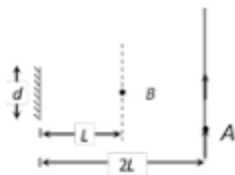


Q2. A point source of light B is placed at a distance L in front of the centre of a mirror of width d hung vertically on a wall. A man walks in front of the mirror along a line parallel to the mirror at a distance 2L from it as shown. The greatest distance over which he can see the image of the light source in the mirror is



A) $d/2$

B) d

C) $2d$

D) $3d$

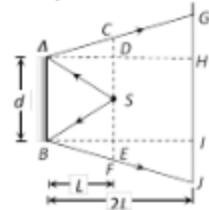
Correct Answer: D

Solution :

According to the following ray diagram

$$HI = AB = d$$

$$\text{And, } DS = CD = d/2$$



$$\therefore AH = 2AD$$

$$\Rightarrow GH = 2CD = 2 \cdot \frac{d}{2} = d$$

Similarly, $IJ = d$

$$\text{So, } GJ = GH + HI + IJ$$