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Submitted to

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(Q1) Explain the following terms

(a) Difference between voltage and current

(Ans) A voltage source supplies electrical energy while maintaining a constant voltage at its supply terminals under changing supply current.

A current source supplies electrical energy while maintaining a constant supply current under changing load resistance.

(b) Ionization

Ionization or Ionisation is the process by which an atom or molecule acquires a negative or positive charge by gaining or losing electrons, often in conjunction with other chemical changes. The resulting electrically charged atom or molecule is called an ion.

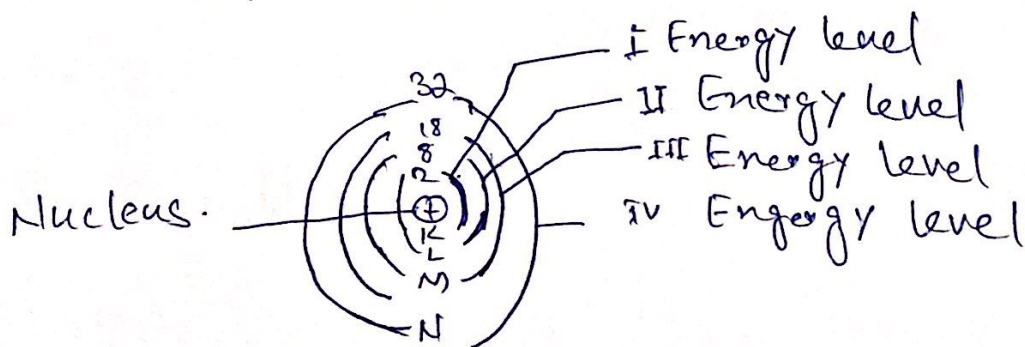
(C) Valance Electron.

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A valance electron is an outer shell electron that is associated with an atom, and that can participate in the formation of chemical bond. its outer shell is not closed in a single covalent bond, both atoms in the bond contribute one valance electron in order to form a shared pair.

(D) ENERGY LEVEL :-

Energy level (also called electron shell) are fixed distance from nucleus of an atom where electron may be bound. Electrons are tiny, negatively charged particles in an atom that move around the positive nucleus at the center. Energy levels are a little like the steps of a staircase



(Q2)

(a) What is the basic reason for energy conversion in a resistor?

(Ans)

When a current flows through a resistor, electrical energy is converted into HEAT energy. The heat generated in the components of circuit out of which possess least some resistance, is dissipated into the air around the components. The rate at which the heat is dissipated is called Power. Given letter P , unit watts (W)

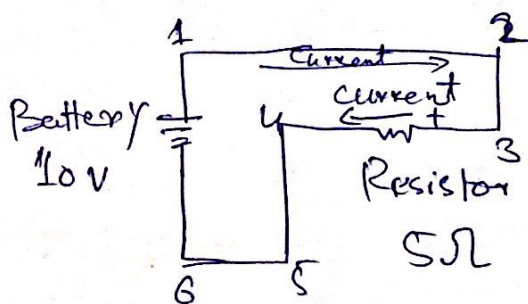
⇒ The power consumed by a resistor can be written as $W = I \cdot V \cdot t$
 elt from t_1 to t_2 since $P = V \cdot I$

Q2) What is the polarity of a voltage drop in a relation to conventional current direction.

(Ans) The polarity of the voltage drop across any resistive component is determined by the direction of current flow through it; positive entering and negative exiting

when using conventional current flow, we can trace the directions of the current in the same circuit by starting at the positive (+) terminal and going to the negative (-) terminal of the battery

The only source of voltage in the circuit. From this we can see that the current is flowing clockwise, from point 1 to 2 to 3 to 4 to 5 to 6 and back again to 1.



(Q3) Name two important values associated with a resistor.

(Ans) The two main parameters associated with resistors are their total resistance in Ohms (Ω) along with their safe power-dissipating rating in watts (W).

Sometimes tolerance is given as a third parameter.

(Q3) How does the physical size of a resistor determine the amount of power that it can handle?

(Ans) Every resistor has maximum power rating which is determined by its physical size as generally the greater its surface area the more power it can dissipate safely into the ambient air into a heatsink.

* Generally speaking the larger their physical size the higher its wattage rating. However, it is ~~always~~ better to select a particular size resistor that is capable of dissipating two or more times the calculated power when resistors with higher wattage rating are required. Wirewound resistors are generally used to dissipate the excessive heat.