Opti 380A – Intermediate Optics Lab I – Fall 2009

Post-Lab Questions for Lab 4: CDROM

Post-lab questions are due at the beginning of lecture on the Monday following your lab.

1.) Why are there two diode lasers in the optical pickup?

2.) Estimate the number of separate optical pieces in your optical pickup. If the pickup costs $5 to produce, divide the total production cost ($5) by the number of optical pieces. This is approximately the per-piece price for each component. Now look up the price of an optical-quality beam splitter and a laser diode on the internet. Compare these prices to the per-piece price you calculated. Postulate how the optical head assembly can be produced at so little cost. You may research CD/DVD production, if you like (see http://www.dvdinformation.com/News/press/CES2009yearEnd.htm).

3.) Calculate the total length of the track on a DVD, assuming a 12 cm outer diameter and 1.5 cm inner diameter hole. Compare this length to the total track length on a CD. How does the ratio of track lengths compare to the ratio of data capacities for the two formats?