

The new spherical wave originating from wavefront of the wave which travels with the speed of wave at that medium is called wavelet.

- The direction of propagation of light is perpendicular and outward to a wavefront.
- Two wavefronts can never intersect each other.
- The phase difference between any two points on a wavefront is always zero (as they are in same phase).

### Types of Wave-fronts:

Generally, the wave fronts are of three types:

- a) Spherical wavefront
- b) Cylindrical wave front
- c) Plane wave front

The nature (or type) of wavefront depends upon the nature of source of light and distance of the source from observer (*depends upon nature and distance of light source*).

#### a) Spherical wavefront:

The wavefront of wave produced from a point source is called as spherical wavefront.

The term *spherical* indicates that the wavefront has *spherical surface* around and outward the source.

The direction of propagation of wave is perpendicular and outward to the surface of wavefront.

#### b) Cylindrical wavefront:

The wavefront of wave produced from a linear source is called as cylindrical wavefront.

The term *cylindrical* indicates that the wavefront has *cylindrical surface* around and outward the source.

#### c) Plane wavefront:

The wavefront of wave produced from a **distant** point or linear source is called as plane wavefront.

The term *plane* indicates that the wavefront has *plane surface* reaching the observer

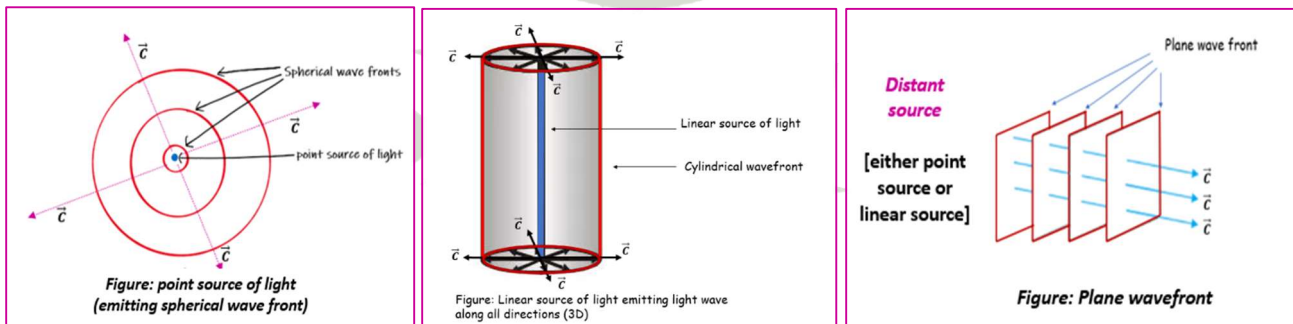


Figure: wavefront from a point source:

(i) *spherical* and *cylindrical wavefront* closer to the source and (ii) *plane wavefront* far away from the source.

#### Remember!!!

- ✓ Every point in a wavefront (either spherical, or cylindrical or plane) act like a new *point source* of light. These point source are called as *wavelets*. They travel with speed of light along forward direction.
- ✓ The wavefront observed in the ripple (surface of liquid) is a *circular wavefront*.