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FACULTY OF ENGINEERING
& ARCHITECTURE

SPRING TERM 2005-06

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

March 22, 2006

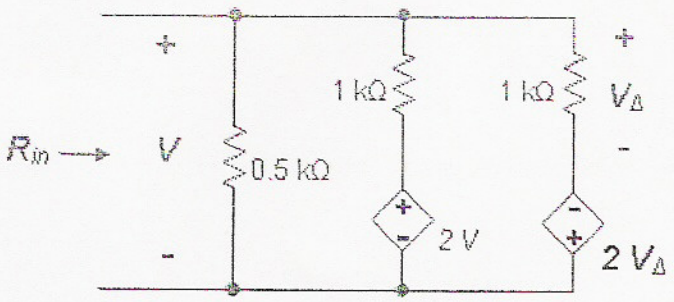
(EECE 210) ELECTRIC CIRCUITS & ELECTRONICS

CLOSED BOOK (1 ½ 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

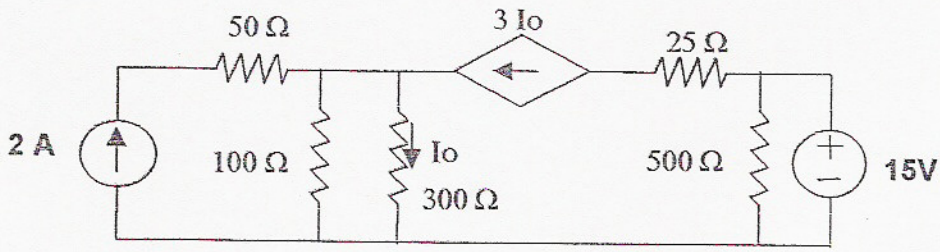
!!! PENALTY IS 6 TO 1 !!!

1. Determine R_{in} in the figure.



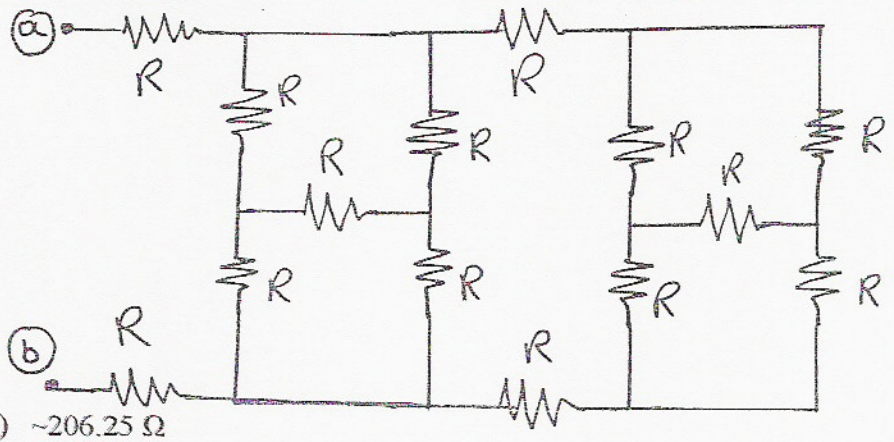
a) Infinite
b) Zero Ω
c) 1 kΩ
d) 2 kΩ
e) None of the above

2. Considering the circuit below, find the current Io flowing through the resistor 300Ω.



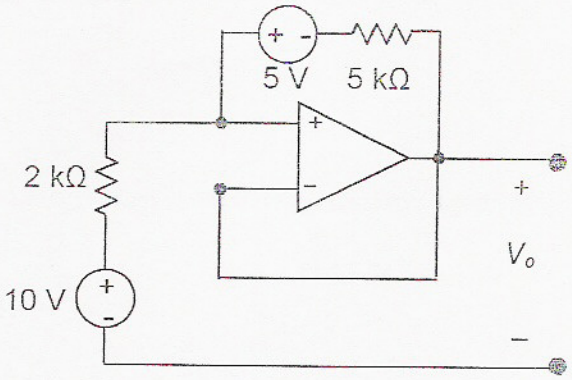
a) 0.667 A
b) 1.000 A
c) 1.333 A
d) 2.000 A
e) None of the above

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



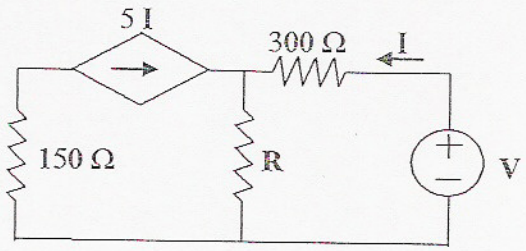
a) ~206.25 Ω
b) ~250 Ω
c) ~412.5 Ω
d) ~275 Ω
e) None of the above

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



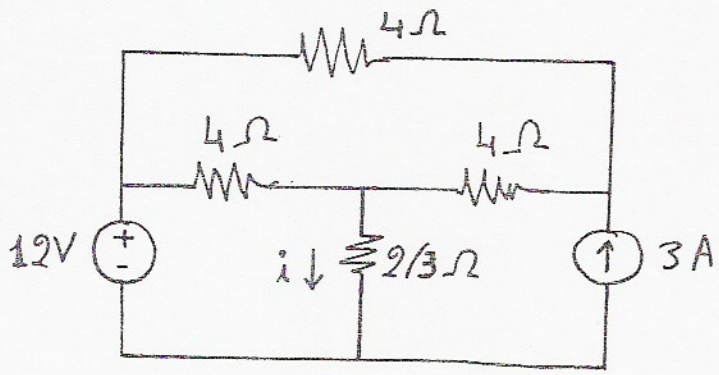
a) 15V
b) 5 V
c) 6 V
d) 8 V
e) None of the above

