

ECE 201 – Fall 2008

Final Exam

December 20, 2008

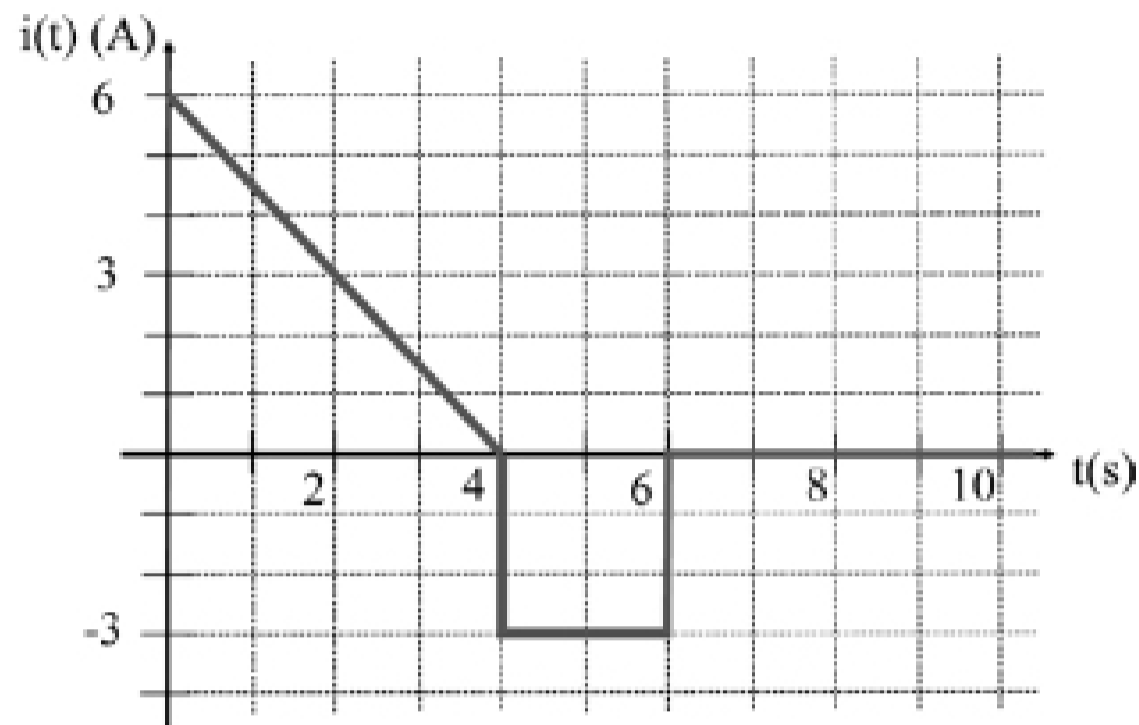
Division 0101: Clark (7:30am)
Division 0201: Elliott (10:30 pm)
Division 0301: Capano (3:30 pm)
Division 0401: Qi (4:30 pm)

Instructions

1. DO NOT START UNTIL TOLD TO DO SO.
2. Write your Name, division, professor, and student ID# (PUID) on your scantron sheet.
3. This is a CLOSED BOOKS and CLOSED NOTES exam.
4. There is only one correct answer to each question.
5. Calculators are allowed (but not necessary). Please clear any formulas, text, or other information from your calculator memory prior to the exam.
6. If extra paper is needed, use back of test pages.
7. Formulas are given on the final page of this exam.
8. Cheating will not be tolerated. Cheating in this exam will result in an F in the course.
9. If you cannot solve a question, be sure to look at the other ones and come back to it if time permits.
10. As described in the course syllabus, we must certify that every student who receives a passing grade in this course has satisfied each of the course outcomes. On this exam, you have the opportunity to satisfy all outcomes. (See the course syllabus for a complete description of each outcome.) On the chart below, we list the criteria we use for determining whether you have satisfied these course outcomes. You only need to satisfy the outcomes once during the course, so any outcomes that you satisfied previously will remain satisfied, independent of your performance on this exam.

