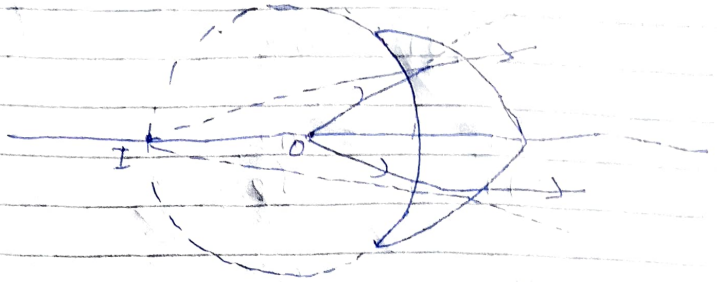


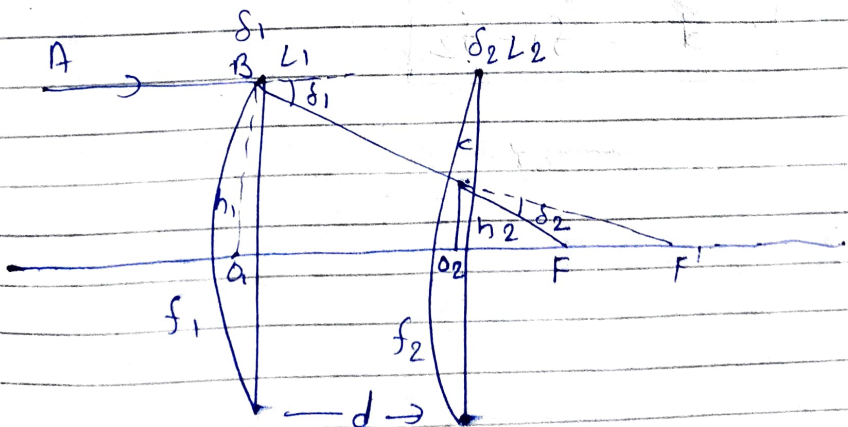
4. By using Aplanatic lens.



This is a special type of meniscus lens. When we place an object at any point on the centre of curvature of first spherical surface, then we get its image I' which is free from spherical aberration.

5) By using thin lenses separated by a distance.

If the distance between two lenses is kept $d = f_1 - f_2$ then spherical aberration due to this combination is reduced.



For minimum spherical aberration angle should be equal

$$\delta_1 = \delta_2$$

$$\left[\delta = \frac{h}{f} \right]$$

$$\frac{h_1}{f_1} = \frac{h_2}{f_2}$$

$$\frac{h_1}{h_2} = \frac{f_1}{f_2} \quad \text{--- (i)}$$

From $\Delta BO_1F'$ and $\Delta CO_2F'$

$$\frac{h_1}{f_1} = \frac{h_2}{f_1 - d}$$

$$\frac{h_1}{h_2} = \frac{f_1}{f_1 - d} \quad \text{--- (ii)}$$

From (i) and (ii)

$$\frac{f_1}{f_2} = \frac{f_1}{f_1 - d}$$

$$\Rightarrow f_2 = f_1 - d$$

$$\boxed{\therefore d = f_1 - f_2}$$

— x —