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



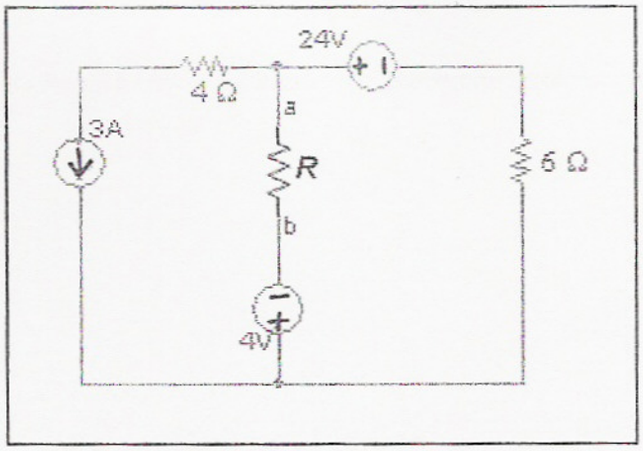
a) 50Ω
b) 100Ω
c) 150Ω
d) 250Ω
e) None of the above

6. Find ***i*** in the circuit below.



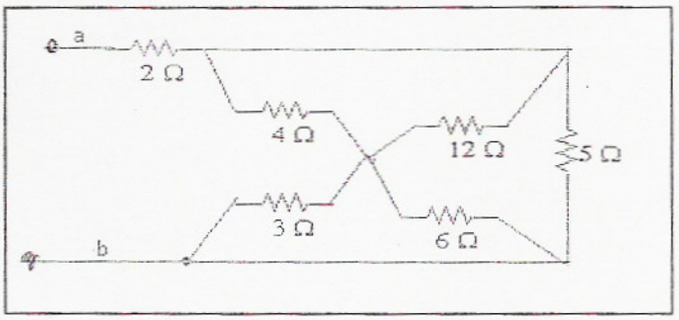
a) 6.4 A
b) 4.8 A
c) 2.5 A
d) 7.3 A
e) None of the above

7. A load resistance R in the range of [1,8] Ω 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.



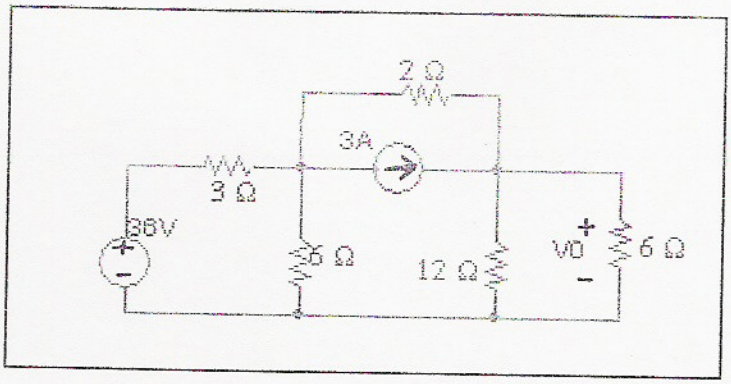
a) 10.58 W
b) 4.17 W
c) 5.95 W
d) 8.26 W
e) None of the above

8. Find the equivalent resistance between the terminals (a,b).



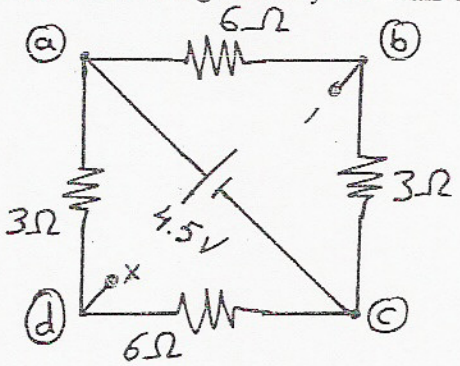
a) 4.50 Ω
b) 2.25 Ω
c) 12.5 Ω
d) 8.0 Ω
e) None of the above

9. Calculate the voltage Vo across the 6 Ω resistor due to the 36 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.

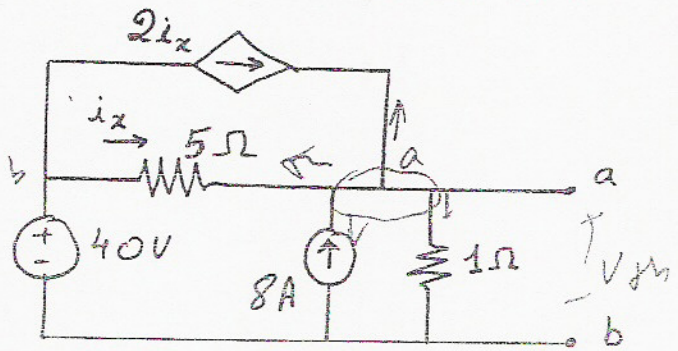


a) 1V
b) 1.5V
c) 2V
d) 2.5V
e) None of the above

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

a) 2Ω
b) 3Ω
c) 4Ω
d) 5Ω
e) None of the above

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



a) ~0.62Ω
b) ~1.6Ω
c) ~1.1Ω
d) ~0.93Ω
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