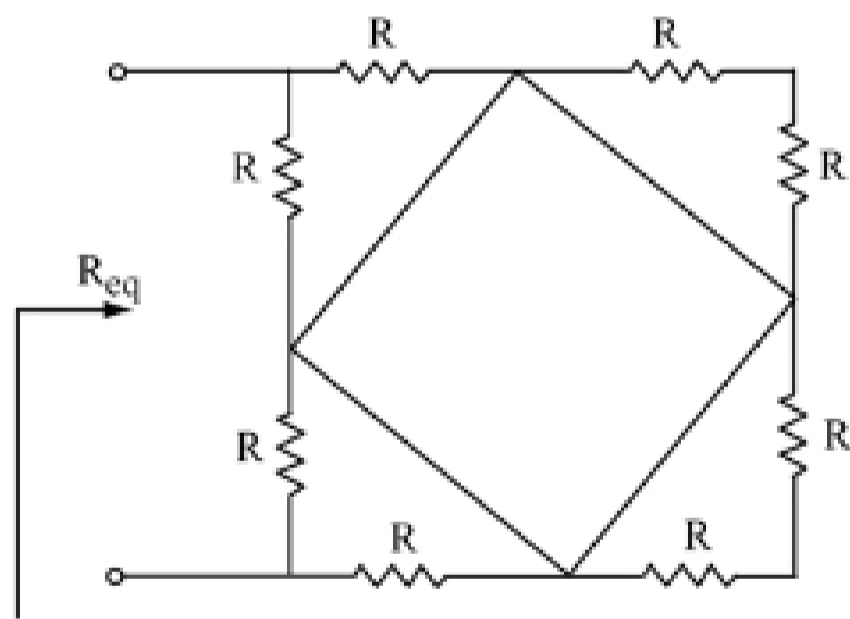
Course Outcome	Exam Questions	Minimum correct answers required to satisfy the course outcome
i	1, 2, 4	2
ii	3, 7, 10, 17	2
iii	5, 8, 19, 24	2
iv	7-11	2
v	14-19	3
vi	21, 21	1
vii	22, 23	1
viii	6, 24	1
ix	12, 13	1

1. A current $i(t)$ [in Amperes] (see Figure below) passes through an arbitrary cross-section of a wire. What is the net charge q [in Coulombs] that passes through that cross-section in the time interval $0 \leq t \leq 10$ seconds?



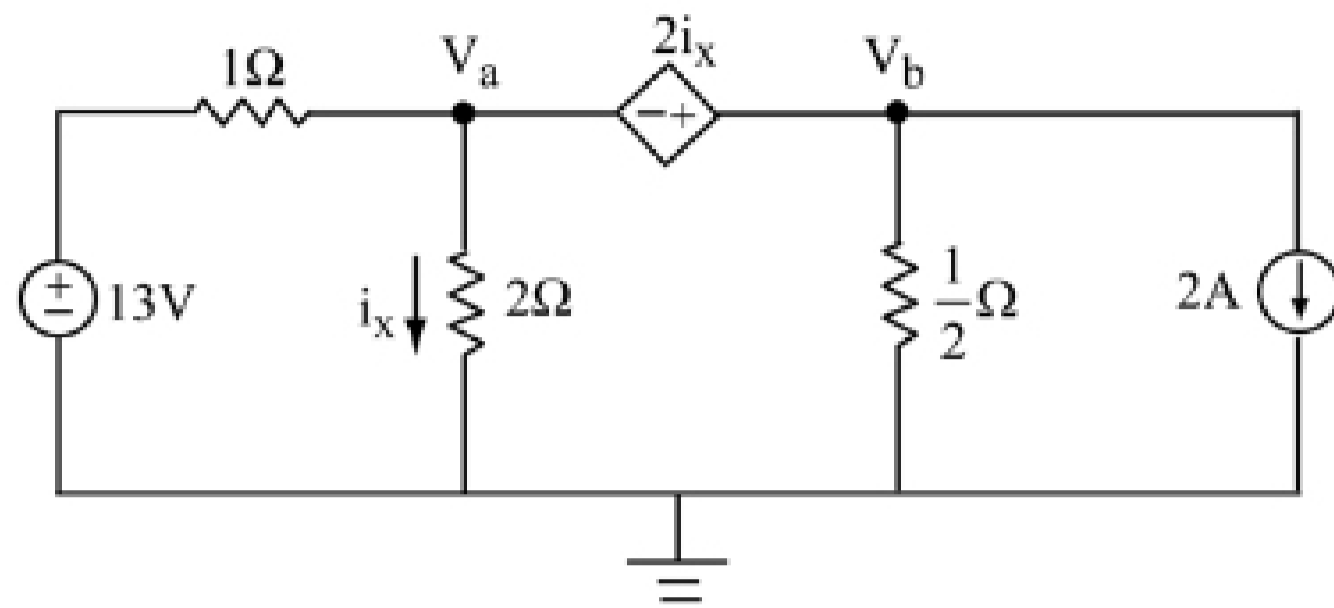
- (1) 1 (2) 6 (3) 18 (4) 12
 (5) 8 (6) 24 (7) 0 (8) $\frac{1}{2}$

