United International University (UIU)
Dept. of Computer Science & Engineering (CSE)
MID Exam, Trimester: Spring 2025

Course Code: CSE 113/EEE 2113; **Course Title:** Electrical Circuits

Total Marks: 30; **Duration:** 1 hour 30 minutes

Any examinee found adopting unfair means would be expelled from the trimester/ program as per UIU disciplinary rules.

Question 1: Answer all the questions. (8 Marks)

The current shown in **Figure 1** is flowing through a 10 ohm resistor; determine the following: [4+4] CO1

i) **Sketch** the power vs time graph for this resistor.

ii) **Sketch** the graph of charge flowing through this resistor vs time from 0s to 8s.

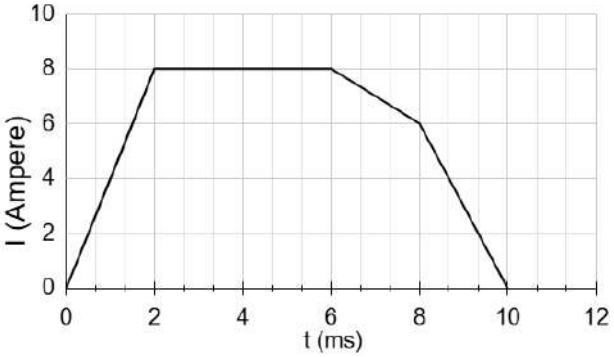

Figure 1

Question 2: Answer all the questions. (6 Marks)

Observe the circuit in **Figure 2** and do the followings: [2+2+2] CO2

i) Apply **KCL** at node **A** and develop an equation.

ii) Apply **KVL** in **Loop 1** and **Loop 2** and develop two equations.

iii) Determine Iy and the voltage of the R4 resistor.

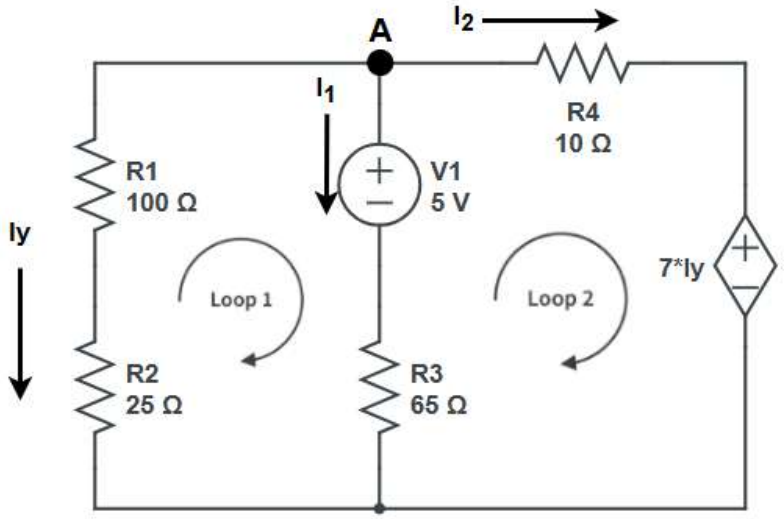

Figure 2

Question 3: Answer all the questions **(8 Marks)**

For the following circuit shown in **Figure 3**, **determine** the following: [2+4+2] CO1

a. **Find** the equivalent resistance, R_{eq}.
a. Using only CDR, **find** the values of I_1 and I_2.
b. **Find** the value of V_1 using VDR only.

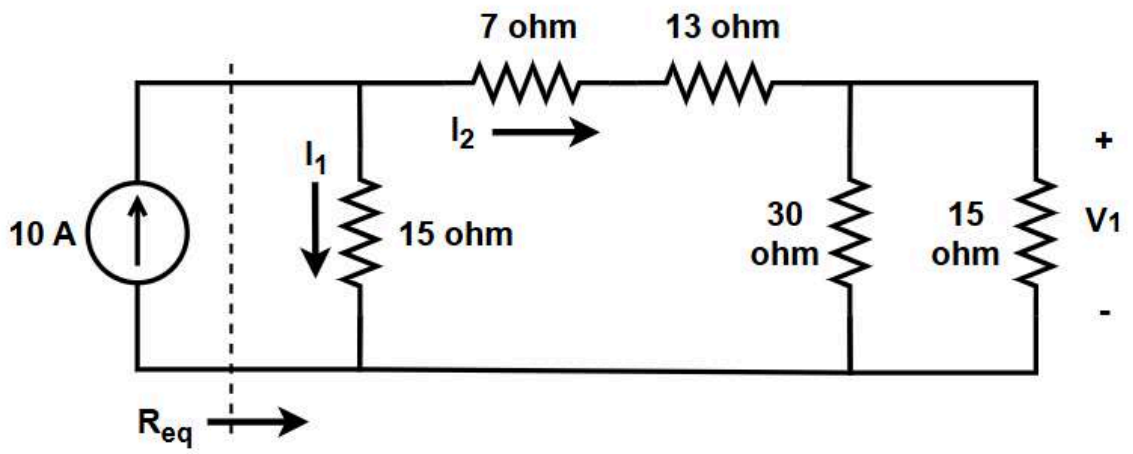

Figure 3

Question 4: Answer all the questions. **(8 Marks)**

Answer the following questions for the circuit shown in **Figure 4(a)** and **4(b)**: [4+4] CO2

i) **Determine** the voltage across 10 Ω using mesh analysis for the circuit shown in **Figure 4(a)**.

ii) **Determine** the voltage V_o using nodal analysis for the circuit shown in **Figure 4(b)**.

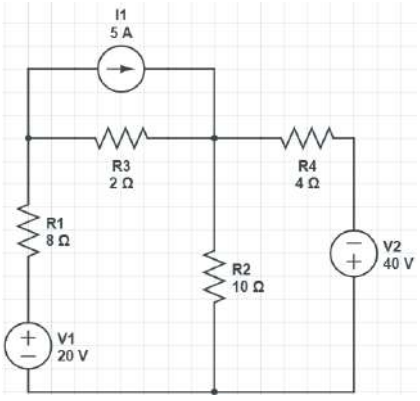

Figure 4(a)

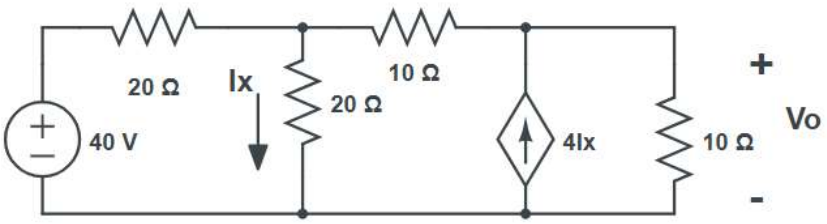

Figure 4(b)