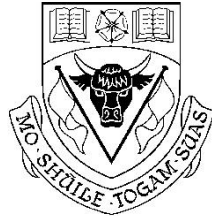

Student Name or ID Number



**UNIVERSITY OF
CALGARY**

FACULTY OF ENGINEERING

ENGG 325 - Electric Circuits and Systems

Midterm Examination

Spring Session 2005

Instructions:

- Time allowed is 90 minutes.
 - The examination is closed-book.
 - Any type of electronic calculator is permitted.
 - Please attempt all questions. The maximum number of marks is 50, as indicated; the midterm examination counts 25% toward the final grade.
 - Please use a pen or heavy pencil to ensure legibility.
 - Please answer questions in the spaces provided; if space is insufficient, please use the back of the pages.
 - Please show your work; marks will be awarded for proper and well-reasoned explanations.
-

Name: _____, ID: _____

- Using the method of your choice, determine the power in the 5 mA current source, and indicate whether it is absorbing or generating power.

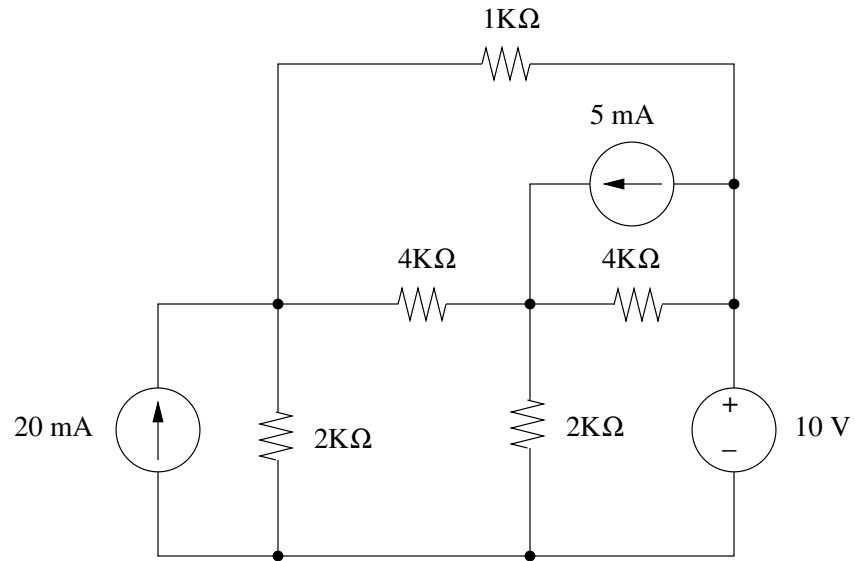


Fig. Q1. Determine the power in the 5 mA source

[10 marks.]

(Question 1, additional workspace ...)

2. Using the principle of superposition, determine the current i_0 in the circuit given in Fig. Q2.

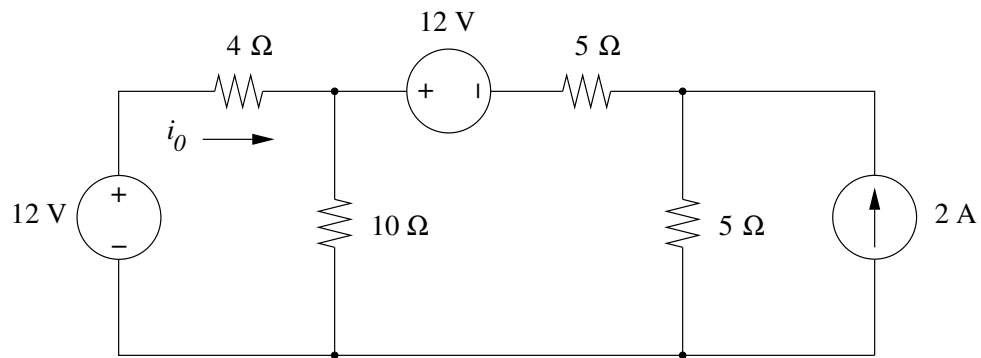


Fig. Q2. Find i_0 by superposition

[14 marks.]

(Question 2, additional workspace ...)

3. Consider the circuit in Fig. Q3. Determine the Thévenin equivalent circuit at the terminals **a** and **b**.

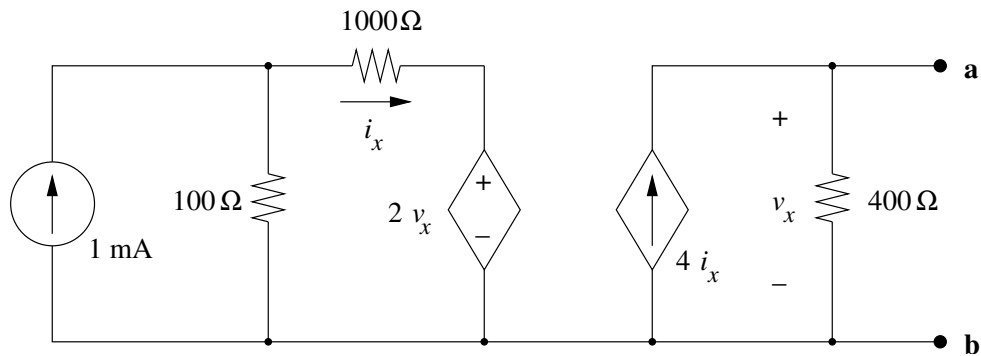


Fig. Q3. Determine the Thévenin equivalent circuit

[14 marks.]

(Question 3, additional workspace ...)

4. Consider the A.C. circuit shown in Fig. Q4. Determine the current $i_L(t)$ in the center branch, as shown.

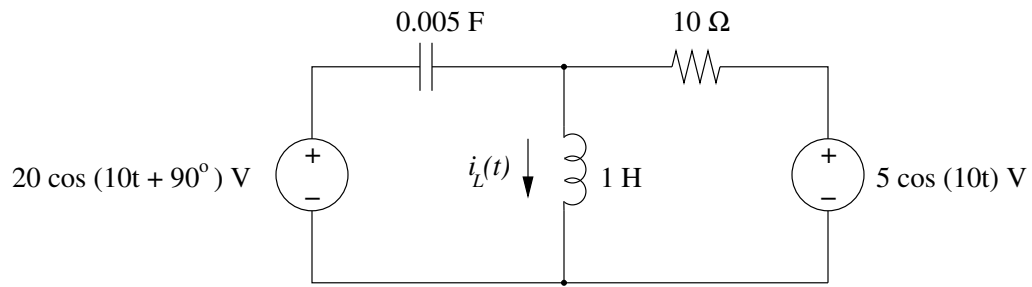


Fig. Q4. Find the current $i_L(t)$

[12 marks.]

(Question 4, additional workspace ...)