

King Fahd University of Petroleum & Minerals

Electrical Engineering Department
EE 204 Fundamentals of Electric Circuits
Second Semester (122)

Exam I

Wednesday, 27 February 2013

6:30 PM – 8:00 PM

Name: _____

SHOW YOUR WORK FOR ALL QUESTIONS

ID: _____

Section: _____

Serial No.: _____

Instructors

Dr. HARB

Dr. AL-MUHAINI

Dr. HAMMI

Dr. ALAKHDHAR

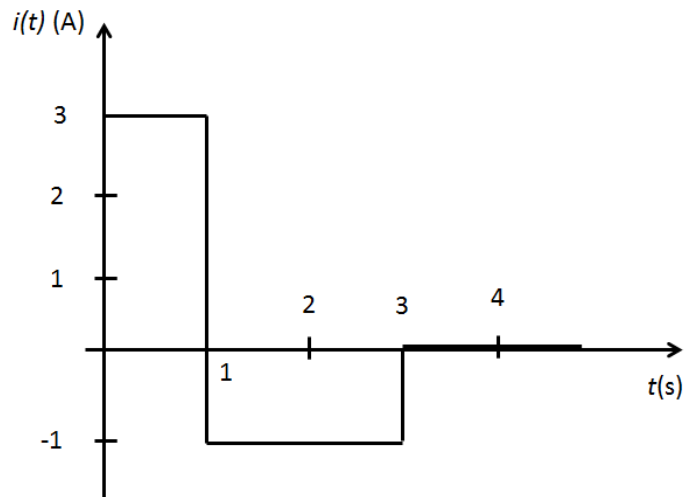
Dr. HUSSEIN

Problem	Score	Out of
1		20
2		10
3		10
4		10
Total		50

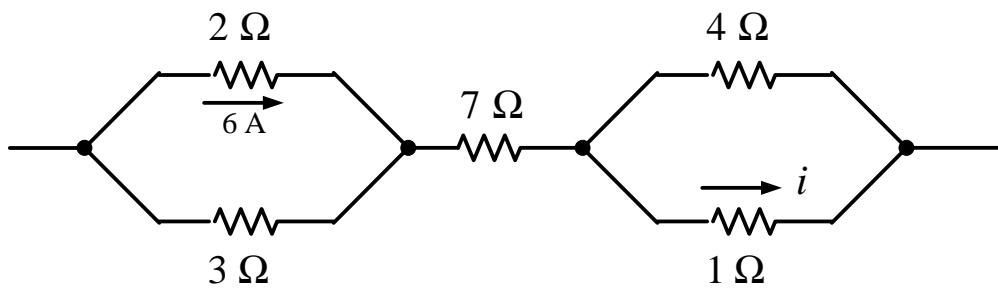
Good Luck!!

Problem 1:

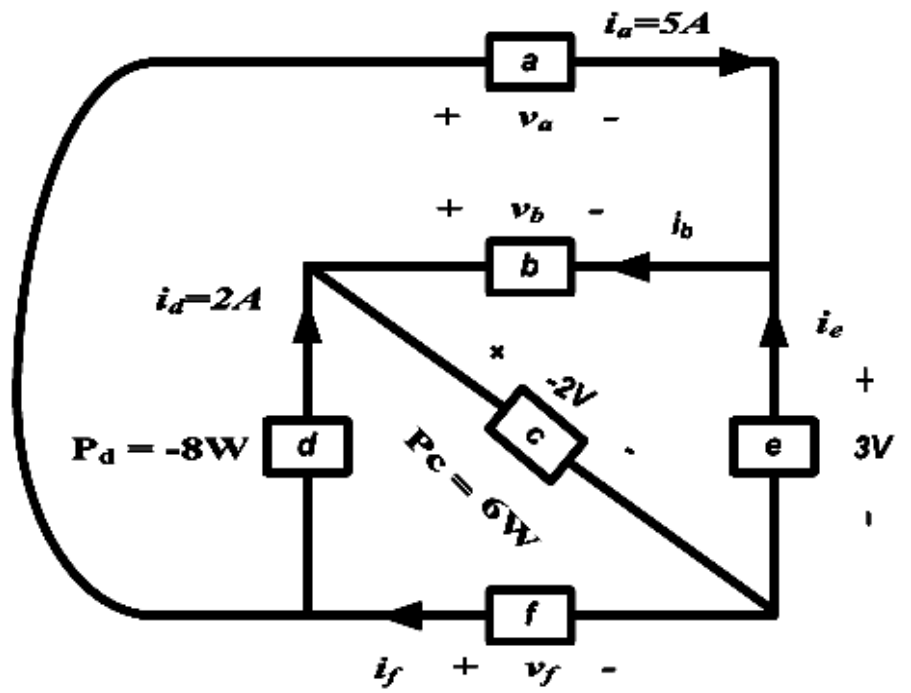
- a) The current passing through an element is sketched as shown. Determine the net positive charge transferred in the direction of the current at $t = 2$ seconds. [2 points]



