King Fahd University of Petroleum & Minerals

Electrical Engineering Department
EE 204 Fundamentals of Electric Circuits
First Semester (111)

Exam II
Wednesday, 23 November 2011
6:00 PM – 7:30 PM

Name: _____

ID: _____

Section: _____

Serial#_____

Instructors
Dr. S. AL-AHMADI
Dr. M BIN SAEED
Dr. A. YAMANI
Dr. Z. AL-AKHDAR
Mr. T NOMAN
Dr. M MOHANDES
Dr. O. HAMMI

Problem	Score	Out of
1		10
2		8
3		12
Total		30

Good Luck!!

Problem 1

(a)   Determine the current I in the circuit *using superposition.*   (4 marks)

(b)   Determine the voltage V across the 4-A source *using superposition.*   (4 marks)

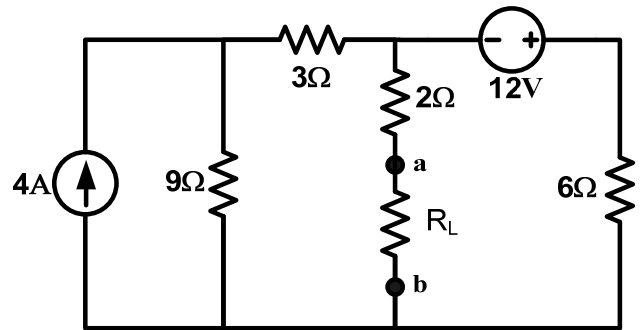**(c)**   Calculate the power supplied by the 10-V source.   (2 points)
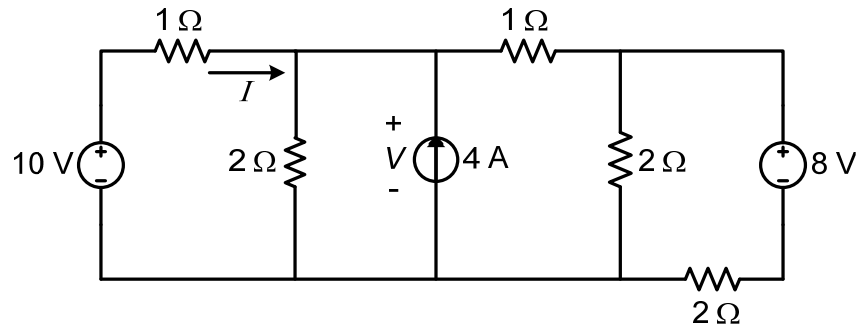
Problem 2

(a) What should be the value of R_L so that it absorbs maximum power ?   **(4 marks)**

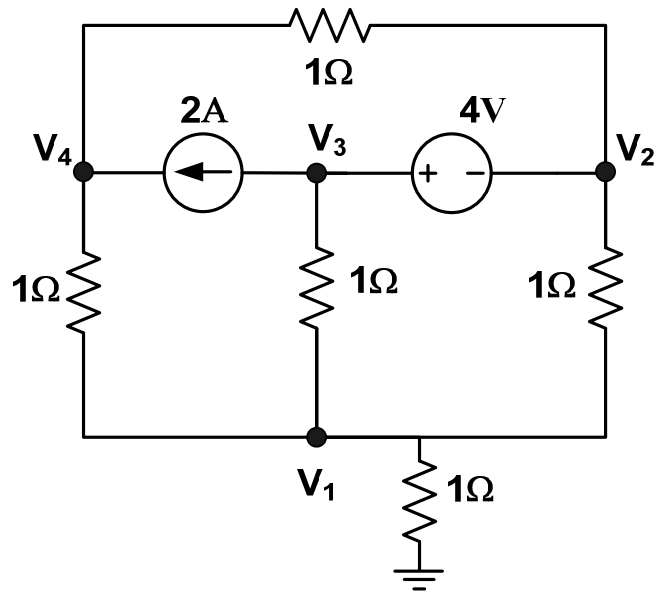(b) What is the value of this maximum power ?   **(4 marks)**

Problem 3: (12 points)

(a) **6 points:** Use node voltage analysis technique to find the necessary equations in terms of the node voltages. Write the simplified form of these equations in the space provided.

	(1)	**(1.5 points)**
	(2)	**(1.5 points)**
	(3)	**(1.5 points)**
	(4)	**(1.5 points)**

(b) (6 points): Use the mesh analysis technique to find the necessary equations in terms of mesh current. Write the simplified form of these equations in the space provided.

	(1)	**(2 points)**
	(2)	**(2 points)**
	(3)	**(2 points)**