# Quiz

Q.(1) Phenomenon of Interference occurs in _____ waves.

(a) Longitudinal
(b) Transverse
(c) Electromagnetic
(d) None of these

Q(2) Phenomena which does not support wave Nature of light is

(a) Black body radiation
(b) Interference
(c) Photoelectric effect
(d) Diffraction

Q3. Device used to create coherent sources is

(a) Prism
(b) Lens
(c) Fresnel Biprism
(d) Glass plate

Q4. Interference by division of wavefront takes place in

(a) Young's double slit Exp.
(b) Fresnel's Biprism exp.
(c) Newton's Ring Exp.
(d) Interference in thin films

Q5. Light waves are

(a) Longitudinal waves
(b) Transverse waves
(c) Both a & b
(d) None

Q6. A Phase difference $\pi$ between two interfering beams is equivalent to path difference

(a) $2\lambda$ (b) $\lambda$ (c) $\lambda/2$ (d) None

Q6. A disturbance that propagates through space and time, usually with the transference of energy from one point to another without any particle of the medium being permanently displaced is called

(a) Motion
(b) Wavelet
(c) Waves
(d) None

Q7. Imaginary surface obtained by joining the points of constant phase in a wave propagating through the medium is called

(a) Wave
(b) Energy
(c) Wavefront
(d) None

Q8. Two sources which emit light waves of same frequency, nearly the same amplitude and have constant phase difference between them are called

(a) Coherent Sources
(b) Incoherent Sources
(c) both a & b
(d) None

Q9. If amplitudes of two light waves which get superposed are 1 & 2 units, then what should be resultant intensity if phase diff. b/w the waves is $0^\circ$.

(a) 4 units
(b) 5 units
(c) 9 units
(d) 3 units

Q10. If maximum and minimum intensity of resultant light wave are in ratio 16:1, find the ratio of amplitudes of superposing waves.

(a) 3:5
(b) 4:1
(c) 5:3
(d) 1:4

## Short answers

Q1. What is a wavefront?

Q2. What is the relation between phase difference and path difference.

Q3. What are coherent sources?

Q4. Why two independent sources of light can never be coherent?

Q5. What are the conditions necessary for obtaining sustained Interference pattern.

Q6. What are the conditions for maxima and minima in an interference pattern.

Q7. What is Fresnel's Biprism?

Q8. Define Interference.

Q9. Define Average intensity and Explain if the energy is conserved in the phenomenon of interference.

Q10. Two coherent sources of intensity ratio $\alpha$ interfere. Prove that in interference pattern

$$\frac{I_{max} - I_{min}}{I_{max} + I_{min}} = \frac{2\sqrt{\alpha}}{\alpha + 1}$$