Q What are the two conditions required for total internal reflection?

A The two conditions required for total internal reflection are as follows:-

* Angle of incidence $\angle i$ should be greater than critical angle i.e., $\angle i > i_c$.
* Ray should travel from denser to rearer medium.

Q A fish in the pond of water appears at a depth of 6cm. What is the actual depth of the fish of refractive inder of air w.r.t. water is 3/4.

A- $_wM_a = 3/4$

A/q. refractive index = $\frac{\text{actual depth}}{\text{apparent depth}}$

$$\Rightarrow 3/4 = \frac{\text{actual depth}}{6}$$

$$\text{actual depth} = 4.5 \text{ cm}$$

Q A rectangular glass slab of thickness 8 cm is placed on a figure. The eye is kept exactly above this slab. If the refractive index of glass is 1.6, then by what distance the figure will appear to be raised?

A- Real depth = 8 cm
Refractive index of glass = 1.6

$$n_g = \frac{\text{Real depth}}{\text{apparent depth}} \Rightarrow 1.6 = \frac{8}{\text{apparent depth}}$$

apparent depth = 5 cm

Normal shift = Real depth − apparent depth
= (8 − 5) cm
= 3 cm.

Hence, at a distance of 3 cm, the figure will appear to be raised.