- b) For the following circuit determine the current i . [6 points]



c) For the following circuit determine the voltages v_a , v_b and v_f ; and the currents i_b , i_e and i_f .
 [12 points]



Problem 2:

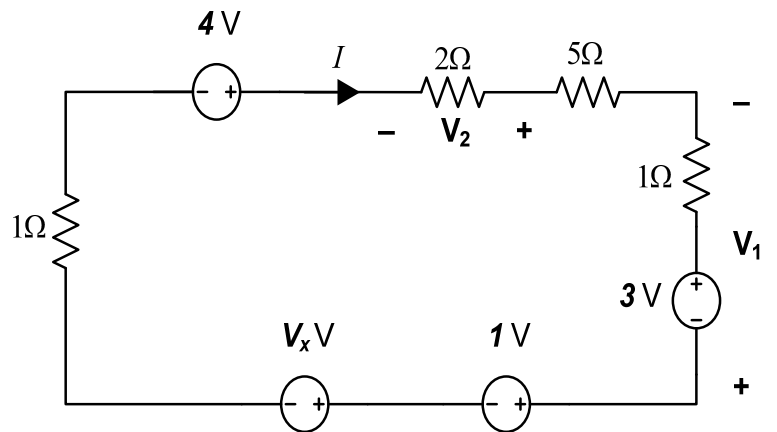
a) Consider the following circuit where $V_2 = 4\text{ V}$

[6 points]

i) Determine the current I .

ii) Analyze the circuit using single loop technique to determine the value of the voltage V_x .

iii) Determine the voltage V_1 .

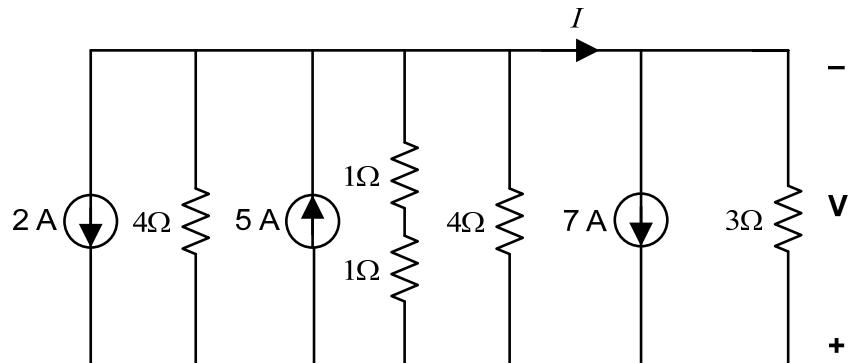


b) For the following circuit:

[4 points]

i) Calculate the voltage V using single node-pair technique.

ii) Calculate the current I .

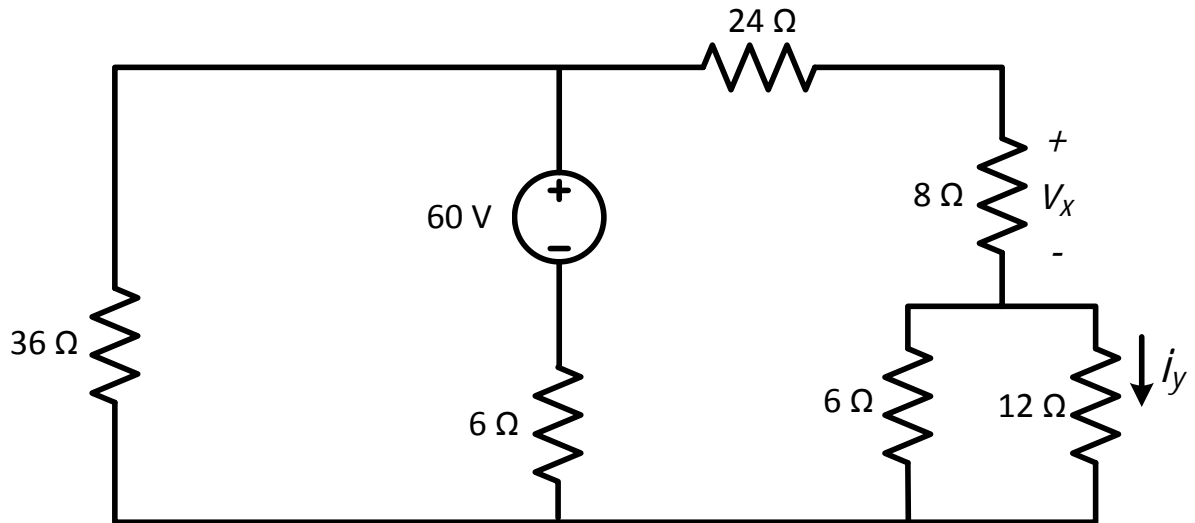


Problem 3:

For the following circuit:

a) Find V_x using Voltage Divider Rule (VDR). [8 points]

b) Find i_y using Current Divider Rule (CDR). [2 points]



Problem 4:

For the circuit shown use source transformations to find the voltage V . [10 points]

