Q 03

The value of numerical aperature of the objective lens of a microscope is 1.25. If light of wavelength 5000 Å is used, the minimum separation between two points, to be seen as distinct, will be : [Main 12 April 2019 I]

(a) 0.24 μm (b) 0.38 μm (c) 0.12 μm (d) 0.48 μm

ANS

(a) $x = \dfrac{1.22\lambda}{2\mu\sin\theta}$

$= \dfrac{1.22 \times 5000}{2 \times 1.25} = 0.24\ \mu m$