

36. As the unpolarized beam of intensity I_0 passes the first polarizer, its intensity is reduced to $\frac{1}{2}I_0$. After passing through the second polarizer, for which the direction of polarization is at an angle θ from that of the first one, the intensity is $I = \frac{1}{2}I_0 \cos^2 \theta = \frac{1}{3}I_0$. Thus, $\cos^2 \theta = 2/3$, which leads to $\theta = 35^\circ$.