



United International University

Department of Computer Science and Engineering

Course Code: EEE 2113 | Course name: Electrical Circuit

Fall 2020 | MID Examination | 20 marks | 60min

There are five (5) questions here. Question 1, 2 & 3 are mandatory. Answer any one from question 4 & 5.

Data Generation for example ID - 011xxyyzz

Last 6 digits will be used as data	011	R_{xx}	R_{yy}	R_{zz}
Example ID	011	xx	yy	zz
Your ID	011			

1. Obtain the equivalent resistance at the terminals a-b. All resistors have a value of $R_{yy} \Omega$. [5]

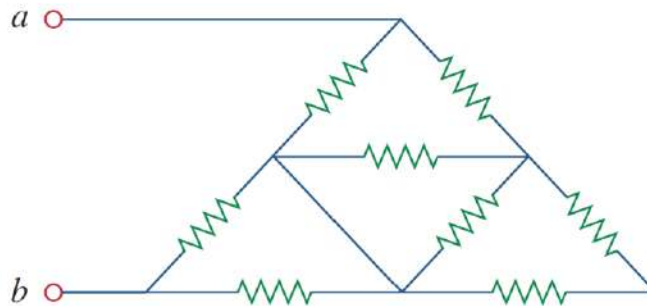


Figure for Q-1

2. Find V_1, V_2, I_1, I_2, I_3 & I_4 in the following circuit using voltage and current division rules. [5]

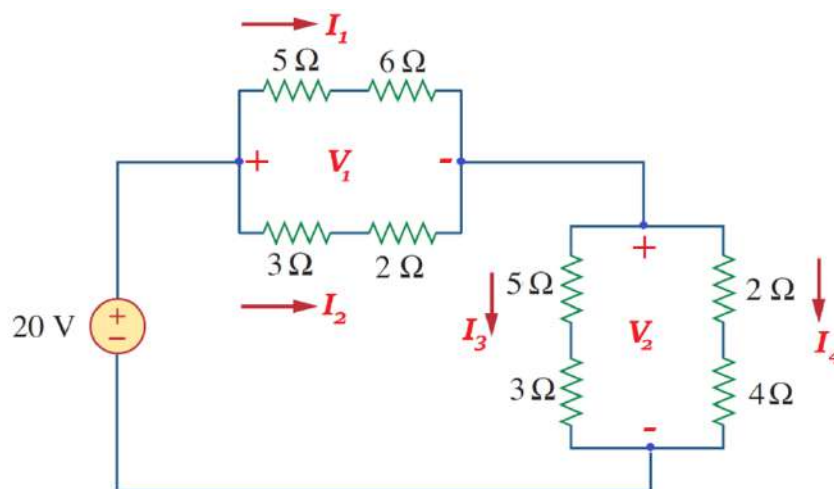


Figure for Q-2

3. Power consumed by a $10\ \Omega$ resistor is given by,

[5]

$$p(t) = 1000\cos^2(R_{xx}\pi t)\ W$$

- (a) Derive the expression of current $i(t)$ through this resistor.
- (b) Derive an expression for charge $q(t)$.
- (c) Calculate the amount of charge flown through the resistor within $70\ ms$.
- (d) Write down the expression of voltage $v(t)$ across the resistor.

4. Use mesh analysis method to find v_0 in the following circuit.

[5]

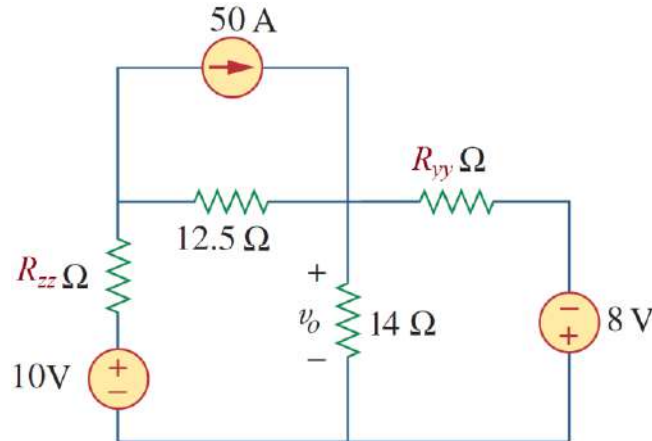


Figure for Q-4

5. Use node analysis method to obtain v_0 in the following circuit.

[5]

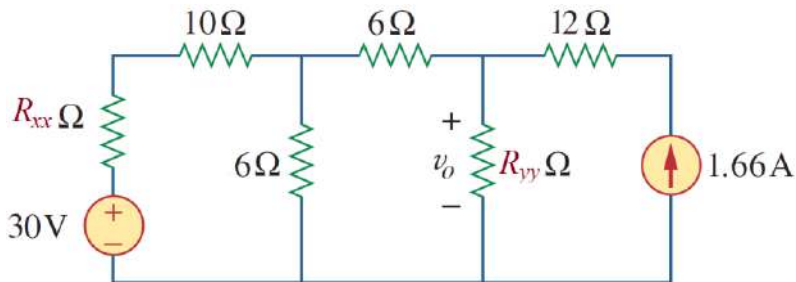


Figure for Q-5

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