

Appendix A

Sample of Take-home component of exam

(student data not included with this Appendix, but it is included with the exam)

4. Pretest Analysis

Analyze the attached three “5-bulbs” pretests for the rankings and reasoning behind the rankings for each student.

Notice that in this version of the pretest there are two questions. *You will be analyzing both questions.*

- A. Analyze Question 1. Decide what model(s) each student may be using to arrive at their ranking, and state whether their reasoning is a) complete and b) consistent with the ranking.
- B. Analyze Question 2 *independently of* Question 1. Decide what model(s) each student may be using to arrive at their ranking, and state whether their reasoning is a) complete and b) consistent with the ranking.
- C. Briefly discuss the utility of Question 2 in gaining insight into student reasoning. What purpose does this question serve that Question 1 does not (or assumes)?
- D. Consider the pretests of students 2 and 3 in particular. For each of these two students, briefly discuss their responses to both questions *as a set*.
 - Are their responses consistent with their rankings within each question (i.e. are the rankings and models consistent with each other)?
 - More importantly, are these students consistent from Question 1 to Question 2, or does their model change from 1 to 2? If so, how? And how do you know?

Discuss the models used in each question for each student, and comment on the consistency of that student.

5. Prediction of student reasoning

You have been given two additional students’ responses to Question 1, but not their responses to Question 2. (Note that one of them is identical to one of the ivory-colored ones handed out in class last Wednesday.)

Based on your experience in this course, analyze each student’s response to Question 1, and then make *two different predictions* for their response to Question 2.

You may assume ideal students, but you don’t have to.