



United International University  
Department of Computer Science and Engineering

EEE 2113: Electrical Circuit

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

$V_2 I_2$   
 $R_2 \frac{V_2}{I_2}$

There are five questions here. Answer all of them

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

[6]

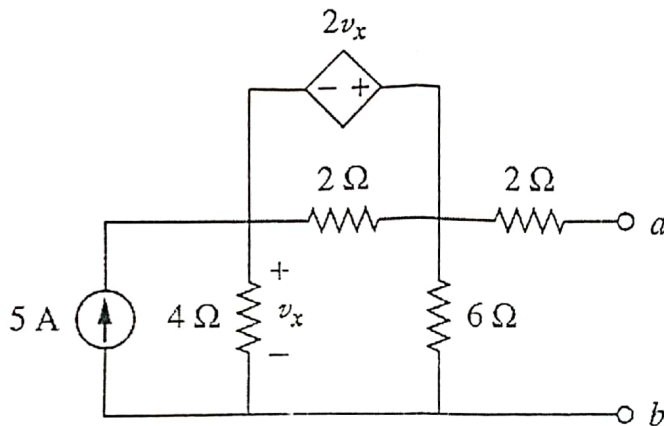


Figure 1: Circuit diagram for Q-1

- (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]

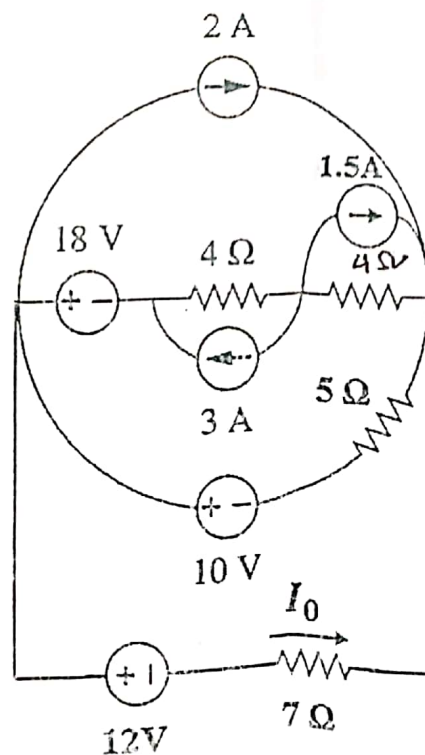


Figure 2: Circuit diagram for Q-2

$-20 + 4i_2$

$20$

$i_2 - i_3 - 4i_2 = 20$

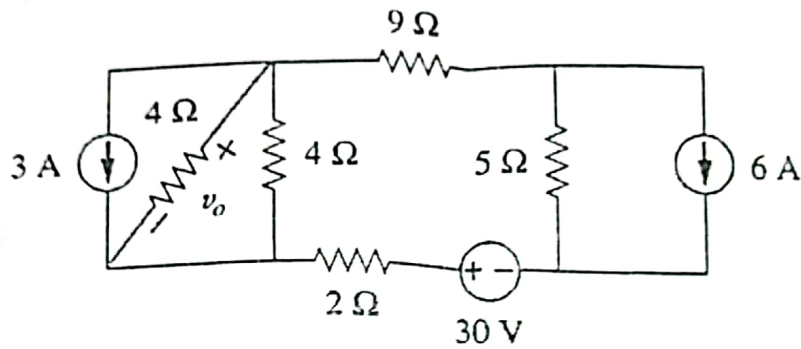


Figure 3: Circuit diagram for Q-3

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  $2\ \Omega$  resistor when  $v(t)$  is applied across it. [2]

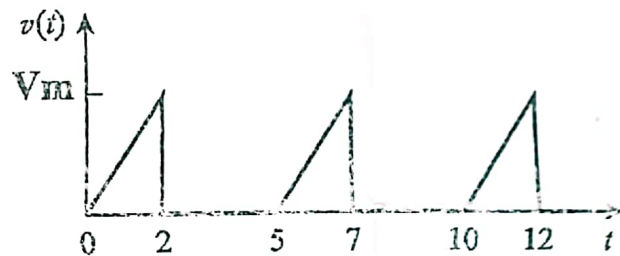


Figure 4: Circuit diagram for Q-4

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]

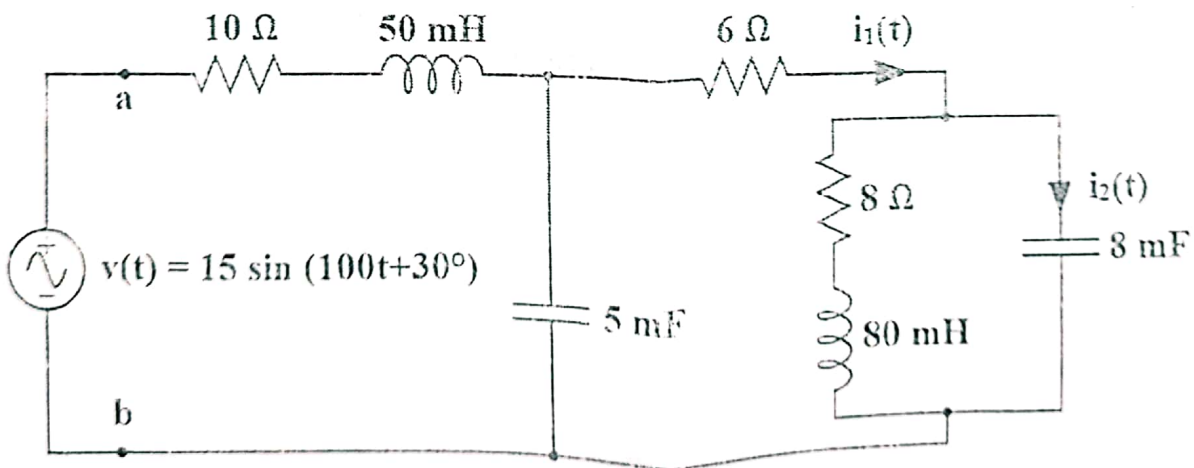


Figure 5: Circuit diagram for Q-5