

**Q 01** Consider the diffraction pattern obtained from the sunlight incident on a pinhole of diameter  $0.1 \mu\text{m}$ . If the diameter of the pinhole is slightly increased, it will affect the diffraction pattern such that [Feb. 25, 2021 (II)]

- (a) Its size decreases, and intensity decreases
  - (b) Its size increases, and intensity increases
  - (c) Its size increases, but intensity decreases
  - (d) Its size decreases, but intensity increases
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**ANS**

(d)  $\because \sin \theta = \frac{1.22\lambda}{D}$ , where  $D$  is opening diameter.

When opening size diameter of the pinhole is increased, the diffraction size decreases but intensity increases.