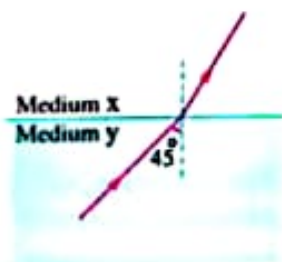
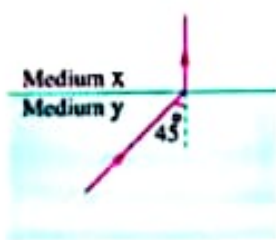


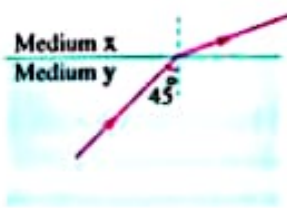
- 5 In the opposite figure, if the angle of incidence becomes  $45^\circ$ , which of the following figures represents the correct path of the ray?



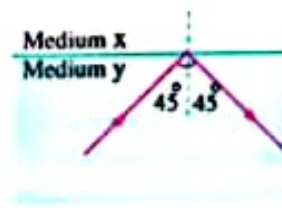
(a)



(b)



(c)



(d)

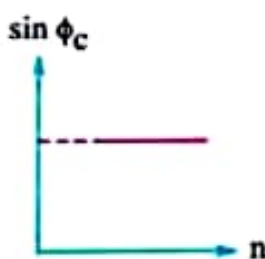
- 6 The largest angle of refraction for a light beam passing from water of refractive index  $\frac{4}{3}$  to air is .....

- (a)  $41.82^\circ$       (b)  $48.59^\circ$       (c)  $90^\circ$       (d)  $180^\circ$

- 7 The critical angle between two media depends on .....

- (a) the absolute refractive index of the optically denser medium only  
 (b) the absolute refractive index of the optically rarer medium only  
 (c) the absolute refractive indices of the two media  
 (d) the angle of incidence of the light ray on the boundary surface between the two media

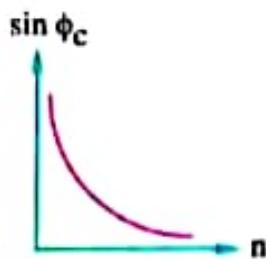
- 8 Which of the following figures represents the graph of sine of the critical angle ( $\sin \phi_c$ ) for multiple transparent materials surrounded by air versus the absolute refractive index ( $n$ ) for each of the materials?



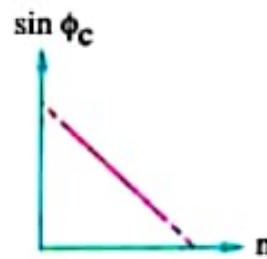
(a)



(b)



(c)



(d)

- 9 \* A light ray falls from air on a liquid surface. If the angle of incidence is  $30^\circ$  and the angle of refraction is  $22^\circ$ , then the critical angle for the ray when it passes from the liquid to air is .....

- (a)  $22^\circ$       (b)  $30^\circ$       (c)  $41.4^\circ$       (d)  $48.5^\circ$