

## HOTS-CLASS-X(ELECTRICITY AND MAGNETIC EFFECTS OF CURRENT)

1. Two wires of the same material and same length have radii  $r_1$  and  $r_2$  respectively. Compare their resistances.
2. What are ohmic and non-ohmic resistors? Give one example of each and draw graphs to show their current-voltage relationship.
3. Why does a current carrying, freely suspended solenoid rest along a particular direction?
4. A television picture tube shoots a beam of electrons. The current due to this beam is 10mA. How many electrons will strike the television screen every second?
5. Two bulbs whose resistances are in the ratio 1:2 are connected in parallel to a source of constant voltage. What will be the ratio of power dissipation in these bulbs?
6. A beam of alpha particles is moving vertically upwards. If it passes through a magnetic field which is directed from south to north in horizontal plane, then in which direction the beam would be deflected?
7. What is the use of the commutator in a DC motor?
8. An electric heater is rated 2kW, 220V. If a fuse is to be connected to it, should it be rated 5A or 15A?
9. Electric supply of a house is through a 15A fuse. When a 2000W heater is used in this house, how many 100W bulbs can be used simultaneously? The supply is at 220V and the heater and the bulbs are rated for 220V.
10. Give reasons: (i) ammeter has low resistance and is connected in series.  
(ii) voltmeter has high resistance and is connected in parallel.

