Physics 325  Homework-Chpt 8

1. (a) \( R = 64 \text{ counts/s} \)  The \( \frac{1}{4} \lambda \) plate does not alter the beam.

(b) \( R = \frac{1}{2} \times 64 = 32 \text{ counts/s} \) – One polarization is absorbed and the other is passed.

(c) \( R = 32 \text{ counts/s} \) – The \( \frac{1}{2} \lambda \) plate changes the polarization to be along \( \vec{i} \) but does not change the intensity.

(d) \( R = 32 \times \cos^2 45^\circ = 16 \text{ counts/s} \)

(e) \( R_{\text{max}} = 16 \text{ counts/s} \), \( R_{\text{min}} = 0 \text{ counts/s} \)

(f) The \( \frac{1}{2} \lambda \) plate changes the polar to right-handed polarization. The lin polar eliminates the \( \sigma \) polarization as \( R = 8 \text{ counts/s} \).

2. \( \theta \)

\[ I = \frac{1}{2} I_0 \cos^2 \theta \sin^2 \theta \]

\( \frac{1}{2} \) due to each of one polar by \( \frac{1}{2} \) polarized