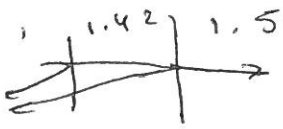
Class 19 Ch35 23, 25, 29

(22)



both 180° flips

$2t = \frac{1}{2}\frac{\lambda}{n}$ 650nm ~~1.42~~

$t = \frac{1}{4}\frac{650\text{nm}}{1.42}$

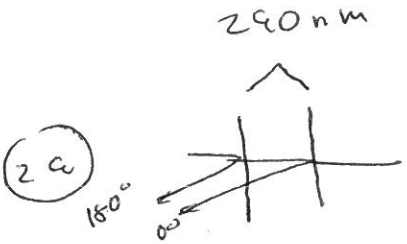
$= 114\text{ nm}$

(25)

$1\text{ fringe} = \frac{\text{height} = \frac{1}{2}\lambda}{\text{length} = \frac{1}{15}\text{ cm}} = \tan\theta \approx \theta$

$\theta = \frac{\frac{1}{2}546\times10^{-9}}{\frac{1}{15}\ 10^{-2}} = 4.1\times10^{-4}\text{ rad} = 2.35\times10^{2^\circ}$

(26)



$2t = (n+\frac{1}{2})\frac{\lambda}{n}$ ← index of refraction; ← integer

$\frac{2t\ n = 1.33}{(n+\frac{1}{2})}$ ← integer

$t = 340$

$n=0 \rightarrow 1.54\,\mu m$ ← IR

$n=1 \rightarrow 514\text{ nm}$ ← greenish

$n=0 \rightarrow 1808$ ← IR

$n=1 \rightarrow 603$ ← orange/yellow