

INU PESH

Mid term

Name : Javid

ID : 13151

Programme : Bs (Telecom)

Course : Electrical Circuit

Submitted to : Sir. M. Khalid Hamid

Q#1 :- Explain the following terms?

PART a) :- Difference between voltage and current.

Answer :- Difference between voltage and current:

The voltage and current are the two major aspects of electricity. The voltage is the type of the electromagnetic force whose effects causes the flow of electrical current in the circuit.

The magnitude of a voltage and current depends on each other, but these two terms are different from each other in some ways.

One of the major differences between voltage and current is that the voltage is the difference between the two points and the current is the flow of electrical field.

PART b). Ionization:

Ionization or ionisation is the process by which an atom or a 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.

PART. C). Valence electrons:

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

PART. D). Energy Level:

A quantum mechanical system or particle that is bound - that is, confined spatially - can only take on certain discrete values of energy, called energy levels.

This contrast with classical particles, which can have any amount of energy.

Q#2:

PART a). What is basic reason for energy conversion in a resistor?

Answer: Energy Conversion in a resistor:

When a current flows through a resistor, electrical energy is converted into HEAT energy.

The heat generated in the components of a circuit, all of which possess at least some resistance, is dissipated into the air around the components.

The rate at which the heat is dissipated is called Power, given the letter P and measured in units of Watts (W).

Q# 2 :

PART. b). What is the Polarity of a voltage drop in a relation to Conventional Current direction?

Answer \rightarrow The polarity of the voltage drop across any resistive components is determined by the direction of Current flow through it:

Positive entering, and negative existing. -

When using Conventional Current flow, we can trace the direction 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 5 to 6 and back to 1 again.

Q# 3:

PART a). Name two important values associated with a resistor?

Answer := Ohms (Ω) and Watts (W)

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.

PART b). How does the physical size of a resistor determine the amount of power that it can handle?

Answer \Rightarrow Every resistor has a 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 or 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 ratings are required, wirewound resistors are generally used to dissipate the excessive heat.