Physicsaholics

DPP – 4

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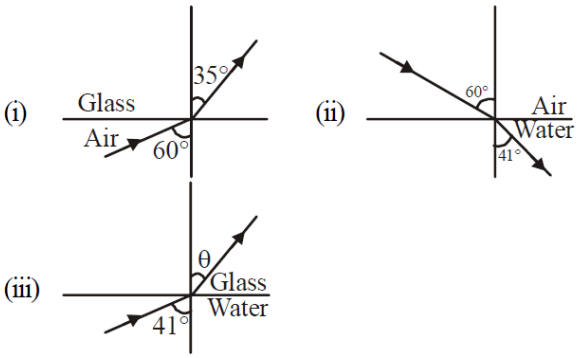
Q 1. A light ray is incident on water surface from air at an angle 45^0, then angle of refraction in water is: $\left(\mu_w = \frac{4}{3}\right)$

(a) $\sin^{-1}\frac{3}{4\sqrt{2}}$ (b) $\sin^{-1}\frac{3}{\sqrt{2}}$ (c) $\sin^{-1}\frac{1}{\sqrt{2}}$ (d) $\tan^{-1}\frac{3}{4\sqrt{2}}$

Q 2. A light ray goes from medium A (refractive index $\sqrt{2}$ & angle of incidence 45^0) to medium B (refractive index $\frac{2}{\sqrt{3}}$) then light ray is deviated by angle

(a) 25^0 (b)30^0 (c) 15^0 (d) 50^0

Q 3. Refraction of light from air to glass and from air to water are shown in figure (i) and figure (ii) below. The value of the angle θ in the case of refraction as shown in figure (iii) will be

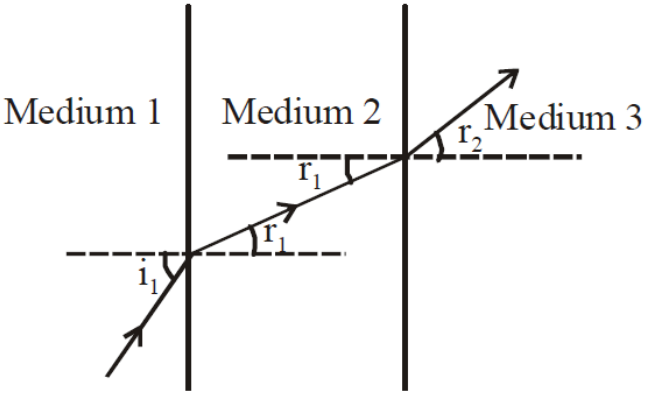


(a) 30° (b) 35°
(c) 60° (d) 41°

Q 4. A ray of light refracts as it passes from glass into a vacuum. It's angle of incidence is 30^0, and its angle of refraction is 60^0, what is the index of refraction of the glass?

(a) $\sqrt{3}$ (b) $\frac{1}{3}\sqrt{3}$ (c) 1.33 (d) $\frac{2}{3}\sqrt{3}$

Q 5. The following figure shows refraction of light at the interface of three media Correct order of optical density (d) of the media is: $(i_1 > r_2)$



(a) $d_1 > d_2 > d_3$
(b) $d_2 > d_1 > d_3$
(c) $d_3 > d_1 > d_2$
(d) $d_2 > d_3 > d_1$

Q 6. The refractive index of glass and water with respect to air are 3/2 and 4/3 respectively. The refractive index of glass with respect to water is:
(a) 8/9 (b) 9/8 (c) 2 (d) 1/2

Q 7. A light ray goes from medium A (refractive index μ_1 & angle of incidence i) to medium B (refractive index μ_2 & angle of refraction r) then:
(a) $\mu_1 \sin i = \mu_2 \sin r$ (b) $\mu_1 \tan i = \mu_2 \tan r$
(c) $\mu_2 \sin i = \mu_1 \sin r$ (d) $\mu_1 \sin r = \mu_2 \sin i$

Q 8. Calculate the ratio of sine of incident angle to the sine of refracted angle when the refractive indices of medium 1 and 2 are given as 2.33 and 1.66 respectively.
(a) 0.71 (b) 1.4
(c) 2 (d) 3.99

Q 9. Find the ratio of the refractive index of medium 1 to that of medium 2, when the incident and reflected angles are given by 30^0 and 45^0 respectively.
(a) 0.5 (b) 1
(c) 2 (d) $\sqrt{2}$

Answer Key

Q.1 a	**Q.2 c**	**Q.3 b**	**Q.4 a**	**Q.5 d**
Q.6 b	**Q.7 a**	**Q.8 a**	**Q.9 d**	