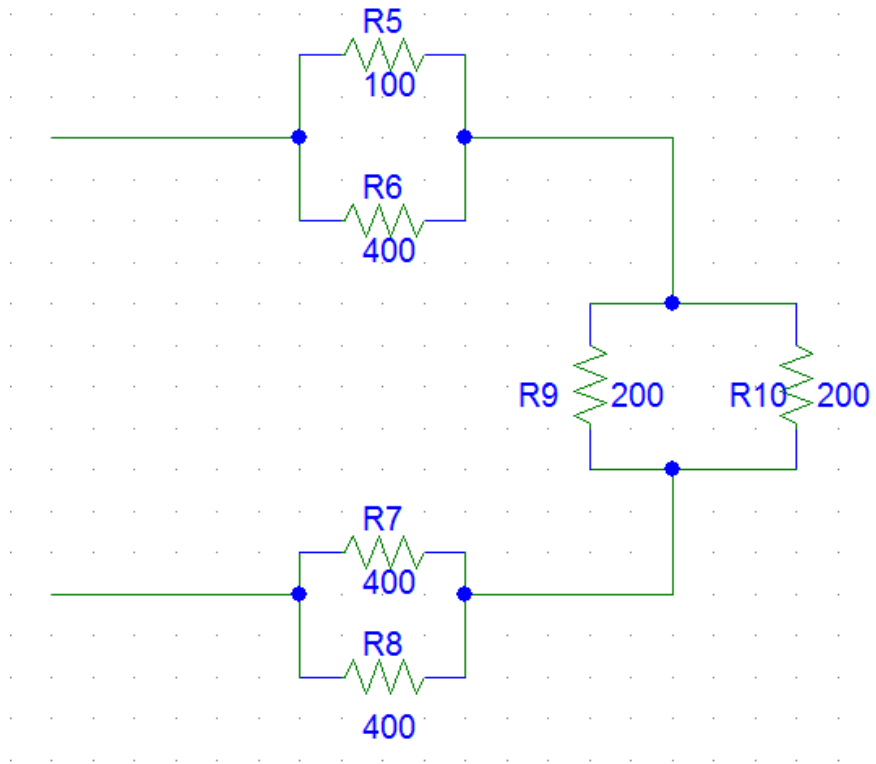


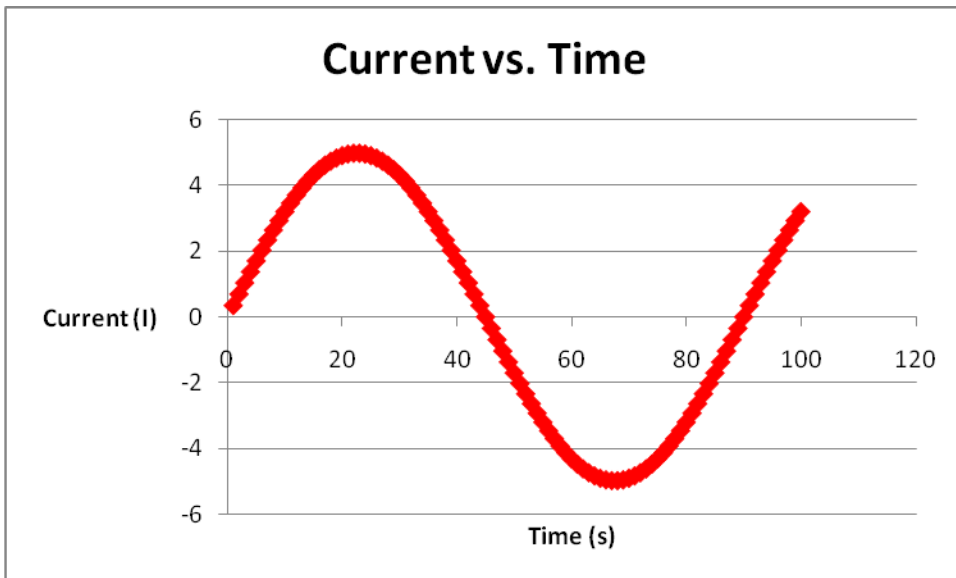
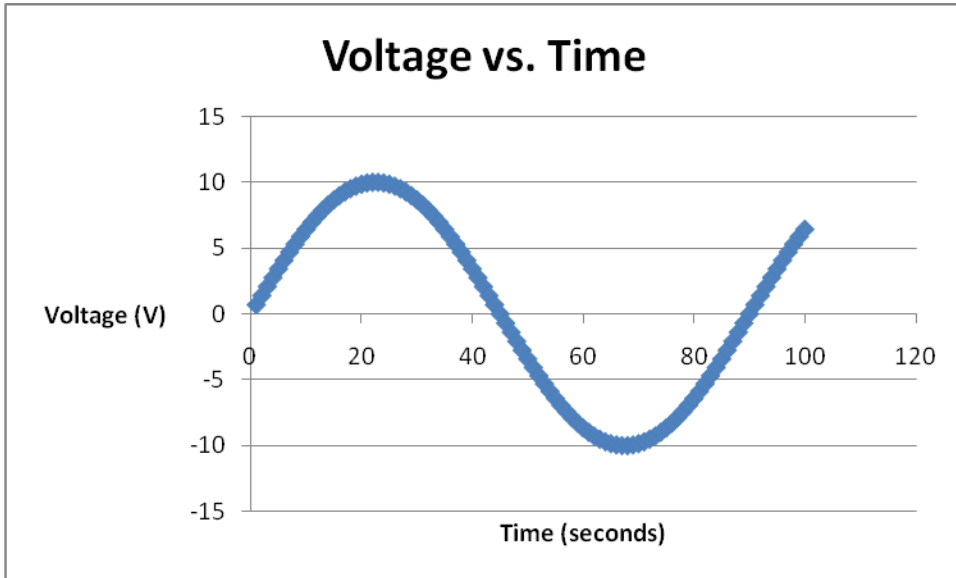
Shock Value Practice Test

