DUE: MONDAY MARCH 17, 2008

Assigned reading: Giancoli, Chapter 35, sections 7–11, 13. *Please note the early deadline for this final homework set. Since solutions will be posted on the afternoon of Monday March 17, no late homework can be accepted.*

FINAL EXAM ALERT: The final exam will be given on Tuesday March 18, 2008 in Thimann Lecture Hall 3 from 7:30–10:30 pm. This exam will cover material from the entire course, corresponding to the following chapters of Giancoli: chapter 13 (sect. 1–13); chapter 14 (sect. 1–8); chapter 15 (sect. 1–9); chapter 16 (sect. 1–4, 6–8); chapter 31 (sect. 6); chapter 32 (sect. 1–8); chapter 33 (sect. 1–9); chapter 34 (sect. 1–6); and chapter 35 (sect. 1–11). This will be a closed-book exam. However, during the exam you will be permitted to consult four 8 1/2" $\times$ 11" sheets of paper of personal notes (two-sided is fine). Feel free to include on this sheet the key formulae and concepts that you will find most useful for working out the exam problems. You should also bring a calculator, as some of the problems will require numerical work.

Practice problems for the final exam will be available on Friday March 14, with solutions posted on the class website on Monday March 17. In addition, Dustin Gilbert will host an MSI sponsored final review session at the ArCenter 221 on Thursday March 13 from 9–10:30 pm. The official Physics 5B final exam review session, which will be led by the discussion TA, Jeff Jones, is scheduled for Monday March 17 from 7–9 pm in Thimann Lecture Hall 1 (this is the smaller of the two lecture halls in the same building as our class). I will hold extended Monday office hours on Monday March 17 from 2–6 pm. In addition, I will be informally available in my office on Tuesday March 18 between 2–6 pm for any last minute questions.

1. True/false questions: For each of the following statements, indicate whether the statement is true or false. Briefly explain your reasoning (for example, if false, provide a counter-example).

   (a) There are tiny peaks between the main peaks produced by a diffraction grating illuminated with monochromatic light.

   (b) Just like light waves, sound waves can also be polarized.

   (c) An incident beam polarized at a $45°$ angle to the vertical passes through a vertical polarizer. It is observed that the intensity of the light is reduced by a factor of two. The resulting beam is then passed through a second vertical polarizer. The intensity of the transmitted beam that emerges is reduced by another factor of two.

   (d) If the Earth had no atmosphere, the sky would still appear to be blue.

To earn full credit on the following problems, you must exhibit the steps that lead to your final result. The graded homework will be based on the clarity of your method of solution as well as on your final answer.

2. Giancoli, Chapter 35, problem 42
3. Giancoli, Chapter 35, problem 44
4. Giancoli, Chapter 35, problem 48
5. Giancoli, Chapter 35, problem 50
6. Giancoli, Chapter 35, problem 58
7. Giancoli, Chapter 35, problem 59