Photoluminescence

→ When a crystalline solid absorbs energy (usually in the form of radiation) and re-emits it in the visible (or nearly visible) region of the spectrum, this phenomenon is called as luminescence.

→ It is a two step process:

(i) excitation of electrons from a lower energy state to a higher energy state as a result of absorption of energy.

(ii) emission of light radiation when the electrons fall back to a lower energy state

→ When the luminescence is produced by the bombardment of photons of an electromagnetic radiation lying in the range from infared to X-rays, it is called photoluminescence.

→ The time during which the luminescence is observed, depends on the time interval between the acts of excitation and emission.

→ If the emission takes place within 10^{-8} seconds of excitation or if the emission takes place as long as the excitation is maintained, the phenomenon is called ~~flour~~ fluorescence.

→ If the luminescent emission continues for some time even after the excitation has been removed, it is known as phosphorescence or afterglow.