Physics - ICS Part 2 Physics Chapter 13 Short Questions Preparation

Q1. Differentiate between resistance and resistivity.Give their unit.

Ans 1: Resistance: The opposition against the flow of current is known as resistance,The SI unit of resistance is Ohm.
R=V/I

Ans 2: Resistivity:The resistance of a meter cube of a material is called resistivity.Its unit is known as ohm-meter.

Q2. What are non ohmic devices?Give two examples.

Ans 1: Those devices which don't obey the Ohm's law are called non-ohmic devices.Their current-voltage graphic is not a straight line.For example ,filament bulb and semiconductor diodes.

Q3. A potential difference is applied across the ends of a copper wire,What is the effect on the drift velocity of free electrons by decreasing the length and temperature of the wire?

Ans 1: By decreasing the length and temperature of wire the value of resistance in the wire also decrease which cause an increase in the value of current,Hence the drift velocity of free electrons also increase.

Q4. What is ohmic and non ohmic devices with example.

Ans 1: The devices which obey Ohm's law are called ohmic devices and devices which do not obey Ohm's law are called non-ohmic law.For example copper,silver and gold are ohmic whereas diodes and tungsten filaments are non ohmic.

Q5. How can rheostat be used as potential divider?

Ans 1: By adjusting the sliding contact resistance of the rheostat can be altered which in turn would regulate the potential offered by the cell E to the main circuit,And thus a rheostat can be used as potential divider.

Q6. Do two long and parallel current carrying wires attract each other?

Ans 1: Yes ,If the direction of current is same in two long parallel current carrying wires.Because the opposite pole of electromagnet comes in front of each other and attracts.

Q7. What are the difficulties in testing weather the filament of lighted bulb obeys ohm's law?

Ans 1: In case of light bulb,the temperature of the filament increase with the passage of current through it.Hence the Ohms law can't be applied to filament bulb.

Q8. Why potential meter is accurate measuring meter?

Ans 1: The voltage measured using potentiometer is the voltage across the terminal of the cell when current is not following through it.This voltage is exactly the emf of the cell.Further the accuracy of a potentiometer can be increased to a great extent by increasing the length of the "potentiometer wire".

Q9. A voltmeter can not read the exact EMF of the cell.Why?

Ans 1: When a voltmeter is connected across a cell,it will draw some current from the cell and small potential drop takes place due current flowing through the internal resistance of the cell.As a result the actual emf of the cell decrease and the voltmeter cannot read exact value.

Q10. What does the equation $H=I^2Rt$ show?

Ans 1: This equation show the heating effect,During their motion free electrons collide frequently with the atom of metal.on each collision they transfer some of their kinetic energy to the atom with which they collide.And these collisions produce heating effect in the wire.