1. Electromagnet A has 10 coils with a current of 2 A. Electromagnet B has 100 coils and a current of 1.5 A. Both are the same length, and they have identical iron nails in the center of the coils. Which one do you think can exert a greater magnetic force, and why?

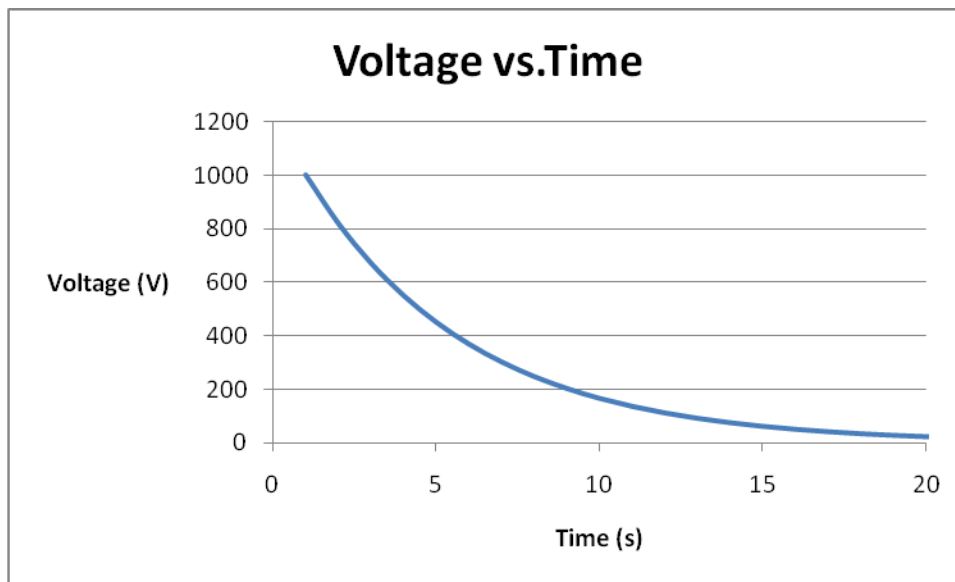
2. Determine the equivalent resistance of the following circuit. All numbers are in ohms.



