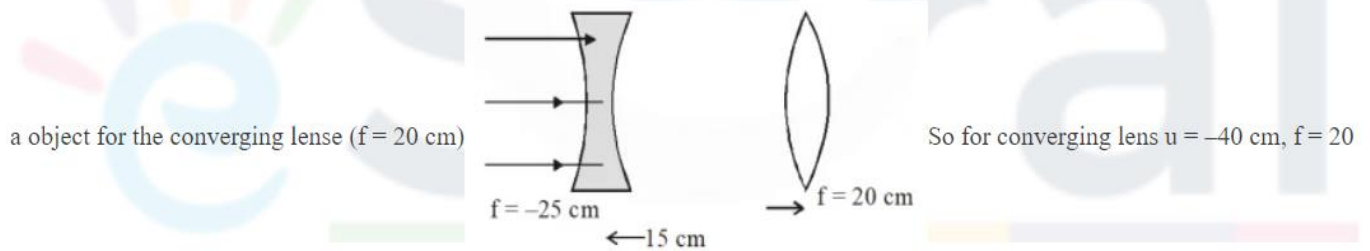Q. A diverging lens with magnitude of focal length 25 cm is placed at a distance of 15 cm from a converging lens of magnitude of focal length 20 cm. A beam of parallel light falls on the diverging lens. The final image formed is :(1) real and at a distance of 40 cm from the divergent lens(2) real and at a distance of 6 cm from the conver(3) real and at a distance of 40 cm from convergent lens(4) virtual and at a distance of 40 cm from convergent lens.

Sol. (3)As parallel beam incident on diverging lens if forms virtual image at $V_1 = -25$ cm from the diverging lense which works as

a object for the converging lens (f = 20 cm)

So for converging lens u = –40 cm, f = 20

f = –25 cm

←15 cm

f = 20 cm

cm ∴ Final image $\frac{1}{V} - \frac{1}{-40} = \frac{1}{20}$ V = 40 cm from converging lenses.