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

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

ECE 2300 -- Exam # 2

November 15, 2014

Keep this exam closed until you are told to begin.

1. This exam 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 that is not given in a reasonable order will lose credit. Clearly indicate your answer (for example by enclosing it in a box).

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 exam will be included between square brackets.

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

6. You will have 90 minutes to work on this exam.

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_/25

2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_/40

3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_/35

Total = 100

Room for extra work

1. {25 Points} Find the value of the resistor RX that will maximize the power delivered to resistor RX in the circuit shown below.

exam2_q1

# Room for extra work

2. {40 Points} For the circuit shown below, switches SW1 and SW2 have been in position **a** for a long time before *t* = 0. At *t* = 0, SW1 moved to position **b**. Then, 1[ms] later, SW1 moved to position **a** and SW2 moved to position **b** simultaneously.

a) Find vX (0-).

b) Find iW(1.2[ms]).

exam2_q2

Room for extra work 3. {35 Points} The value of the current source *iX*(t) is given in the plot in Figure 1. The switch SWA had been in position **c,** and switch SWB had been closed, a long time before *t* = 0. The energy stored in the capacitor was zero for *t* < 0. At *t­* = 0, SWB opened. Then, 5[ms] later, SWA moved to position **d**. Find the power delivered by the current source *iX* (t) at *t* =12[ms].

exam2_q3_1

exam2_q3_2

Solutions:















