Intermediate Microeconomics
ECNS 301
Spring 2015

Exam #: 1
Version A

Friday February 20, 2015

Name: 

Instructions:
You must answer all of the following questions. Each question is worth the same amount. You have the class period to complete the exam.

Answer each question clearly and concisely. You must show your work to receive credit.

This exam is given under the rules of the Montana State University. By printing your name above you acknowledge the University’s Honor Code and agree to comply with the provisions of the Honor Code. You may not use notes or receive any assistance. There is to be no talking during the exam. You may use a calculator, but are never allowed to use device allowing you to take photographs or transmit over a network. No notes, no assistance, no talking, no cell phones, but you can use a calculator.

Clearly print your name above, in the space provided on the next page and in your blue book(s). You must turn in your blue book(s). There are two versions of the exam. Indicate your exam version on your blue book. It is your responsibility to make sure your version of the exam is different from the students next to you. If you have the same version as any of the students next to you, you will be asked to move.
True/False/Uncertain Plus Explanation

1. For each of the following, state whether it is true, false or uncertain and explain your answer. No points are given without explanation.
   
   (a) A consumer with convex, ‘well-behaved’ indifference curves is indifferent between two bundles of \( X \) and \( Y \): \((4,1)\) and \((2,9)\). She therefore prefers the bundle \((3,8)\) to either of the first two.

   (b) If the government increases the tax on alcohol, use of marijuana will increase.

   (c) Only in the case of perfectly inelastic supply will consumers pay the full amount of a tax.

   (d) Rational consumers would rather have a 100% increase in income than a 50% reduction in all prices.

Short Answer/Numerical

2. Your derelict cousin only buys food and lottery tickets. The price of food is $2 and the price of a lottery ticket is $1. Somehow your cousin has $100 per month to spend on food and lottery tickets.

   (a) Graph and provide an equation for your cousin’s budget constraint.

   (b) Now your cousin gets $150 per month in food stamps, which cannot be sold. Graph or provide an equation for the new budget constraint.

   (c) After getting on food stamps, you think your idiot cousin is now buying more lottery tickets. Is this possible, assuming that no laws are being broken? If so, why, if not, why not?

   (d) Your cousin now develops a scheme to sell food stamps at a 25% discount. Graph or provide an equation for the new budget constraint.
3. There’s a sub par fast food taco place in town that you tend to frequent only after a night of drinking. (Of course you always walk or get a ride from a designated driver.) Your preferences for beer and tacos are described by the following utility function

\[ u(b, t) = \min\{3b, t\} \]

where \( b \) is the quantity demanded of beer and \( t \) is the quantity demanded of tacos. Let \( p_b = 3 \) be the price of a beer, \( p_t \) be the price of tacos, and \( m = 6 \) be the amount of money you have to spend on beer and tacos.

(a) What are your demand functions for tacos and beer?

(b) If the supply function of tacos is \( t = 2p_t - 2 \), what is the price of tacos and how many tacos and beer do you buy?

(c) All of a sudden you find an extra $10 to spend on beer and tacos. How does the extra $10 influence the price of tacos and the number of tacos and beers you buy?

(d) Your drinking buddy, whose had quite a few more than you, tries to tell you that since the price of tacos increased after you found more money that these tacos are an inferior good. Is your drinking buddy right or wrong and why?

4. The market supply and demand functions for a particular market are as follows.

\[ Q = 74 - p \]
\[ Q = p - 2 \]

The government is considering a per-unit tax of \( \tau \) to be levied on buyers.

(a) What are the equilibrium prices and quantity with the tax expressed as a function of \( \tau \)?

(b) Show that as the tax rate increases the price buyers pay increases, the price sellers get decreases and the equilibrium quantity decreases.

(c) What value of \( \tau \) maximizes tax revenue and how much tax revenue is generated?

(d) Instead of using a per-unit tax, the government decides to use an ad-valorem tax of \( \tau \) to be levied on buyers. What tax rate should be set to maximize tax revenue?