- Q.1 The refractive index of glass with respect to water is $\frac{9}{8}$. Refractive index of glass with respect to air is $\frac{3}{2}$. The refractive index of water with respect to air will be
 - (A) $\frac{10}{3}$ (B) $\frac{4}{3}$ (C) $\frac{3}{4}$ (D) $\frac{3}{5}$
- Q.2 In the figure shown below, the angle made by the light ray with the normal in the medium of refractive index $\sqrt{2}$ will be



Q.3 A light ray is travelling from Region 1 to 4 as shown in the figure. The refractive index of the regions are also mentioned there. The angle of incidence θ for which the beam just misses entering region 4 is



Q.4 A ray of monochromatic light follows the path shown in the figure as it passes through five layers of different optical media of refractive indices μ_0 , μ_1 , μ_2 , μ_3 and μ_4 . If the angle of incidence in the first medium is 30°, determine the angle of deviation on the whole.



- Q.5 Mirage is an example of
 (A)Reflection of light & Refraction of light
 (B)Dispersion of light
 (C)Total Internal Reflection
 (D)Refraction of light & Total Internal Reflection of light
- Q.6 Which of the following is not a result of the phenomenon called total internal reflection?(A)Brilliance of diamond (B)Working of optical fibre

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(C)Apparent depth of lake

(D)Mirage formation on hot summer days

- Q.7Which of the following is a possible application of fibre optics ?
(A)Endoscopy
(C)Radio, tv and telephone signal(B)High speed internet
(D)All of above
- Q.8 A glass prism of refractive index 1.5 is immersed in water ($\mu = 4/3$) as shown in the figure. A light ray incident normally on face AB will get totally reflected from the face AC if



 $\textbf{(A)}\theta > \sin^{-1}\frac{\beta}{2} \qquad \textbf{(B)}\theta < \sin^{-1}\frac{\beta}{2} \qquad \textbf{(C)}\theta = \sin^{-1}\frac{\beta}{2} \qquad \textbf{(D)}\theta > \sin^{-1}\frac{\beta}{4}$

Q.9 Find the angle of incidence at which the light ray will retrace its path after reflection from the plane mirror.



Q.10 Light is incident normally on the short face of a $30^{\circ} - 60^{\circ} - 90^{\circ}$ prism. A liquid is poured on the hypotenuse of the prism. If the refractive index of the prism is $\sqrt{3}$, find the maximum value of refractive index of the liquid above which the light gets totally reflected.



ANSWER KEY

Q.	1	2	3	4	5	6	7	8	9	10
Sol.	(B)	(A)	(B)	(C)	(D)	(C)	(D)	(A)	(A)	(B)