3. What is the resistance of the circuit that generated the following graphs?



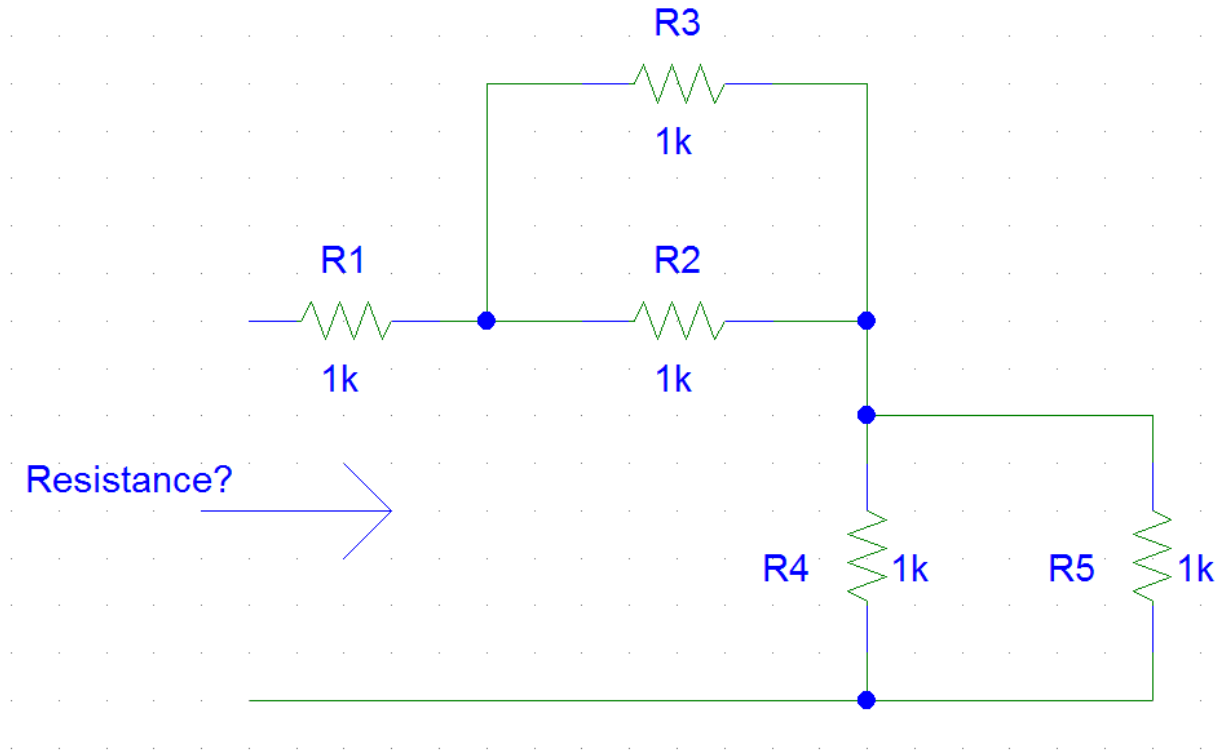
4. What is the current through a resistor that has a resistance of 10 ohms and the voltage at time $t = 5$ seconds on the following graph?



5. Which of the following materials will be attracted to a magnet?

- Carbon steel
 - Plastic
 - An iron bar
 - Ceramic
 - Pure water
 - A plugged-in electrical cord
 - An unplugged electrical cord
6. Santa Claus, polar bears, and the Arctic sea are all located near which MAGNETIC pole?

