EEP100 Midterm (Oct 15, 2009)

This midterm is worth 15 percent of your entire grade. The questions are worth 15 points in total. For full credit, show your work. Clear, concise answers are better than disorganized, vague essays. Enjoy!

TRUE/False and EXPLAIN [5 PTS]

Each question is worth $\frac{1}{2}$ point, most of which depends on a good explanation.

(1) As long as when people have different values for goods and property rights are protected, markets always “happen.”

(2) I motivated you all to write blog posts by giving you points, but you may have worked for more than points.

(3) The deadweight loss from a tax is always measured by the triangular area bordered by the supply and demand curves on the right and a line representing the magnitude of the tax (e.g., 10 percent high) on the left.

(4) Under the Class Pass system (compared to students buying tickets/passes when it suits them), AC Transit has a greater incentive to meet students’ transportation “needs.”
(5) A firm should grow as long as the marginal benefit to the managers exceeds the marginal cost they experience.

(6) Hayek explains how a central planner can aggregate information (on preferences, externalities, etc.) to make decisions that maximize social welfare.

(7) Hazlitt’s “One Lesson” is that we will pursue an activity as long as the marginal benefit exceeds the marginal cost.

(8) For a typical business (e.g., a coffee shop), economies of scale are limited by its access to labor.

(9) Markets are more efficient than bureaucracies at allocating goods and services because they use prices.

(10) Most markets are efficient because they achieve equilibrium.
LONGER QUESTIONS [10 PTS]

Each question is worth 2 points. Show your work! (It’s better to do work on the back of the page and put answers on the front.)

(1) Suppose Will and Grace are stranded on a deserted island. Will has 20 gallons of drinking water and 15 chickens. Grace has 15 gallons of water and 30 chickens. At the initial allocation, Will’s $MRS_{\text{water, chickens}} = 5$ (i.e. Will would be just as well off if he gave away 5 chickens in return for 1 gallon of water). Grace’s $MRS_{\text{water, chickens}} = 1$.

(a) Suppose chickens and water are perfect substitutes. Graph the edgeworth box for this economy with Will’s origin on the bottom left and chickens on the vertical axis. Label the origins, axes, and initial endowments. Using the given MRSs, draw and label Will and Grace’s indifference curves at the point of the initial endowments and label the following regions:
A=both Will and Grace are better off.
B=both Will and Grace are worse off.
C=Will is better off, Grace is worse off.
D=Will is worse off, Grace is better off.

(2) Consider an economy with a consumer and goods $x$ and $y$. Suppose that the consumer’s demand function for each good is:

$$
\begin{align*}
x &= \frac{mp_y}{p_x} \\
y &= \frac{m(1-p_x)}{p_y}
\end{align*}
$$

where: $x$ denotes the consumer’s demand for good $x$, $y$ denotes the consumer’s demand for good $y$; $p_x$ is the price of good $x$, $p_y$ is the price of good $y$; $m$ denotes the consumer’s income. Assume that the income and prices are all positive.
(a) Calculate the cross price elasticity of demand for good $x$ with respect to the price of good $y$, and then state whether good $x$ is a substitute, or complement, or neither to good $y$.

(b) Calculate the income elasticity of demand for good $y$ and state whether good $y$ is a(n) normal or inferior good.

(3) Assume that a monopolist faces a demand function of $Q = 60 - 2P$, has a production technology of $Q(L) = 2L^{\frac{3}{2}}$, and pays a wage of 1. Find:

(a) The firm’s profit function, profit-maximizing quantity ($Q^*$) and profits.

(b) Draw curves for demand, supply and marginal revenue. Label equilibrium price and quantity.
(4) The figure below shows a firm’s total revenue and total cost curves. Tell us what is happening at points a–c (with respect to market power and/or profits) and (with respect to economies of scale and/or scope) in areas on the left (d), on the right (e), and on the line (at f).

(a) 
(b) 
(c) 
(d) 
(e) 
(f) 

(5) Consider an economy with two consumers 1 and 2, and two goods $x$ and $y$. Assume that consumer 1’s preference can be represented by a utility function:

$$U_1(x_1, y_1) = x_1^{\frac{1}{2}} y_1^{\frac{1}{2}},$$

and that consumer 2’s preference can be represented by another utility function:

$$U_2(x_2, y_2) = \min(x_2, y_2)$$

where: $x_1$ denotes consumer 1’s demand for good $x$, $y_1$ denotes consumer 1’s demand for good $y$; $x_2$ denotes consumer 2’s demand for good $x$, $y_2$ denotes consumer 2’s demand for good $y$.

Suppose that the price of $x$ is $1$, the price of $y$ is $2$, and that both consumers have an income of $12$. Find the **market demand** for each good and each consumer’s utility from their consumption.