Econ 115  
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Fall 1998

Midterm Exam

Follow all instructions carefully. There are 3 sections to the exam. Think before writing; be brief and concise. Excess verbiage will not be rewarded. Some questions are harder than others. If a question seems too hard, move on to another one and then return to the harder questions later. Do not panic, the exam will be curved.

There are seventy points on the exam, so you should take about one minute per point, leaving a few minutes to read instructions and proofread your answers.

Unless indicated otherwise, all questions refer to perfectly competitive markets and all changes are short-run. You should explain each answer clearly and concisely.

On each bluebook you use, write your name, your TAs name and the exam section number.

NO SECTIONS THIS WEEK!

Answer Section I one on the next page, NOT IN A BLUE BOOK.
Section I: Short Definitions. 12 points total (2 points each). Define the following words in one or two sentences each. Answer this section on this sheet and turn it in with your bluebooks. Think before writing!

1. Equilibrium

2. Producer Surplus

3. Marginal Rate of Substitution in Production

4. Law of Demand

5. Inferior Good

6. Average Cost
1. (8 points) Use PPF graphs to explain the concept of comparative advantage.

2. (14 points total) Consider a tax on gasoline of 10 cents per gallon.
   (a) (2 points) How will this effect the price and quantity sold of gasoline?
   (b) (4 points) Use a graph to show how who will bear the burden of the tax.
   (c) (4 points) How would your answer to the last question change if the demand curve were more elastic?
   (d) (4 points) Indicate the change in consumer and producer surplus that results from the tax, as compared to perfect competition.

3. (8 points total) The Wonder Widgets Co. produces widgets in a perfectly competitive market. In the short run, its capital level is fixed, but it can choose a level of labor.
   (a) (4 points) What is the short-run profit-maximizing level of employment for the firm?
   (b) (4 points) What rule describes the optimal output of the firm?
1. (15 points total). John, who has income $Y$, spends his money on food (with price $p_1$) and clothes (with price $p_2$). Consider his consumption problem.

(a) (4 points) Use an indifference curve diagram (with food on the horizontal axis) to show John’s consumption choices.

(b) (3 points) How will John’s choice change if the price of food increases?

(c) (8 points) Decompose the change in the last question into income and substitution effects, assuming that [1] food is an inferior good and [2] food and clothing are substitutes.

2. (8 points) In the perfectly competitive equilibrium, is it possible to reallocate inputs between firms (while keeping the total input level fixed) and raise production? Why or why not?

3. (5 points). Give the formula for the present value of an income stream that consists of $100 immediately, $100 dollars next period and $100 dollars the period after that. (Assume that the per-period interest rate is $r$.) Is your answer larger or smaller than $300$?