

1. Consider sunlight incident on a pinhole of width 10^3 \AA . The image of the pinhole seen on a screen shall be
- a. a sharp white ring.
 - b. different from a geometrical image.
 - c. a diffused central spot, white in colour.
 - d. the diffused coloured region around a sharp central white spot.

Sol. (b) and (d) are correct.

The width of pinhole $10^3 \text{ \AA} = 1000 \text{ \AA}$ and wavelength of visible light is 4000 \AA to 8000 \AA i.e., size of slit less than (or comparable) with the wavelength of light.

So light from pinhole will diffract from the hole. Due to the diffraction pattern of fringes, the shape is quite different from the hole.