Chapter 10: Light Reflection and Refraction

Light · Light is a form of energy.

Light: Light is a form of energy that produces the sensation of sight.

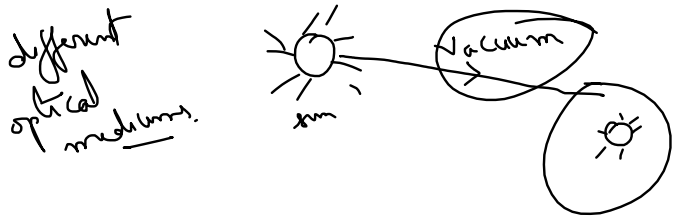
Luminous objects: Objects which emit the light of their own.
Eg: Sun, stars, tube light etc.
Non - Luminous Objects: Objects which do not emit the light of their own.
Eg: Moon, wall, trees, mirror etc.

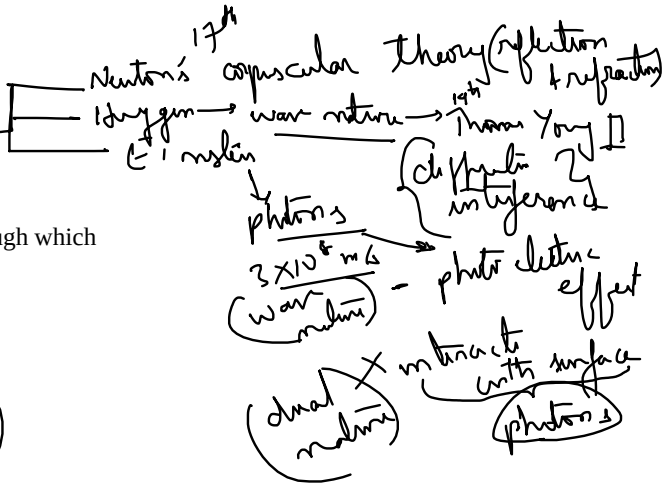
Importance of light:

1. Light enables us to see things around. (sensation of sight)
2. Light is a form of energy. (Green plants use this energy to prepare food)
3. Light produces heat. sunlight

Characteristics of light:

- Light is a form of electromagnetic wave.
- Light does not require any medium for its propagation.
- Light travels in straight line. (Rectilinear propagation of light)
- The speed of light in vacuum is very high. (3×10^8 m/s)
- The speed of light wave depends on the nature of the medium through which it pass.





Transparent substances: Substances which allow the light to pass through them.

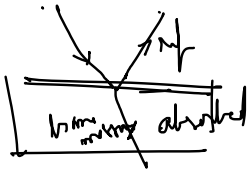
Eg: glass, air, water, acrylic sheets, etc.

Translucent substancets: Substances which allow only a part of the light falling on them to pass through.

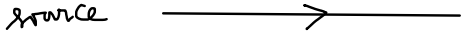
Eg: grounded glass, butter paper etc.

Opaque substances: Substances which do not allow the light to pass through them.

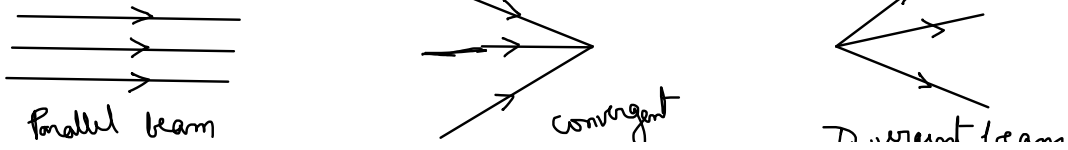
Eg: wood, brick, table, char etc.

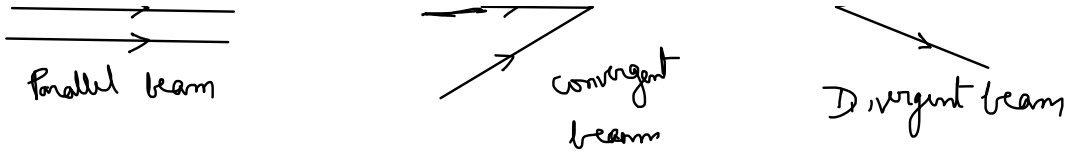


Ray of light: A ray of light is the direction of the path followed by light emitted by a source.



