel circuit shown in Fig. 7, **calculate** I , I_1 , I_2 . Also **determine** the power factor and complex power supplied by the source. Consider $f = 50 \text{ Hz}$.

CO-1 5
C(3)

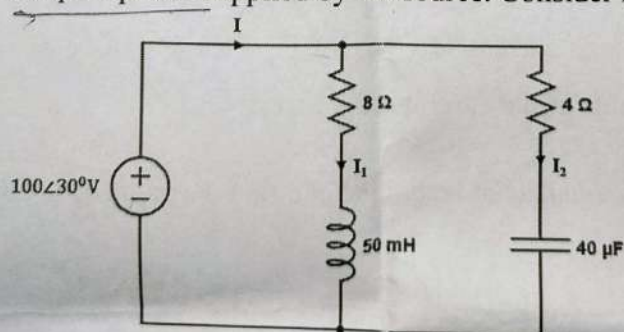


Fig. 7