

First In-Class Exam Spring 2005

Please answer all questions. When you are asked to draw a diagram, it should be understood that you also need to write a few sentences to explain what is on the diagram. Remember, your job is to convince me that you understand the material, and persuade me that you did not just make a lucky guess. Do not use this exam sheet as a scratch pad: work out what you want to say and draw before writing your answers down on this exam.

1. There are two bidders for a painting at an English auction. The initial bid is \$1 million, and the bid increment is \$100,000. There are three bidders. Bidder A values the painting at \$1.2 million, bidder B at \$1.5 million, and bidder C at \$1.7 million. The bidders do not know each other's valuations. What two possible prices will the painting be sold for, and who will buy the painting at each of these prices? Explain your reasoning.

2. For the same three bidders as in the previous question, what price will the painting be sold for if the auction is

- a) A first-price sealed bid auction?
- b) A second-price sealed bid auction?

If you can provide an exact number do so. If you cannot provide an exact number, explain why not.

3. Good y has a price of \$1 per pound. Good x has a price of \$1 per pound for the first 10 pounds you buy, and then \$0.50 per pound for each additional pound. You have a budget of \$20. Draw the budget line for this problem (be sure to indicate its location with some numbers), and show an indifference curve such that there are two optimal bundles.

4. Farmer Giles owns 10 bushels of corn, and he also has \$100 in cash. The price of corn is \$10 per bushel, and the price is the same whether Giles buys or sells corn. The price of the only other good Giles cares to consume is beef, which costs \$10 per pound. Draw his budget line (be sure to indicate its location with some numbers). Then show how the budget line is affected by an increase in the price of corn to \$20 per bushel

5. The Department of Water at the County of Kaua'i, Hawaii has the following rate structure for residential customers. Each residence is charged a flat \$12 monthly fee. In addition there is a charge for the quantity of water consumed according to the following price schedule

\$2.75 per 1,000 gallons for the first 10,000 gallons consumed in a month.

\$3.20 per 1,000 gallons for consumption beyond 10,000 and up to 20,000 gallons.

\$4.50 per 1,000 gallons for consumption beyond 20,000.

This type of schedule is called an "increasing block rate." Using a graph with water on one axis and consumption of "all other goods" on the other axis, sketch out the budget line for this problem.

6. (Difficult question) Increasing block rates are said to encourage conservation at lower cost to consumers than a flat price per 1,000 gallons.. Explain (you may find using a diagram helpful) why this is the case.

(Note – after last year, I decided this question was *too* difficult!)