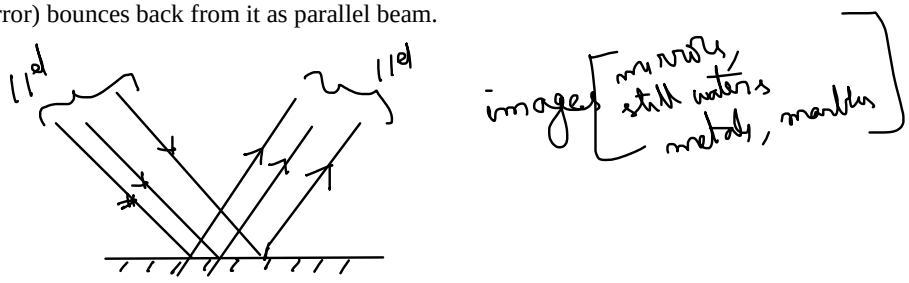
Beam of light: A bundle (or a group) of light rays moving in the same direction emitted by a source of light.



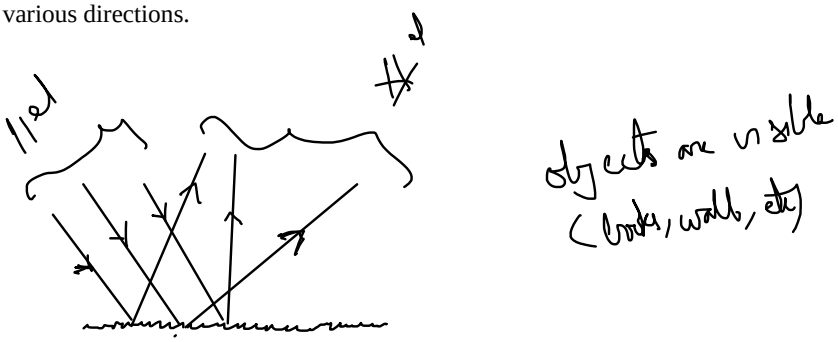


Reflection of light: The phenomenon in which the light rays on striking a polished smooth surface such as a mirror is sent back in to the same medium.

Regular reflection: A parallel beam of light travelling through a certain medium on striking a smooth or a highly polished surface (such as mirror) bounces back from it as parallel beam.



Irregular/Diffused reflection: A parallel beam of light travelling through a certain medium on striking a rough surface (such as wall) gets reflected in various directions.



Reflection of light from plane morror:

Incident ray: The ray of light which falls on the mirror's reflecting surface is called incident ray.

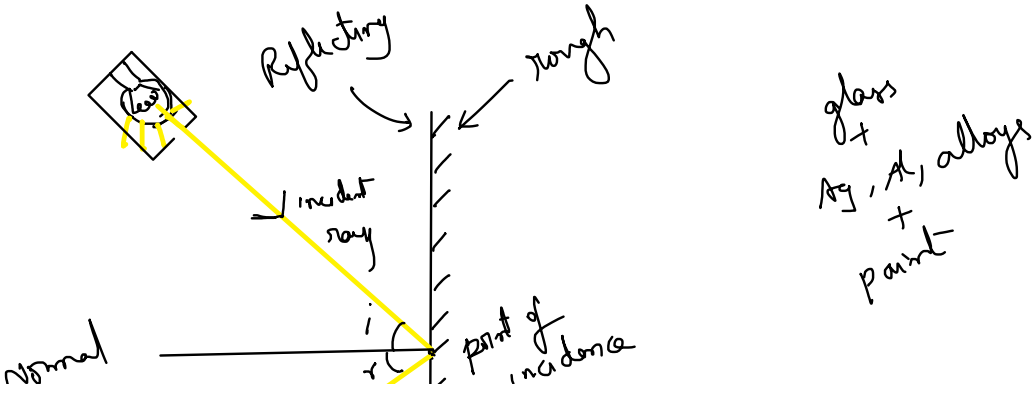
Point of incidence: The point at which the incident ray strikes the reflecting surface of the mirror is called point of incidence.

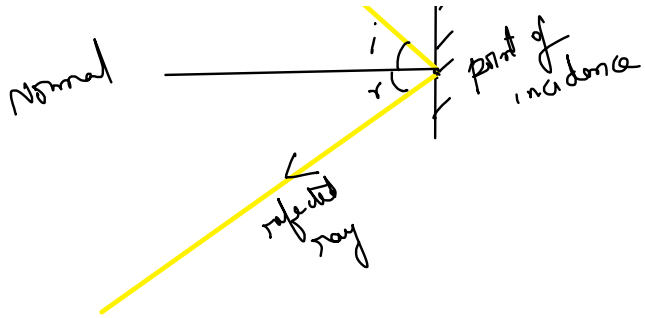
Reflected ray: The ray of light which is sent back by the mirror is called reflected ray.

Normal: It's an (imaginary) line drawn perpendicular to the reflecting surface of the mirror at the point of incidence.

Angle of incidence: The angle made by the incident ray with the normal at the point of incidence.

Angle of reflection: The angle made by the reflected ray with the normal at the point of incidence.

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