Economics 11: Practice First Midterm

September 20, 2009

Short Questions

Question 1

A consumer spends his entire budget on two goods: X and Y.

(i) True or false: An increase in the price of X will lead the consumer to purchase less X.

(ii) True or false: An increase in the price of X will always lead a consumer to purchase more Y.

Question 2

Graphically explain the effect in the budget constraint of an increase in an individual’s income without changing relative prices. Explain the impact on the quantity demanded of both goods.

Question 3

Explain the monotonicity and convexity axioms and their implications for the shape of the indifference curves.

Question 4

Suppose that the consumers demand for \( x_1 \), as a function of its own price \( p_1 \), the price of the other good \( p_2 \) and income \( m \) is given by:

\[
x_1^*(p_1, p_2, m) = \frac{m}{p_1 + 2p_2}
\]

Suppose one unit of \( x_1 \) costs twice as much as one unit of \( x_2 \). What is the income elasticity of demand? What is the own-price elasticity of demand? What is the cross-price elasticity of demand?
Question 5

David likes only Peanut Butter (B) and Toast (T), and he always eats each piece of toast with two ounces of peanut butter.

a) Find David’s demand for peanut butter and toast.

b) How much of each good will David consume, if he has $30 of income, the price of peanut butter is $2, and the price of a toast is $6?

c) Suppose that the price of a toast rises to $11. How will his consumption change?

d) How much should David’s income be to compensate for the rise in the price of the toast?

Question 6

Thomas likes Hamburgers and Pizza and views them as perfect substitutes. In particular, he is indifferent between two Hamburgers and three slices of Pizza.

a) Define Thomas’s utility function over Hamburgers (H) and Pizza (P)

b) For which prices will Thomas eat only Hamburgers?

c) Thomas has $30 to spend on Hamburgers and Pizza. Each Hamburger costs $3 and each slice of Pizza costs $2. What does Thomas consume?

d) This week there is a promotion in Northern Lights and you can buy each slice of Pizza for $1.5. What does Thomas consume?

e) During the promotion in Northern Lights, the Hamburger store at Lu Valle wants to attract clients like Thomas. What is the maximum price they can charge?

Question 7

A consumer has utility $U(x_1, x_2) = \ln(x_1) + 2\ln(x_2)$ and income $m$. 
a) Find the uncompensated demand for $x_1$ and $x_2$, and find the indirect utility function

b) Use the own price Slutsky equation for $x_1$ to determine the substitution effect.

c) Find the compensated demand for $x_1$ and $x_2$ and the expenditure function $e(p_1, p_2, u)$. 