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

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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

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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

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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

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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

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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

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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

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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

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10. To observe diffraction, the size of the obstacle
(a) should beX/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

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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

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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

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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