7. Find the equivalent resistance of the following circuit. All numbers are in ohms.

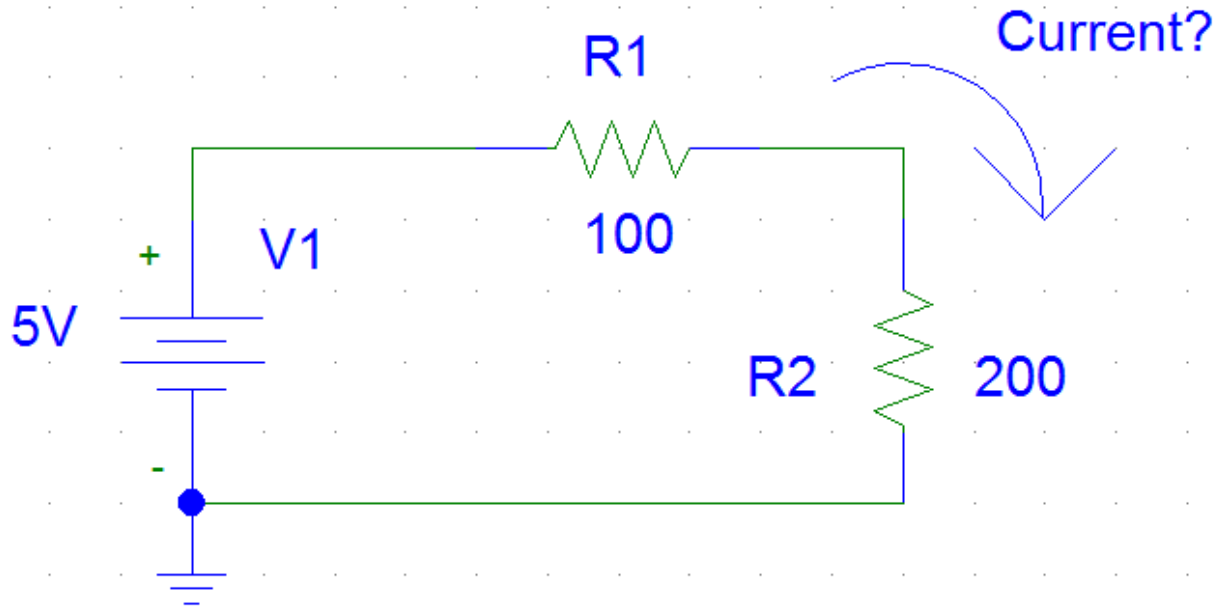


8. What determines if a material will be a good conductor?

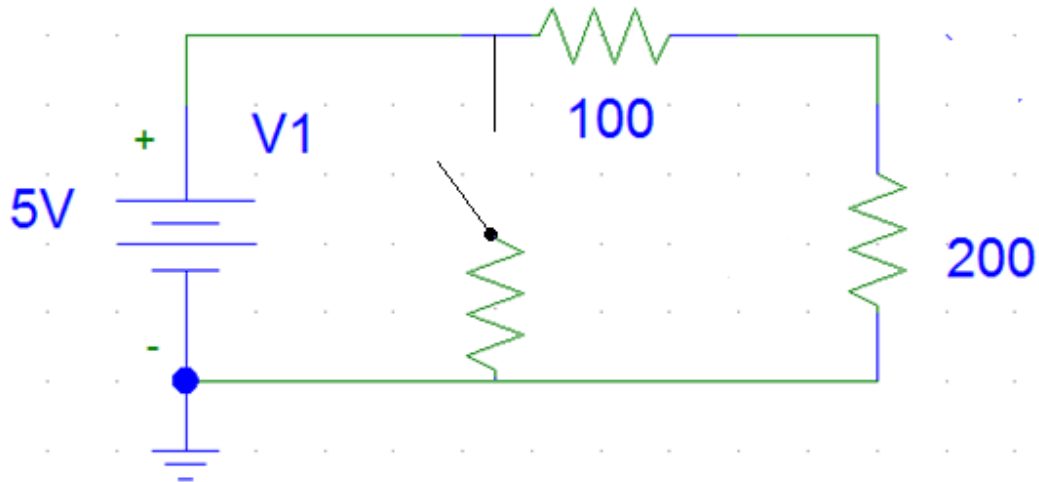
9. Match the following with their definitions:

- | | | | | |
|----|------------|-----|-----|--|
| A. | Ohm | ___ | 1. | The amount of charge moving in a circuit |
| B. | Resistor | ___ | 2. | The unit of current |
| C. | Voltage | ___ | 3. | The unit of voltage |
| D. | Potential | ___ | 4. | The unit of resistance |
| E. | Current | ___ | 5. | A device that maintains a set voltage across its terminals |
| F. | Volt | ___ | 6. | Also called "voltage level"; it is the voltage at a certain point in a circuit |
| G. | Amp | ___ | 7. | Determines how difficult it is to cause current to flow |
| H. | Battery | ___ | 8. | Equals voltage divided by current; usually equal to resistance in simple circuits. |
| I. | Resistance | ___ | 9. | A device that opposes the free movement of current. |
| J. | Impedance | ___ | 10. | A quantity that describes how hard a circuit tries to push current through it; equals current times resistance |

10. What is the current in the following circuit?



11. Which of the following statements are true about this picture:



- A. If the switch is closed, the current will go up.
- B. If the switch is closed, the current may go up, or it may go down.
- C. Closing the switch will always lower the equivalent resistance.
- D. Closing the switch will always raise the equivalent resistance.
- E. Closing the switch might raise or lower the equivalent resistance, depending on the value of the resistor near the switch.
- F. If the resistor near the switch has a very low resistance, the current through the battery will be very large.

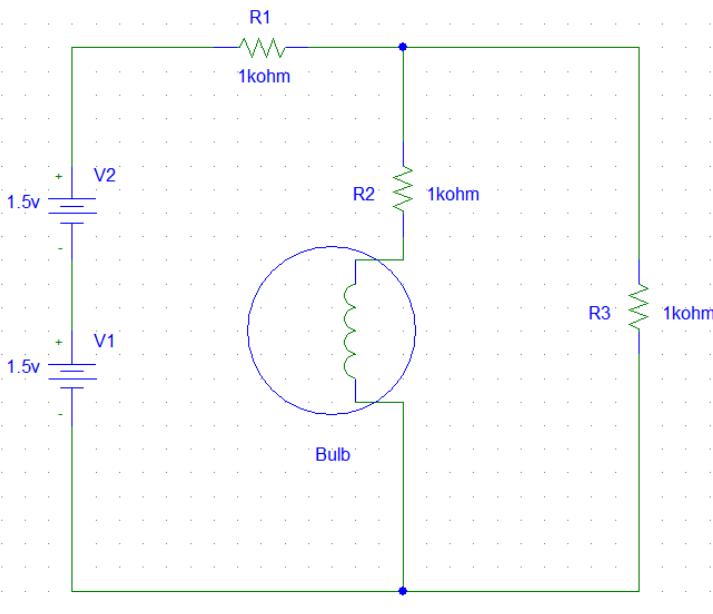
Lab Section

Show all work in the space provided below each question.

Station 1: Determine the resistance of the mystery resistor in the circuit.

Draw a diagram of this circuit below.

Station 2: Construct the circuit in the following diagram.



Station 3: Determine the equivalent resistance of the circuit.

Station 4: Use the voltmeter, current meter, and battery provided to determine the resistance of the resistor.