Q4. The speed of light in the medium is

(a) maximum on the axis of the beam

(b) minimum on the axis of the beam

(c) the same everywhere in the beam

(d) directly proportional to the intensity I

Solution: (b) minimum on the axis of the beam

Given $\mu = \mu_0 + \mu_2 I$

As μ = Speed of light in vacuum/Speed of light in the medium

$\mu = c/v$

$v = c/\mu = c/(\mu_0 + \mu_2 I)$

As the intensity is maximum on the axis of the beam, therefore v is minimum on the axis of the beam