KING FAHD UNIVERSITY OF PETROLEUM & MINERALS

Department of Electrical Engineering

EE 204 (062)

Major Exam I
March 26, 2007
6:00-7:30 pm
Duration 1 and 1/2 hours

Student Name :

Student ID# :

Instructor Name:

Select your instructor's name from the following:

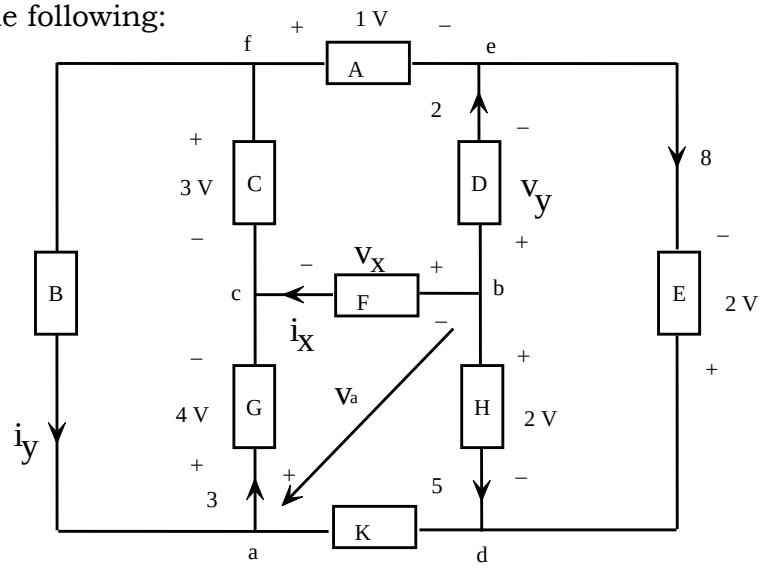
Mr. Tasadduq (sections 1 & 2)
Dr. Bakhashwain (section 3)
Mr. Johar (section 4)
Dr. Al-Ahmari (section 5)
Dr. Alakhdhar (section 6)

	Score
Problem 1	
Problem 2	
Problem 3	
Problem 4	
Total	

Problem 1 (25%):

For the circuit shown determine the following:

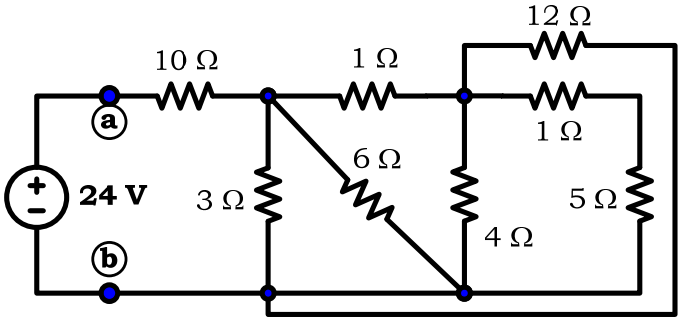
a) The voltage $\mathbf{v_x}$,
b) The voltage $\mathbf{v_y}$,
c) The voltage $\mathbf{v_{ab}}$,
d) The current $\mathbf{i_x}$,
e) The current $\mathbf{i_y}$, and
f) The **power** delivered to the element B.



Problem 2 (25%):

a) Find the **equivalent** resistance ($\mathbf{R_{eq}}$) of the circuit to the right of a and b.

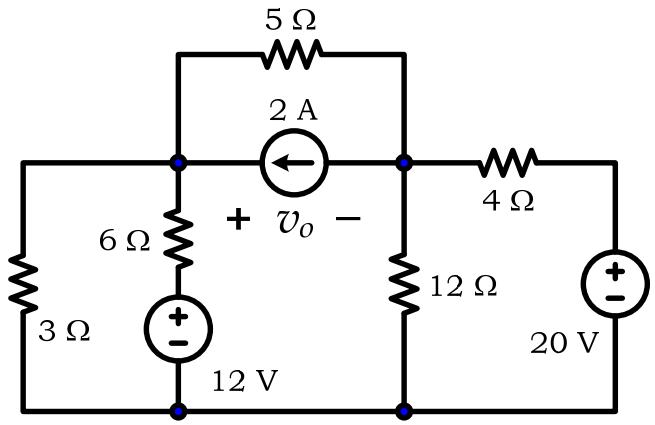
b) Calculate the **power** absorbed by the **6-Ω** resistor**.**



Problem 3 (25%):

a) **Using source transformation,** simplify the circuit into a **single loop** containing only voltage sources, then

b) find the **voltage** v_o from the simplified circuit.



Problem 4 (25%):

Use the principle of superposition to find the voltage $\mathbf{V_a}$ and current $\mathbf{I_1}$.