**Q3. A student can distinctly see the object upto a distance 15 cm. He wants to see the black board at a distance of 3 m. Focal length and power of lens used respectively will be**

A) -4.8 cm, -3.3D

B) -5.8 cm, -4.3D

C) -7.5 cm, -6.3D

D) -15.8 cm, -6.3D

Ans: -15.8cm, -6.3D: Take u = -300cm and v = -15cm,

using lens formula $\frac{1}{f} = \frac{1}{v} - \frac{1}{u}$

$$\Rightarrow \frac{1}{f} = \frac{1}{-15} - \frac{1}{-300} = \frac{-19}{300} \Rightarrow f = \frac{-300}{19} = -15.8cm$$

And Power is

$$P = \frac{100}{f} cm = \frac{-100 \times 19}{300} = -6.33D.$$