Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (please print)

Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

ECE 2300 – Quiz #1

September 10, 2009

Keep this quiz closed and face up until you are told to begin.

1. This quiz is closed book, closed notes. You may use one 8.5” x 11” crib sheet, or its equivalent.

2. Show all work on these pages. Show all work necessary to complete the problem. A solution without the appropriate work shown will receive no credit. A solution which is not given in a reasonable order will lose credit.

3. It is assumed that your work will begin on the same page as the problem statement. If you choose to begin your work on another page, you must indicate this on the page with the problem statement, with a clear indication of where the work can be found. **If your work continues on to another page, indicate clearly where your work can be found. Failure to indicate this clearly will result in a loss of credit.**

4. Show all units in solutions, intermediate results, and figures. Units in the quiz will be included between square brackets.

5. Do not use red ink. Do not use red pencil.

6. You will have 30 minutes to work on this quiz.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_/20

Room for extra work

A portable generator has been connected to a small refrigerator as shown in the figure below. The voltage produced by the generator and the current flowing through the refrigerator were measured, and the values are shown.

1. Find the number of charges that flowed through the refrigerator during the time period 0 < *t* < 6[ms].
2. Find the average value of the current through the refrigerator for one cycle of the sinusoid.
3. Find the average value of the voltage across the refrigerator for one cycle of the sinusoid.
4. Find the average value of the power delivered by the refrigerator for one cycle of the sinusoid.
5. Find the energy absorbed by the refrigerator for the time period
6[ms] < *t* < 7[ms].





Room for extra work

ECE 2300 -- Quiz #1 – February 9, 2009 – Solution

A portable generator has been connected to a small refrigerator as shown in the figure below. The voltage produced by the generator and the current flowing through the refrigerator were measured, and the values are shown.

1. Find the number of charges that flowed through the refrigerator during the time period 0 < *t* < 6[ms].
2. Find the average value of the current through the refrigerator for one cycle of the sinusoid.
3. Find the average value of the voltage across the refrigerator for one cycle of the sinusoid.
4. Find the average value of the power delivered by the refrigerator for one cycle of the sinusoid.
5. Find the energy absorbed by the refrigerator for the time period
6[ms] < *t* < 7[ms].





