INTERFERENCE OF LIGHT

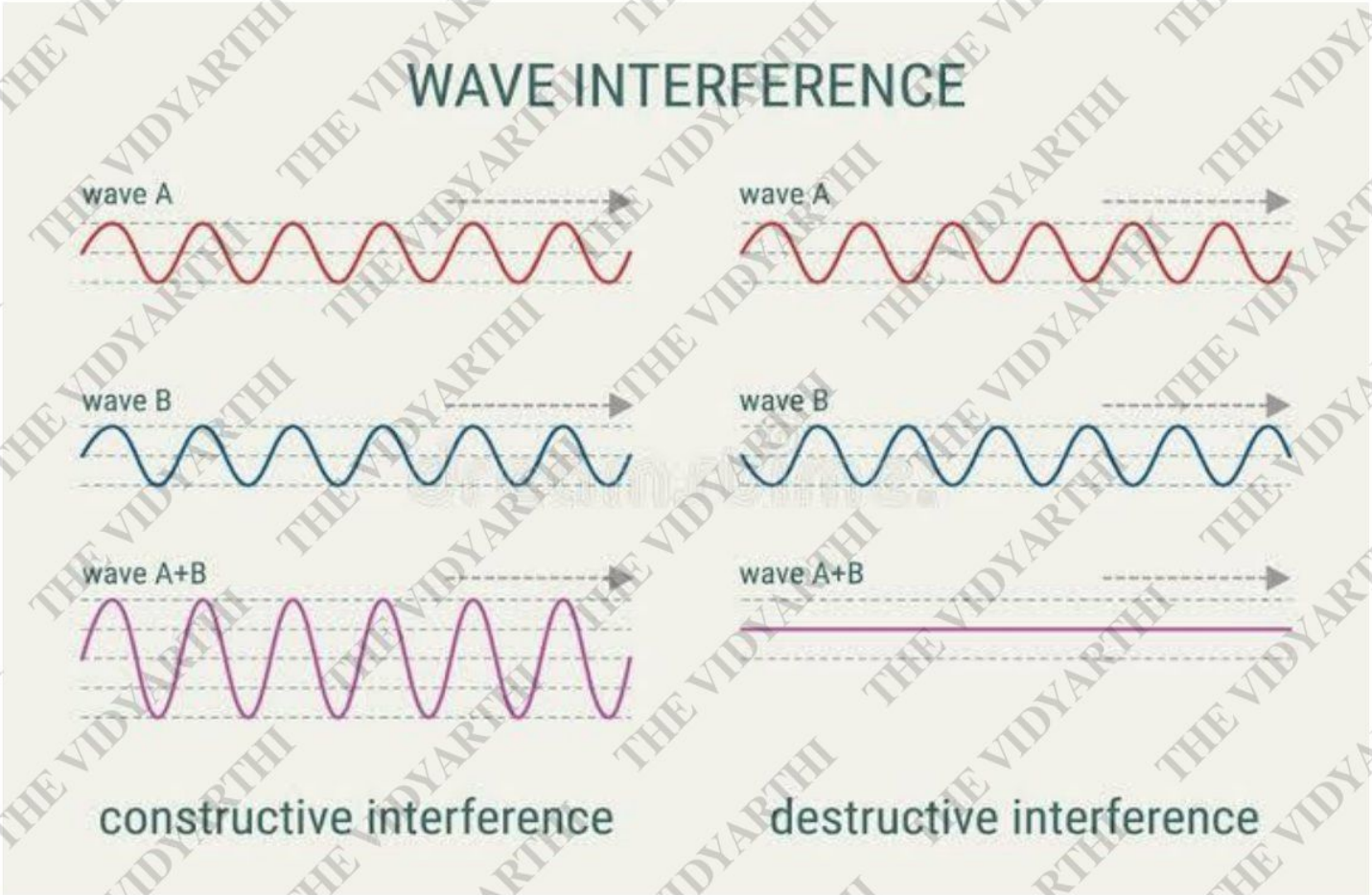
When two light waves of nearly same amplitude, same frequency and travelling in the Same direction of medium, superimpose over each other then there occurs variation of Intensity of light with distance (maximum and minimum). This phenomenon is defined as Interference of light.

The experiment on interference of light was first performed by Young in 1802.

The interference of light take place in two ways.

Constructive interference

Destructive interference



Conditions for Sustained Interference Pattern

The source of light must be monochromatic.

Two source of light must be coherent. Frequencies (wavelength, time period) of two waves must be same.

The distance between two light sources must be small and the distance between the source and screen must be large.

The two coherent sources must be narrow.

The two light waves must travel in the same direction.

If the source of light is white, then the path difference, between the waves emitted by it Must be small.

The vibration of two waves must be in the same direction.