Phys Sc 430 **Name_____**
Lab 4.3 **Connected to_____**

Purpose: To build four circuits using lego-type resistors:
(1) a series circuit
(2) a parallel circuit
(3) a combination circuit
(4) a circuit involving a switch.

Materials: switch, light bulb, (2) 100 Ω resistors, (1) 200 Ω resistor, power supply, ammeter, wires.

Procedure:

Part (1)

1. Connect the three resistors in series.
2. Attach them to a power supply.
3. Connect an ammeter.
4. Set the power supply to 6.0 V, and turn it on.
5. Measure the total current and record it in the table on page 4.
6. Draw your experimental setup using shorthand.
7. Draw you set up in 3-D---what it actually looks like.

Part (2)

8. Connect the three resistors in parallel.
9. Attach them to a power supply.
10. Connect an ammeter in position to record total current. Go back to the 500mA setting. The current will be higher now.
11. Set the power supply to 6.0 V, and turn it on.
12. Measure the total current and record it in the table on page 4.
13. Draw your experimental setup using shorthand.
14. Draw you set up in 3-D---what it actually looks like.

Part(3)

15. Connect the two 100 Ω resistors in parallel, and then combine that group in series with the 200 Ω resistor.
16. Attach them to a power supply.
17. Connect an ammeter in position to record total current.
18. Set the power supply to 6.0 V, and turn it on.
19. Measure the total current and record it in the table on page 4.
20. Draw your experimental setup using shorthand.
21. Draw you set up in 3-D---what it actually looks like.

Part(4)

22. Assemble the following circuit:

23. Attach it to an ammeter, and record the current.
24. Press on the switch. Record your the new current and your observations in the table on page 4.

Analysis:

1. What is the % difference between the expected current calculated from V/R_T to the actual current measured?

2. What happened to the total current in part (2)---why was it higher than part (1)'s current?

3. Why is not surprising that the current of part(3) is in between the measured value for that parts(1) and (2)?

4. Before you pressed the switch, there was still current flowing through the light bulb. Why did it only go on after you pressed the button? Why did the current increase on the ammeter?

Conclusion:

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Part	Current measured (include 1 estimated figure)	Drawing or observation
1		
2		
3		
4		
