Physics - ICS Part 2 Physics Chapter 13 Short Questions Preparation

Q1. What is wheat stone bridge?

Ans 1: It is an electrical circuit which can be used to find the unknown resistance of a wire.It consists of four resistance connected in the form of mesh.galvanometer,battery and switch.

Q2. 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.

Q3. 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".

Q4. State Ohm's law and basic principle of electroplating.

Ans 1: Current passing through a wire is directly proportional to the potential difference applied across its ends provided that the physical state conductors remains same.
Basic principle of electroplating is a process of coating a thin layer of sum expensive metal of (gold,silver etc) on a article of some cheap metal.

Q5. What is meant by Tolerance? Also give one example.

Ans 1: Tolerance mean the possible variation in the value of resistance of a carbon resistors from a marked value.In case of silver and gold ban its value is +-10% and +-5% .

Q6. 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.

Q7. How a wheatstone bridge is used to determine an unknown resistance?

Ans 1: Wheatstone bridge is an especially designed electrically circuit used to calculate the accurate value of any unknown resistance.It consists of four resistance,a galvanometer, a battery and a switch connected.When the switch is closed current pas through the galvanometer and then the three known resistance R_1,$R_2$and $R_3$are adjusted in such a way that galvanometer show no deflection,In this balanced condition the fourth unknown resistance R_4can be calculated by using this relation.$R_1/R_2=R_3/R_4$.

Q8. Briefly describe the current through a metallic conductor and drift velocity.

Ans 1: In a metallic conductor,free electron are in random motion with the speed of several hundred km/s at the room temperature.If the ends of the wire are connected to the battery the free electrons are experience a force and directed to move in the electric field direction.The accelerating electrons keep on colliding with atoms of the conductors and transfer their energy to the lattice with the result that the electrons acquire an average velocity called drift velocity.The drift velocity is of the order of 10^{-3}.A steady current is establish in the wire.

Q9. 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.

Q10. Why does the resistance of a conductor rise with a temperature?

Ans 1: As the temperature of the conductor rises,the amplitude of vibration of atoms increase and hence the probability of their collision with free electrons also increases which results in increase of resistance of conductor.
