

King Fahd University



of Petroleum & Minerals

**Electrical Engineering Department  
EE 204 Fundamentals of Electric Circuits  
Second Semester (102)**

**Exam 2**

**Wednesday, 27 April 2011**

**6:30 pm – 8:00 pm**

**Name:** \_\_\_\_\_

**ID:** \_\_\_\_\_

**Section:** \_\_\_\_\_

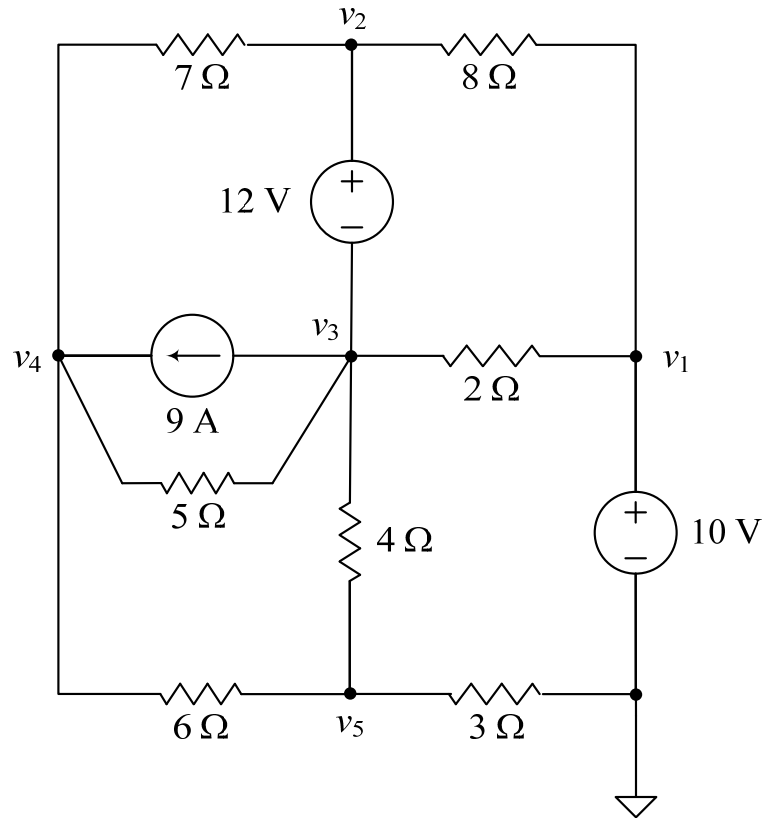
Instructors	Sections
Dr. Ahmad Yamani	1, 4, 6
Dr. Qureshi	2
Dr. Hammi	3
Dr. Adel Balghonaim	5
Mr. Noman Tasaduq	7
Dr. Wajih Abul Al-Saud	8, 10
Dr. Abdulmalik Zidouri	9, 11

Problem	Score	Out of
1		30
2		30
3		40
<b>Total</b>		<b>100</b>

**Good Luck**

### Problem 1

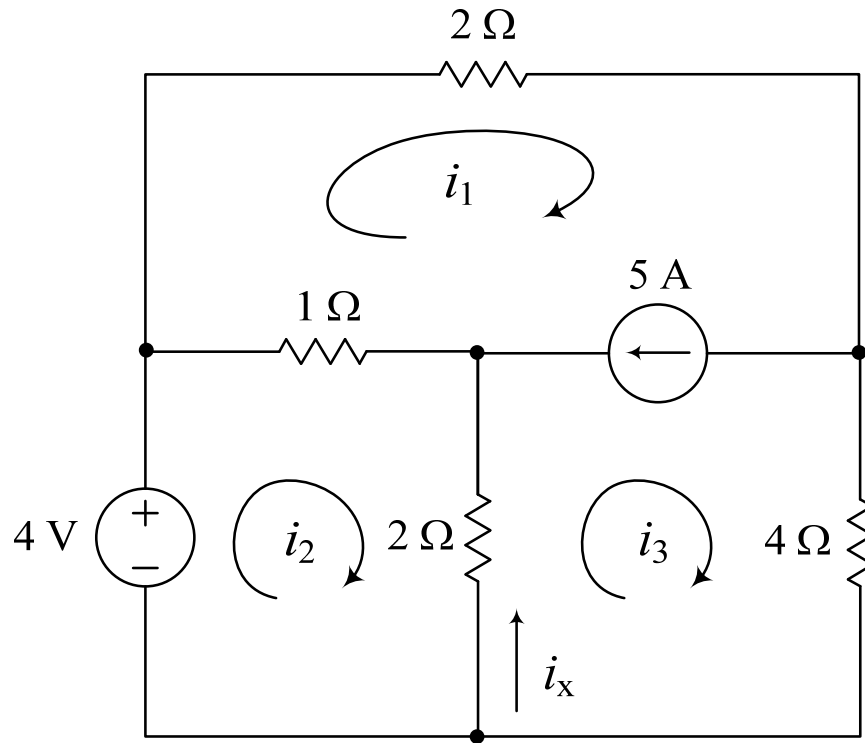
Write ALL node-voltage equations in terms of **THE NODE VOLTAGES ONLY** that are necessary to solve for the node voltages in the following circuit (DO NOT SOLVE THEM). Write your equations in the box below.



## Problem 2

Using the **MESH-CURRENT METHOD** on the following circuit, find:

- The mesh currents
- The value of the current  $i_x$ .



### Problem 3

Given the following circuit:

- Find the value of the resistor  $R_L$  that will absorb maximum power from the circuit.
- Using the NODE-VOLTAGE METHOD, find the maximum power that will be absorbed by  $R_L$ .

