

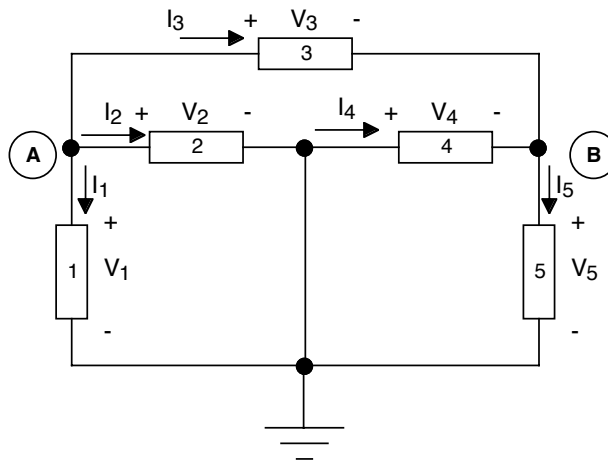
CASE WESTERN RESERVE UNIVERSITY
 Case School of Engineering
 Department of Electrical Engineering and Computer Science
ENGR 210. Introduction to Circuits and Instruments (4)

Quiz No. 1

1/21/05

PUT ANSWERS IN THE SPACE PROVIDED AND SHOW YOUR WORK IF APPROPRIATE

Problem 1 (10 points)



Consider the five element circuit shown above. You measure the electrical parameters shown below for each circuit element. . Complete this table and indicate whether each device is absorbing (**A**) or delivering (**D**) power. Current is defined to be positive when it flows into the positive terminal of the device.

Device	Voltage	Current	Power	A/D
1	+30 V		-300W	
2		4 A	+ 120 W	
3	+50 V	6 A	+300 W	
4		4 A	+80 W	
5	-20 V			

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Problem 2 (10 points)

- (a) An automobile battery is charged at a constant rate of 10000 milliamperes for 20 kiloseconds. Assume the charger keeps the battery voltage at a constant 0.012 kilovolts . What is the total energy in megajoules supplied to the battery?

ANSWER: _____ megajoules

- (b) An electrical power plant supplies 0.800kilovolts and 12000 milliamperes to operate an electric motor. The power plant is supplying how many kilowatts?

ANSWER: _____ kilowatts