

Wave Optics

1. The idea of secondary wavelets for the propagation of a wave was first given by

- (a) Newton
- (b) Huygens
- (c) Maxwell
- (d) Fresnel

▼ **Answer**

Answer: b

2. Light propagates rectilinearly, due to

- (a) wave nature
- (b) wavelengths
- (c) velocity
- (d) frequency

▼ **Answer**

Answer: a



3. Which of the following is correct for light diverging from a point source?

- (a) The intensity decreases in proportion with the distance squared.
- (b) The wavefront is parabolic.
- (c) The intensity at the wavelength does not depend on the distance.
- (d) None of these.

▼ **Answer**

Answer: a

4. The refractive index of glass is 1.5 for light waves of $\lambda = 6000 \text{ \AA}$ in vacuum. Its wavelength in glass is

- (a) 2000 \AA
- (b) 4000 \AA
- (c) 1000 \AA
- (d) 3000 \AA

▼ **Answer**

Answer: b

5. The phenomena which is not explained by Huygen's construction of wavefront

- (a) reflection
- (b) diffraction
- (c) refraction
- (d) origin of spectra

▼ **Answer**

Answer: d

6. A laser beam is used for locating distant objects because

- (a) it is monochromatic
- (b) it is not chromatic
- (c) it is not observed
- (d) it has small angular spread.

▼ **Answer**

Answer: d

7. Two slits in Young's double slit experiment have widths in the ratio $81 : 1$. The ratio of the amplitudes of light waves is

- (a) $3 : 1$
- (b) $3 : 2$

- (c) 9 :1
- (d) 6:1

▼ Answer

Answer: c

8. When interference of light takes place
- (a) energy is created in the region of maximum intensity
 - (b) energy is destroyed in the region of maximum intensity
 - (c) conservation of energy holds good and energy is redistributed
 - (d) conservation of energy does not hold good

▼ Answer

Answer: c

9. In a double slit interference pattern, the first maxima for infrared light would be
- (a) at the same place as the first maxima for green light
 - (b) closer to the centre than the first maxima for green light
 - (c) farther from the centre than the first maxima for green light
 - (d) infrared light does not produce an interference pattern

▼ Answer

Answer: c

10. To observe diffraction, the size of the obstacle
- (a) should be $X/2$, where X is the wavelength.
 - (b) should be of the order of wavelength.
 - (c) has no relation to wavelength.
 - (d) should be much larger than the wavelength.

▼ Answer

Answer: b

11. The angular resolution of a 10 cm diameter telescope at a wavelength of 5000 Å is of the order of
- (a) 10^6 rad
 - (b) 10^{-2} rad
 - (c) 10^{-4} rad
 - (d) 10^{-6} rad

▼ Answer



Answer: d

12. The velocity of light in air is $3 \times 10^8 \text{ ms}^{-1}$ and that in water is $2.2 \times 10^8 \text{ ms}^{-1}$. The polarising angle of incidence is

- (a) 45°
- (b) 50°
- (c) 53.74°
- (d) 63°

▼ **Answer**

Answer: c

13. An optically active compound

- (a) rotates the plane of polarised light
- (b) changes the direction of polarised light
- (c) does not allow plane polarised light to pass through
- (d) none of these

▼ **Answer**

Answer: a

