

Ryerson University
Department of Electrical and Computer Engineering
ELE202: Electric Circuits Analysis (Transition Program)
Mid-Term Examination, June, 2010
Duration: 1.5 hours

Student's Name:

Student's Number: **Section:**

NOTES:

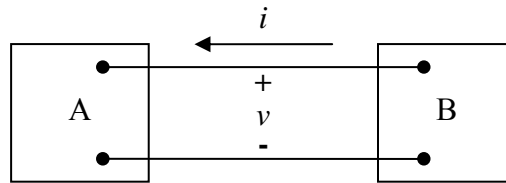
1. This is a **Closed Book** examination. No aids other than the approved calculators are allowed.
2. There are four questions. Answer all **four questions.**
3. **No questions are to be asked** in the examination hall. If doubt exists as to the interpretation of any question, the student is urged to submit with the answer paper, a clear statement of any assumptions made.

<i>Question No.</i>	<i>Mark of each question</i>	<i>Mark obtained</i>
Q1	25	
Q2	25	
Q3	25	
Q4	25	
Total (Out of 100):		

Q1(i):

Two electric circuits represented by boxes A and B are connected as shown in the following figure. For each of the following sets of numerical values, calculate the power in the interconnection and state whether the power is flowing from A to B or vice versa (3 marks each).

- (a) $i = 10 \text{ A}$, $v = 125 \text{ V}$
- (b) $i = 5 \text{ A}$, $v = -240 \text{ V}$
- (c) $i = -12 \text{ A}$, $v = 480 \text{ V}$
- (d) $i = -25 \text{ A}$, $v = -660 \text{ V}$



(a)

(b)

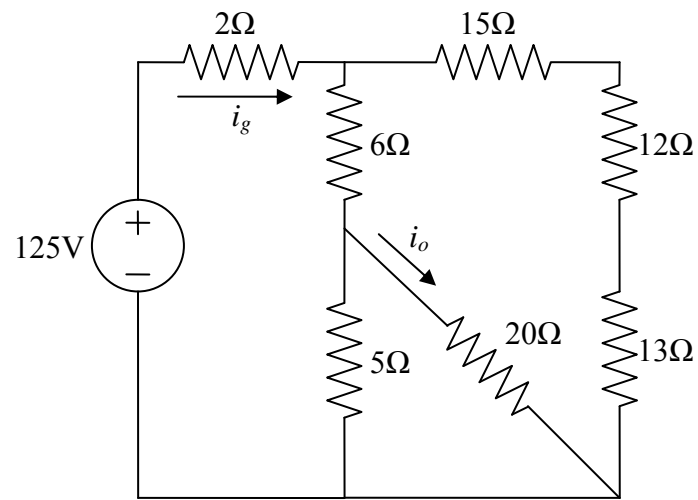
(c)

(d)

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Q1(ii):

Find i_o and i_g in the following circuits (6.5 marks for each current).



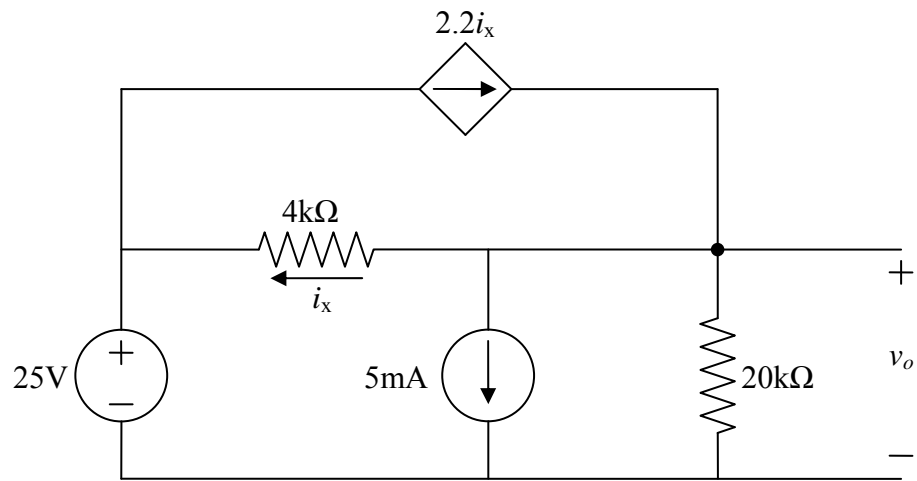
$i_g =$

$i_o =$

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Q2:

Using superposition to find v_o in the following circuit.

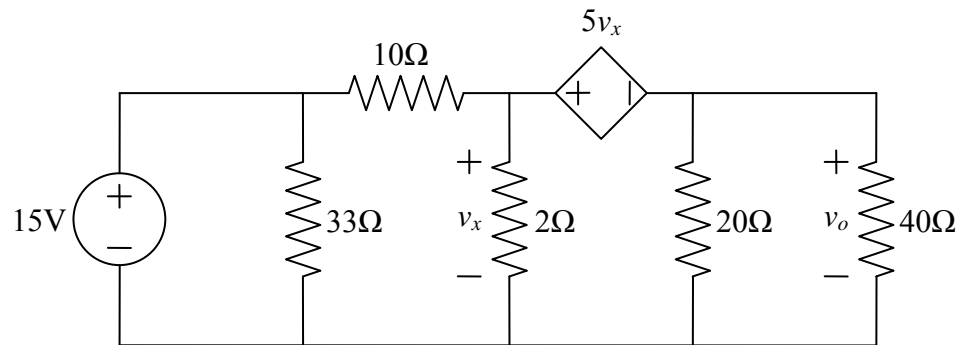


$v_o =$

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Q3:

Use node-voltage analysis to find v_o in the following circuit.

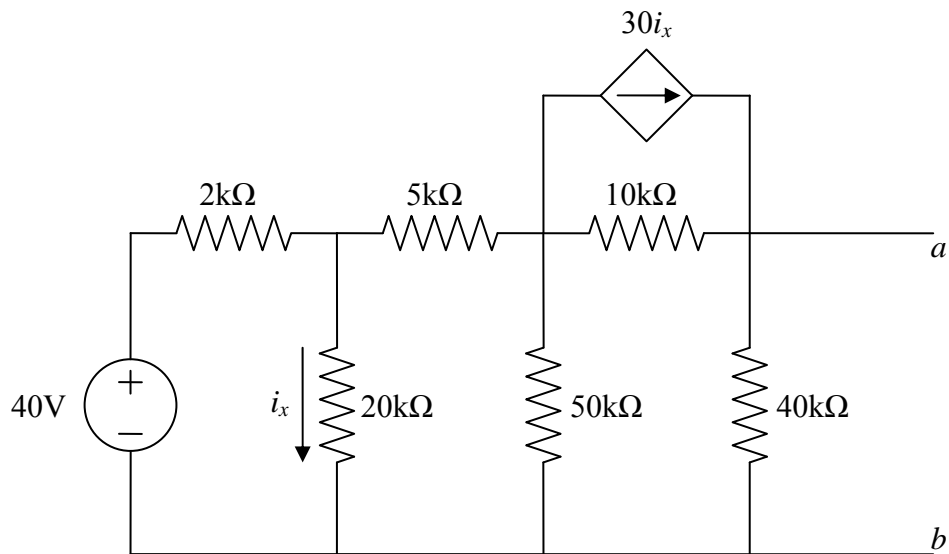


$v_o =$

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Q4:

Find the Norton equivalent between terminals a - b of the following circuit:



$I_{sc} =$

$R_{th} =$

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