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| **Ref.** | **Unit 1 Concepts & Definitions** | **Terms, Notation, Formulas, Diagrams** |
|  | Electricity is the flow of:  |  |
|  | Three types of materials commonly used in electrical systems are - |  |
|  | The standard model in which electrons configure themselves into shells around a nucleus is called the - |  |
|  | The ability of a material to conduct electricity depends on \_\_\_\_\_\_\_\_\_\_ electrons in the outer shell called -  |  |
|  | Fewer valence electrons make a material more -  |  |
|  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is opposite the flow of electrons and goes from + to - . |  |
|  | The net flow of electrons through a material is called -  |  |
|  | **Electrical resistance (R)** is a measure of a material’s opposition to the passage of -  |  |
|  | The potential difference between the strength of the electron supply and the electron shortage defines the \_\_\_\_, a.k.a. the electromotive force. |  |
|  | Electric current or voltage that periodically reverses direction is called -  |  |
|  | Typical AC voltage in the U.S. is -  |  |
|  | Electrical current or voltage that is constant is called -  |  |
|  | A \_\_\_\_ (also bus bar) is a metallic strip or bar, typically housed inside switchgear, panel boards, and busway enclosures for local high current power distribution. |  |
|  | In (DC) electronics, wires carrying supply power (+) are typically -  |  |
|  | In (DC) electronics, ground (-) wires are typically -  |  |
|  | An electronic \_\_\_\_\_\_\_\_\_\_\_\_ is used to connect wires and components in prototype circuits. |  |
|  | The red bus closest to the Arduino breadboard in our kit provides \_\_\_\_ regulated. |  |
|  | The yellow wire, connected to Vin and the red bus farthest from the Arduino circuit board, is used for Vin which provides \_\_\_\_\_\_\_\_ unregulated. |  |
|  | A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a hand-held piece of electrical test equipment used to make a variety of electrical measurements. |  |
|  | Test \_\_\_\_\_\_\_\_\_\_\_\_\_ are connected to electrical test equipment and used to take measurements across components in a circuit. |  |
|  | Electric current, I, is the amount of charge passing a point per unit time and is measures in -  |  |
|  | A \_\_\_\_\_\_\_\_\_ is equal the amount of charge in $6.24×10^{18}electrons$. |  |
|  | Voltage is the measure of the amount of potential energy per electric charge or Coulomb, so -  |  |
|  | \_\_\_\_\_\_\_\_\_\_\_\_ is a measure of work (in Joules). |  |
|  | Work =  |  |
|  | Resistance(R) is a measure of the frictional resistance encountered by electrons as they attempt to pass through a material measured in -  |  |
|  | A \_\_\_\_\_\_\_\_\_\_\_ is a closed path in which current can flow. |  |
|  | Ohm’s Law relates voltage, current, & resistance to each other using the equation -  |  |
|  | Electricity can flow one way through a –  |  |
|  | Power =  |  |
|  | Power Equation: |  |
|  | Combining $P=IV$ and $V=IR$, we get: |  |