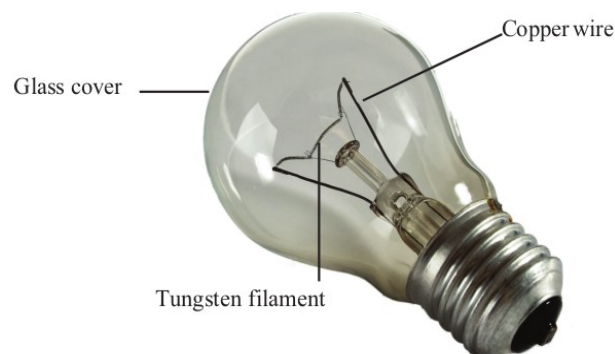


PHYSICS - X-PART-11 CLASS 11



Lighting effect of electric current

1. Incandescent lamps (Filament lamps)



The main parts of a filament lamp.

- * Tungsten filament
- * Glass cover
- * Copper wire
- * Gas filled at low pressure inside the bulb

The working of a filament lamp.

- * Electricity passes through the Tungsten filament
- * The filament becomes white hot
- * Gives out light

1. Which material is used to make filament?

- * Tungsten

2. What properties of tungsten make it suitable for being used as a filament?

- * high resistivity
- * high melting point
- * high ductility
- * ability to emit white light in the white hot condition

3. Why is the bulb filled with an inert gas/ nitrogen?

* Vaporisation can be reduced by filling some inert gas at low pressure inside the bulb.

4. Why is the bulb is evacuated?

* In order to avoid oxidation of tungsten.

5. Nichrome is not used as filament in incandescent lamps. Why?

* It can remain only in red hot condition but it can't give light.

5. What is the disadvantage of the incandescent lamps?

* A major part of the electrical energy supplied to an incandescent lamp is lost as heat. Hence the efficiency of these devices is less.

2. Discharge lamps

The main parts of a Discharge lamp.

- * Glass tubes
- * Two electrodes
- * Gas molecules



The working of a Discharge lamp.

When a high potential difference is applied to the electrodes

↓
The gas molecules get excited

↓
Excited atoms come back to their original states for attaining stability

↓
The energy stored in them will be radiated as light

1. What are the advantages of using discharge lamps instead of incandescent lamps?

- * Loss of electricity in the form of heat is less
- * More life span
- * More light is obtained
- * Less consumption of electricity

2. What are the factors to be considered when you select a bulb?

- * Efficiency
- * Energy consumption
- * Low energy loss
- * Less environmental pollution

3. LED (Light emitting diode)



LED Bulb

1. Which are the lamps that are mostly used? Why?

LED lamps, because

- * As there is no filament, there is no loss of energy in the form of heat.
- * Since there is no mercury in it, it is not harmful to environment.
- * Very low power consumption.
- * More life span.
- * Different coloured LEDs can be manufactured.