2. For the following network of resistors, each of value R , determine the equivalent resistance R_{eq} .



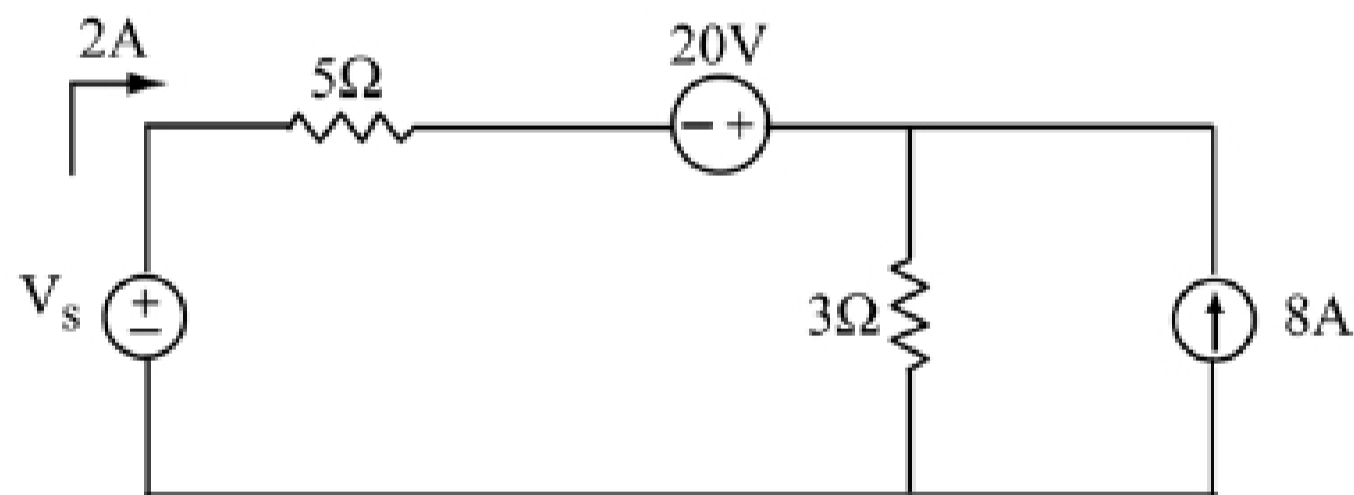
- (1) $\frac{1}{8}R$ (2) $\frac{1}{4}R$ (3) $\frac{3}{8}R$ (4) $\frac{1}{2}R$
 (5) $\frac{5}{8}R$ (6) $\frac{3}{4}R$ (7) $\frac{7}{8}R$ (8) R
 (9) $\frac{9}{8}R$ (10) $9R$

3. Determine the voltage V_b .



- | | | |
|-------|-------|-------|
| (1) 1 | (2) 2 | (3) 3 |
| (4) 4 | (5) 5 | (6) 6 |
| (7) 7 | (8) 8 | |

4. Find V_s for the circuit below (in V):



- | | | |
|---------|---------|--------|
| (1) 10 | (2) 20 | (3) 30 |
| (4) -10 | (5) -44 | (6) 60 |
| (7) 0 | | |