

LAHORE UNIVERSITY OF MANAGEMENT SCIENCES
Department of Electrical Engineering

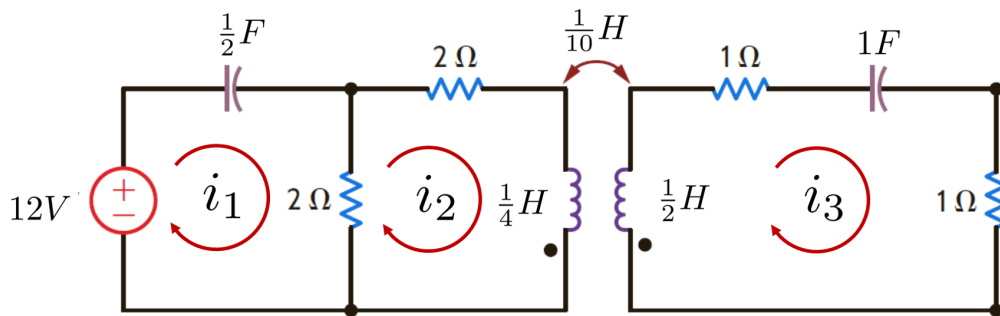
EE240 Circuits I
Quiz 03 Solutions

Total Marks: 10

Time Duration: 20 minutes

Question 1 (5 marks)

Consider the network in the Figure below, where the coupled inductors are marked with the dots. Write down the network equations using Kirchhoff voltage law.

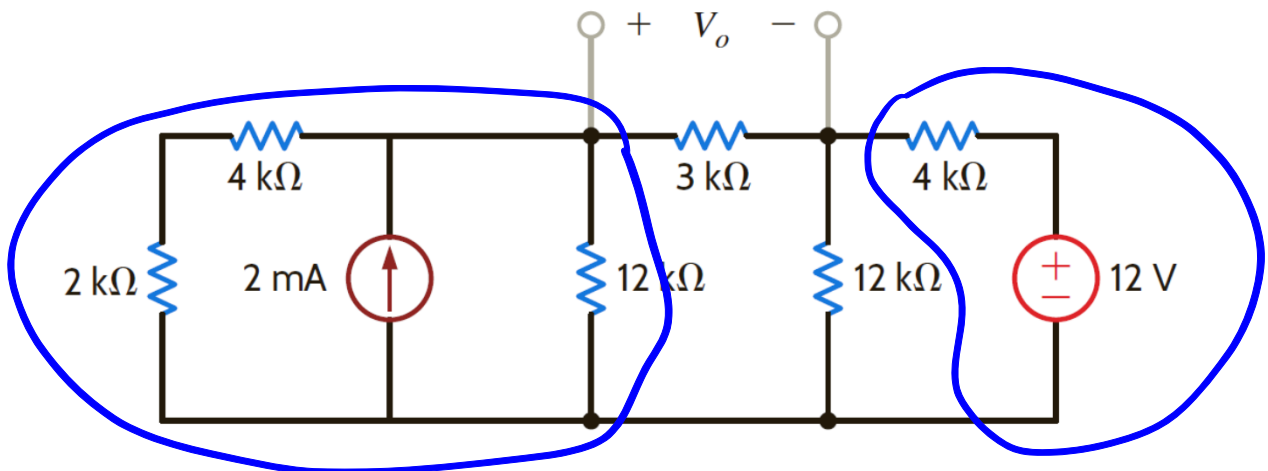


Solution:

$$\begin{aligned}
 2 \int i_1 dt + 2i_1 - 2i_2 - 12 &= 0 \\
 -2i_1 + 4i_2 + \frac{1}{4} \frac{di_2}{dt} - \frac{1}{10} \frac{di_3}{dt} &= 0 \\
 -\frac{1}{10} \frac{di_2}{dt} + 2i_3 + \int i_3 dt + \frac{1}{2} \frac{di_3}{dt} &= 0
 \end{aligned}$$

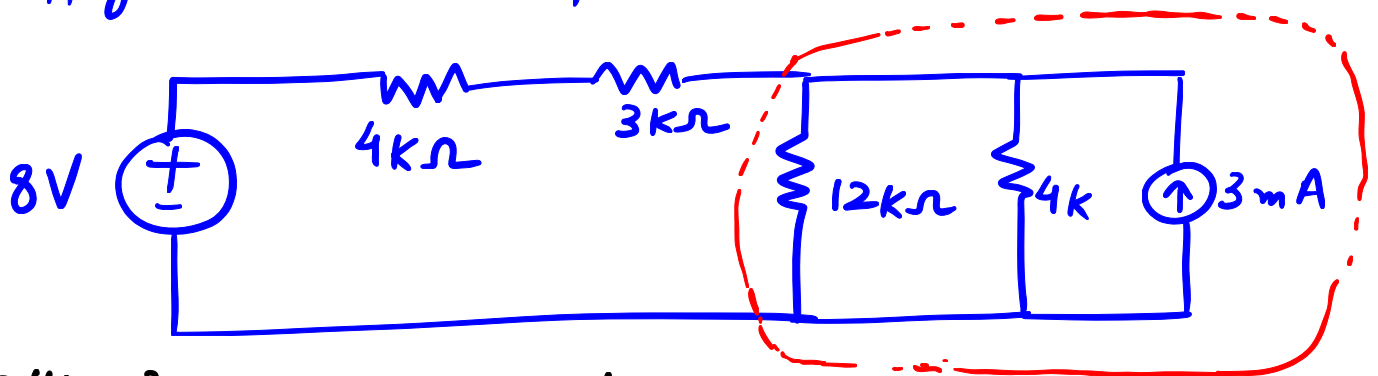
Question 2 (5 marks)

Determine V_o in the circuit below using source transformation.



$(2k+4k) \parallel 12k = 4k$ (This is in parallel with 2mA source)

* Apply source Transformations



$12 \parallel 4 = 3$

