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SPRING TERM 2005-06

Name:.....  
ID:.....  
Major:.....

March 22, 2006

(EECE 210) ELECTRIC CIRCUITS & ELECTRONICS

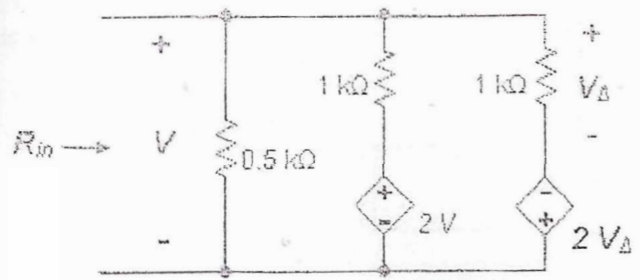
CLOSED BOOK (1 ¼ HRS)

Programmable Calculators are not allowed  
Provide your answers on the computer's card only  
Return the computer's card attached to the question sheet  
Mark with a pencil your name and your ID-No  
Use pencil for marking your answers  
When using eraser, be sure that you have erased well

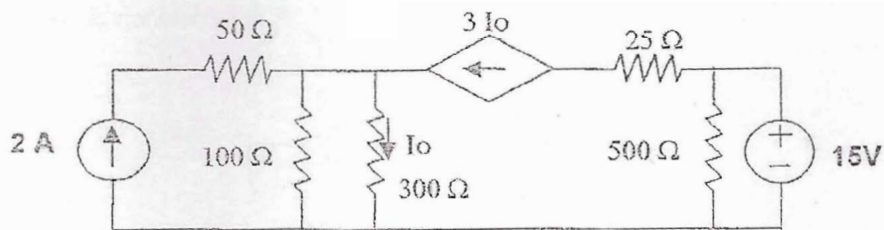
!!! PENALTY IS 6 TO 1 !!!

1. Determine  $R_{in}$  in the figure.

- a) Infinite
- b) Zero  $\Omega$
- c) 1 k $\Omega$
- d) 2 k $\Omega$
- e) None of the above

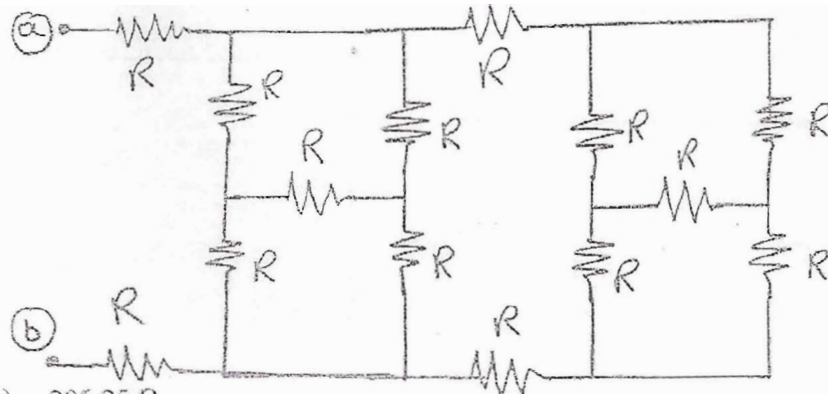


2. Considering the circuit below, find the current  $I_o$  flowing through the resistor 300 $\Omega$ .



- a) 0.667 A
- b) 1.000 A
- c) 1.333 A
- d) 2.000 A
- e) None of the above

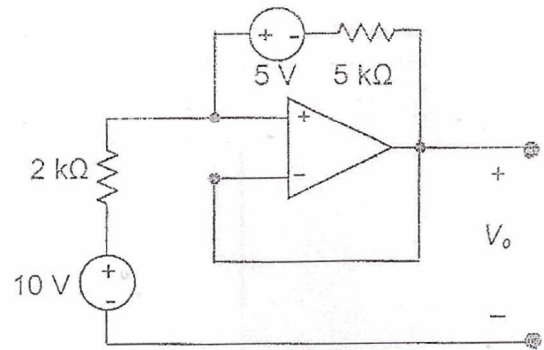
3. Find the equivalent resistance  $R_{ab}$  in the circuit below. Each resistor is 100  $\Omega$



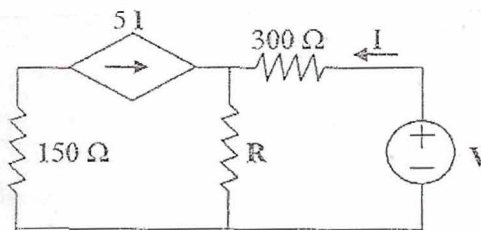
- a) ~206.25  $\Omega$
- b) ~250  $\Omega$
- c) ~412.5  $\Omega$
- d) ~275  $\Omega$
- e) None of the above

