# **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 X = 6000 A in vacuum. Its wavelength in glass is
- (a) 2000 Å
- (b) 4000 Å
- (c) 1000 Å
- (d) 3000 Å

# **▼** 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.

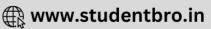
# **▼** Answer

Answer: b

- 11. The angular resolution of a 10 cm diameter telescope at a wavelength of 5000 A 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 \* 108 ms-1 and that in water is 2.2 \* 108 ms" . 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

