1) The internal resistances of an ideal voltmeter and an ideal ammeter are respectively (ideal meaning the behavior of the system is not changed when using the meter)

a. zero and zero.
b. infinite and infinite.
c. zero and infinite.
d. **infinite and zero**

2) Three resistors, each with resistance R_1, are in series in a circuit. They are replaced by one equivalent resistor, R. Comparing this resistor to the first resistor of the initial circuit, which of the following is true?

a. **The current through R equals the current through R_1.**
b. The voltage across R equals the voltage across R_1.
c. The power given off by R equals the power given off by R_1.
d. R is less than R_1.

3) If $R_1 < R_2 < R_3$, and if these resistors are connected in series in a circuit, which one dissipates the greatest power?

a. R_1
b. R_2
c. $\mathbf{R_3}$
d. All are equal in power dissipation

4) Three resistors, each with resistance R_1, are in parallel in a circuit. They are replaced by one equivalent resistor, R. Compare this resistor to the first resistor of the initial circuit. Which of the following statements is true?

a. The current through R equals the current through R_1.
b. **The voltage across R equals the voltage across R_1.**
c. The power given off by R equals the power given off by R_1.
d. R is greater than R_1.

5)Three resistors, each of different value, are used in a circuit with a power source supplying 12 volts. For which of the following resistor combinations is the total power supplied the greatest?

a. all three resistors in series
b. **all three resistors in parallel**
c. two of the resistors in parallel with the third resistor in series with the parallel pair
d. This cannot be found until it is known which resistor is in series with the parallel pair.

6) Kirchhoff's rules are the junction rule and the loop rule. Which of the following statements is true?

a. Both rules are based on the conservation of charge.
b. Both rules are based on the conservation of energy.
c. **The junction rule is based on the conservation of charge, and the loop rule is based on the conservation of energy.**
d. The junction rule is based on the conservation of energy, and the loop rule is based on the conservation of charge.