4. Determine  $V_o$  in the figure, assuming an ideal op amp.

- a) 15V
- b) 5V
- c) 6V
- d) 8V
- e) None of the above

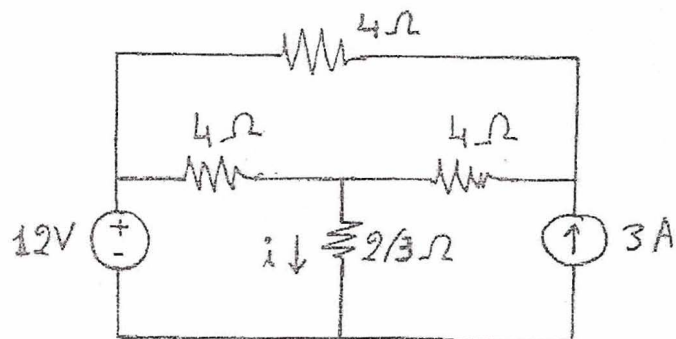


5. In the circuit below  $R$  is a variable resistor. For what value of  $R$  the maximum power is transferred to it.



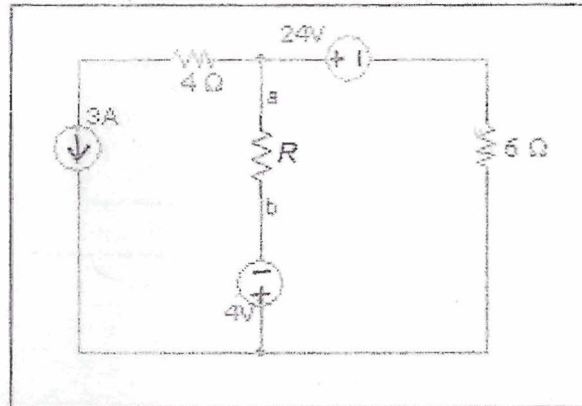
- a)  $50\Omega$
- b)  $100\Omega$
- c)  $150\Omega$
- d)  $250\Omega$
- e) None of the above

6. Find  $i$  in the circuit below.

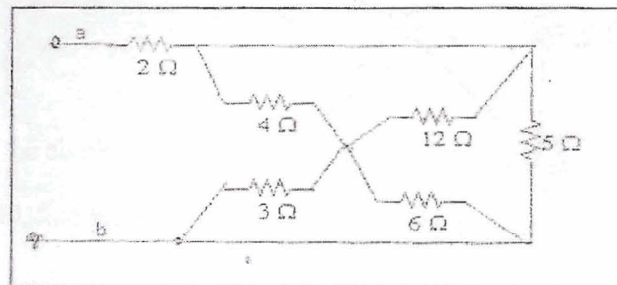


- a) 6.4 A
- b) 4.8 A
- c) 2.5 A
- d) 7.3 A
- e) None of the above

7. A load resistance  $R$  in the range of  $[1, 8] \Omega$  is to be connected across the terminals a,b in such a way that maximum power is delivered to it. Determine the power dissipated by  $R$ .

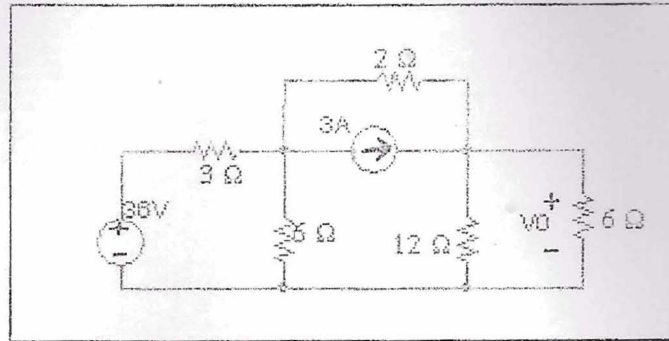


- a) 10.58 W  
 b) 4.17 W  
 c) 5.95 W  
 d) 8.26 W  
 e) None of the above
8. Find the equivalent resistance between the terminals (a,b).



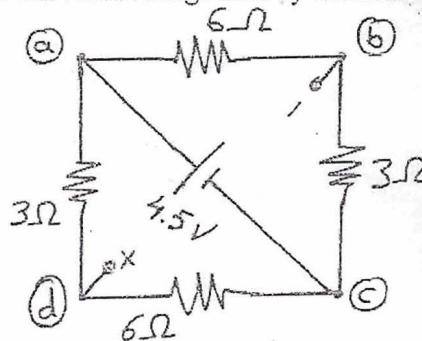
- a) 4.50  $\Omega$   
 b) 2.25  $\Omega$   
 c) 12.5  $\Omega$   
 d) 8.0  $\Omega$   
 e) None of the above

9. Calculate the voltage  $V_o$  across the  $6\ \Omega$  resistor due to the  $36\ \text{V}$  source only.



- a) 15 V
- b) 12 V
- c) 18V
- d) 3 V
- e) None of the above

10. For the circuit shown, find the Thevenin voltage seen by terminals b-d.

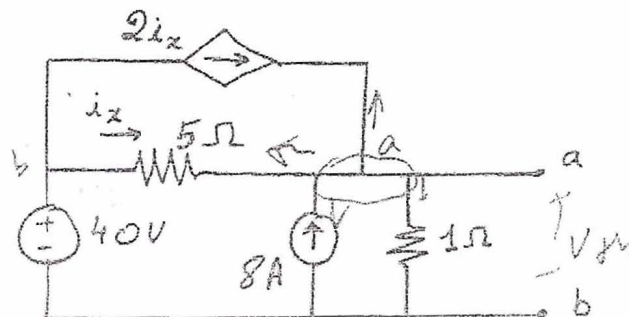


- a) 1V
- b) 1.5V
- c) 2V
- d) 2.5V
- e) None of the above

11. In problem 10, find the Thevenin resistance seen by terminals b-d:

- a)  $2\ \Omega$
- b)  $3\ \Omega$
- c)  $4\ \Omega$
- d)  $5\ \Omega$
- e) None of the above

12. For the circuit shown, find the Thevenin resistance seen by terminals a-b.



- a)  $\sim 0.62\ \Omega$
- b)  $\sim 1.6\ \Omega$
- c)  $\sim 1.1\ \Omega$
- d)  $\sim 0.93\ \Omega$
- e) None of the above

13. In problem 12, find the Thevenin voltage seen by terminals b-d.

- a) 10 V
- b) 20 V
- c) 30V
- d) 40 V
- e) None of the above