PHYSICS

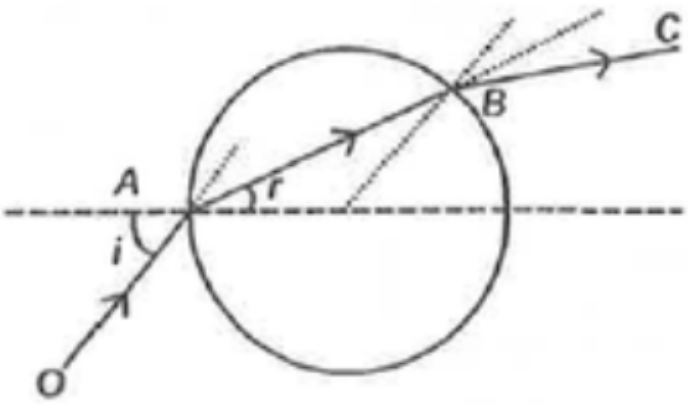
AAKASH INSTITUTE ENGLISH

Mock Test 35

Example

1. The angle of deviation of emergent light ray (BC) with respect to incident ray (OA) on glass

sphere Is, as shown in figure.



A. 2(i-r)

B. (i-r)

C. 2(i+r)

D. i+r

Answer: A

Watch Video Solution

2. A sphere made of transparent material of refractive index ($\mu = \frac{3}{2}$)and of radius 50 cm has a small air bubble 10 cm below the surface. The apparent depth of the bubble if viewed from outside normally is

A. $-\frac{50}{7}$ cm

B. $\frac{25}{7}$ cm

C. $\frac{100}{7}$ cm

D. $\frac{75}{7}$ cm

Answer: A

Watch Video Solution

3. If a convex lens of refractive index μ_l is placed in a medium of refractive index μ_m Such that $\mu_l > \mu_m > \mu_{air}$ then

A. The nature of the lens is diverging

B. The nature of the lens is converging

C. The nalure of the lens may be converging or diverging

D. The nature of the lens can't be determined

Answer: B

Watch Video Solution

4. If I_1 and I_2 be the size of the images respectively for the two positions of lens in

the displacement method, then the size of the object is given by

A. $SqrtXl_1l_2$

B. $SqrtXl_1\frac{l_2}{2}$

C. $l_1+\frac{l_2}{2}$

D. l_1-l_2

Answer: A

Watch Video Solution

5. If a equiconvex lens of focal length f is cut into two halves by a plane perpendicular to the principal axis, then

A. The focal length of each half becomes $\frac{f}{2}$

B. The focal length of each half becomes 2f

C. The focal length of each half remains f

D. The focal length of each half becomes f4

Answer: B

Watch Video Solution

6. The power of a lens kept in air is P. When it is immersed in water, then power becomes ($\mu_{water} = \frac{4}{3}, \mu_{Lens} = \frac{3}{2}$)

A. $\frac{p}{2}$

B. $\frac{p}{3}$

C. $\frac{p}{4}$

D. $\frac{p}{6}$

Answer: C

Watch Video Solution

7. The correct relation between the refractive index (μ) of the material of prism (A) and angle of minimum deviation (δ) is

A. $\mu = \dfrac{\sin\left(\frac{A}{2}\right)}{\sin\left(A + \frac{\delta}{2}\right)}$

B. $\mu = \dfrac{\cos\left(A + \frac{\delta}{2}\right)}{\sin\left(\frac{A}{2}\right)}$

C. $\mu = \dfrac{\cos\left(\frac{A}{2}\right)}{\sin\left(A + \frac{\delta}{2}\right)}$

D. $\mu = \dfrac{\sin\left(\frac{A+\delta}{2}\right)}{\sin\left(\frac{A}{2}\right)}$

Answer: D

Watch Video Solution

8. The dispersive power (w) of the material of a prism is (where symbols have their usual meanings)

A. $\omega = \frac{\delta_V + \delta_R}{2}$

B. $\omega = \frac{\delta_V + \delta_R}{\frac{\delta_V + \delta_R}{2}}$

C. $\omega = \frac{\delta_R \cdot \delta_V}{\frac{\delta_V + \delta_R}{2}}$

D. $\omega = \dfrac{\delta_V - \delta_R}{\frac{\delta_V + \delta_R}{2}}$

Answer: D

Watch Video Solution

9. For small angled prisms, (whose refracting angle (A) is less than 5"), the correct relation between refractive index (μ) of material of prism and angle of deviation is

A. $\delta = A(\mu - 1)$

B. $\delta = \mu 4$

C. $\delta = A(\mu + 1)$

D. $\delta = A(\mu^2 - 1)$

Answer: A

Watch Video Solution

10. The inability of a lens to focus all the component colours of white light at single point is known as

A. Spherical aberration

B. Distortion

C. Astigmalism

D. Chromatic aberration

Answer: D

Watch Video Solution

11. If the plane surface of a plano-convex lens of radius of curvature R and refractive index μ is silvered, then its focal length would be

A. $f = \frac{R}{2}(\mu + 1)$

B. $f = \frac{2}{R}(\mu + 1)$

C. $f = 2\frac{R}{\mu + 1}$

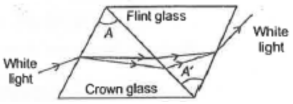
D. $f = \frac{R}{2}(\mu - 1)$

Answer: D

Watch Video Solution

12. Two prisms placed in contact as shown in figure. The condition for net angular dispersion is zero, is (where μ_f and μ_v

refractive indices of red and voilet light in crown glass respectively and $\mu_f{}'$ and mu_v' are refractive indices of red and voilet light in flint glass respectively).



A. $\frac{A}{A'} = \left\{ \frac{\mu_f + \mu_v}{\mu_v' + \mu_f{}'} \right\}$

B. $\frac{A'}{A} = \left\{ \frac{\mu_v - \mu_f}{\mu_v' - \mu_f{}'} \right\}$

C. $\frac{A'}{A} = \left\{ -\frac{\mu_v}{\mu_v' - \mu_f{}'} \right\}$

D. $\frac{A'}{A} = \left\{ -\frac{\mu_v + \mu_f}{\mu_v' - \mu_f{}'} \right\}$

Answer: B

Watch Video Solution

13. Blue Colour of Sky

A. Refraction of light

B. Reflection of light

C. Scattering of light

D. Total intem al reflection

Answer: C

Watch Video Solution

14. The focal length of equiconvex lens of retractive index, $\mu = 1.5$ and radius of curvature, R is

A. $\frac{R}{1.5}$

B. $\frac{1.5}{R}$

C. R

D. 1.5R

Answer: C

Watch Video Solution

15. The unit of dispersive power is

A. Radan

B. Diopter

C. Metre

D. Unitless

Answer: D

 Watch Video Solution

16. The rear face of an equiconvex lens of focal length 30 cm is silvered that if behave like a concave mirror The focal length of mirror is [μ_{Lens} = 3/2]

A. 7.5 cm

B. 15cm

C. 30cm

D. 20cm

Answer: A

Watch Video Solution