United International University
Department of Computer Science and Engineering

EEE 2113: Electrical Circuit

Final Exam: Summer 2022 Time: 2 hours Marks: 40

There are five questions here. Answer all of them

1. (a) Find the Thevenin equivalent of the following circuit at terminals $a - b$. [6]

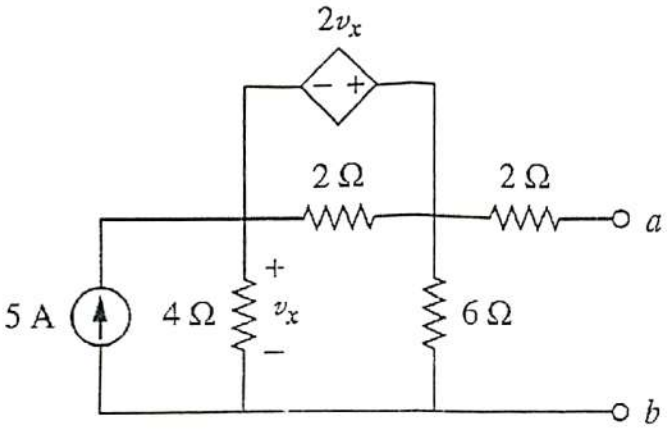

Figure 1: Circuit diagram for Q-1

(b) Find the value of R_L for the maximum power transfer. Also calculate the amount of maximum absorbed power. [2]

2. For the following circuit, determine I_0 using source transformation theorem. [8]

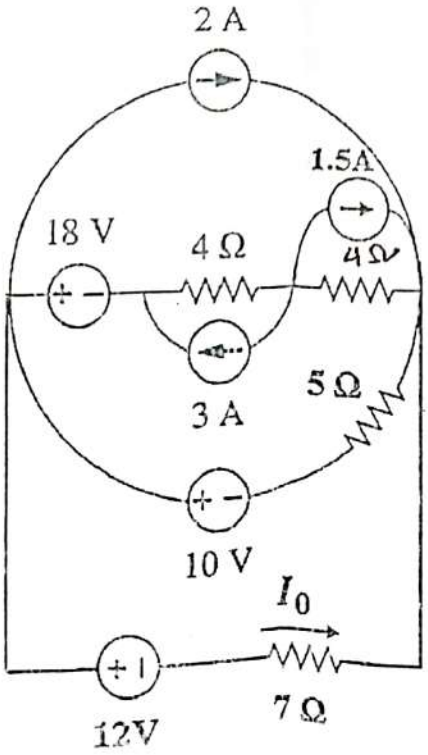

Figure 2: Circuit diagram for Q-2

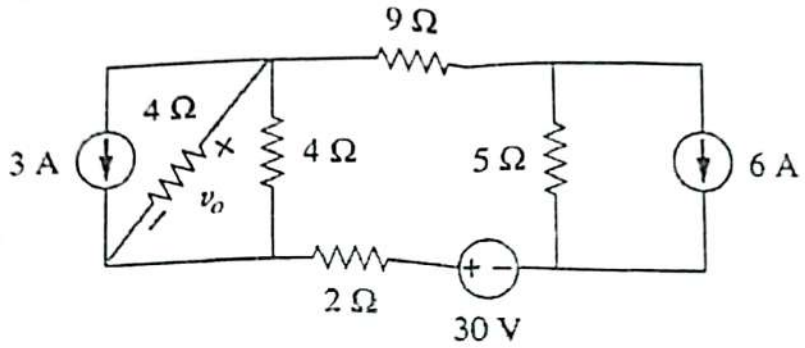

Figure 3: Circuit diagram for Q-3

3. For the circuit shown in Figure 3, determine v_o using superposition theorem. [8]

4. (a) If the RMS value of the signal shown in Figure 4 is $3.651V$, then find V_m. [6]
   (b) Also find the average power absorbed by a 2 Ω resistor when $v(t)$ is applied across it. [2]

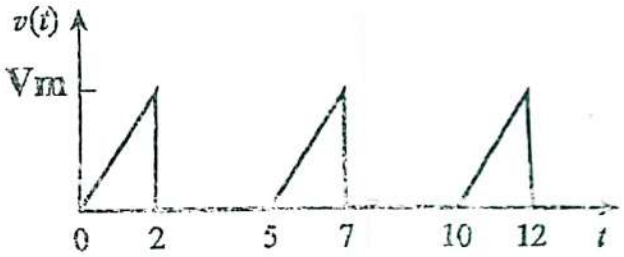

Figure 4: Circuit diagram for Q-4

5. (a) Find equivalent impedance at terminals $a - b$. [4]
   (b) Find $i_1(t)$ and $i_2(t)$. Also mention which one is leading or lagging. [4]

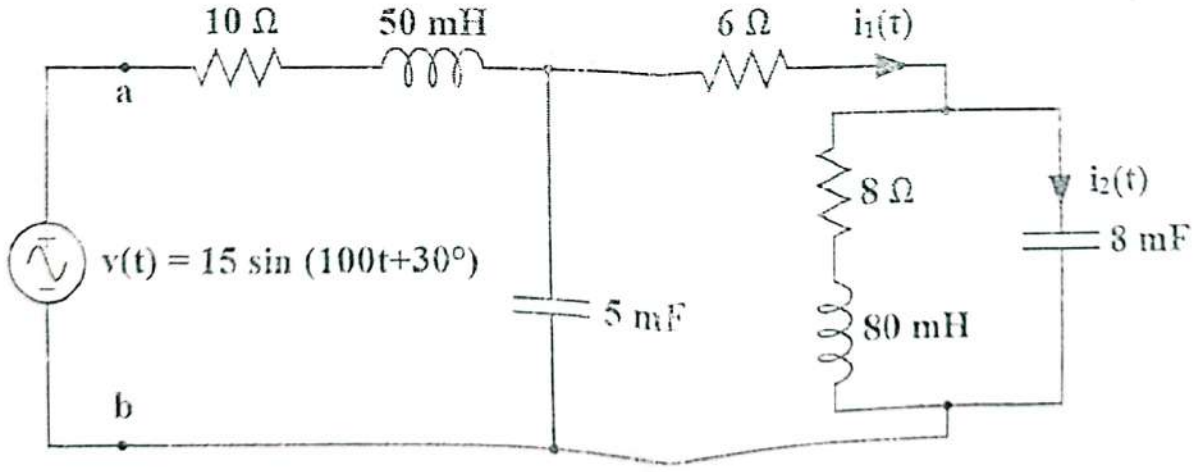

Figure 5: Circuit diagram for Q-5