

## OPTI380A

### Prelab Questions – Lab 5 2009

All pre lab questions must be submitted at the beginning of each laboratory session. They are designed to prepare you for the lab so that you can finish the lab on-time. You will receive zero credit for the pre lab questions, if you come to the lab without answering the pre lab questions.

Prelab questions:

- (1) Write down the equation for the simple harmonic motion of a particle. What is the velocity of the particle? What is the relationship between the frequency, wavelength and velocity? Give an example of a simple harmonic oscillator.
- (2) Describe the differences between a standing wave and a traveling wave. Give one example of each. Show mathematically how one can create a standing wave using two traveling waves.
- (3) An electromagnetic wave can propagate through a transmission line. At what speed does the wave propagate in m/s? How long does it take for the wave to travel 10m?