hhh.26.20_26.25

Please read pages 265 and 266

Voltage: Voltage is the "electrical pressure" that pushes electrons through a conductor. It is analogous to water pressure. A battery acts like an "electron pump."

Current: This is the flow of electrons or more accurately "flow of charge." Current is actually a vector which points opposite the direction of flow of the electrons. The flow of electrons is often referred to as "electron current." You can think of "conventional current" as the flow of positive charges. Current is analogous to water current or the flow of water molecules

Resistance: Resistance is just as it implies. It is the the resistance to the flow of current. Resistors act like water pipes in directing the flow of current and the placement of voltages in different parts of the circuit. A high resistance is analogous to a narrow pipe and a low resistance is analogous to water pipe with a large diameter.

Ohm's Law defines the relationship between Voltage, current, and resistance

"I" is the symbol given current. However, current is measured in amperes or amps

"V" is the symbol given voltage and it is measured in volts.

"Ω" The Greek letter omega (Greek letters can be found in appendix E in schaums, page 442) is the symbol given for resistance and it is measured in ohms.

Ohms law

V= IR

26.20 Current is equal to charge per second. One electron has a charge of 1.6 e -19 coulombs. This can be set up as a conversion problem.

$$0.7 amps\left(\frac{1 coulomb}{1 amp \cdot \text{sec} ond}\right)\left(\frac{1\_electron}{1.6e-19 coulombs}\right)$$

26.21 This is just like problem 26.20

26.22 Use ohm's law

26.23. Use ohm's law. "Potential difference" is the same thing as voltage.

26.24 Convert the 720 coulombs per minute to coulombs per second. This is the current. The "potential difference" is the same as the voltage (in this case it would be the "voltage drop.")

26.25 A battery is an electron pump in which it gives energy to electrons. As the electrons pass through a resistance, they lose some of this energy. Thus the **voltage drop** is the that "electrical pressure" that is lost as the current passes through a resistor. This is analogous to water losing some of its pressure as it passes through a pipe.
You still use Ohm's law and find the resistance of the 24 cm of the bar (note that 1.2 mV is 0.0012 V). μ (pronounced myew) means micro or 10^{-6}. You then need to find the resistance of 100 cm of the same bar.