Intermediate Microeconomics
ECNS 301
Fall 2014

Exam #: 1
Version A

Thursday September 25, 2014

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) If a good is not produced, then there is no demand for it.
   
   (b) Orange juice sells for $2 per gallon and gasoline sells for $1 per gallon. Although we don’t know the consumer’s utility function, we do know that if a consumer buys both goods, she receives twice as much utility from orange juice as from gasoline.
   
   (c) Indifference curves on the same indifference map can have different shapes.
   
   (d) An increase in a consumer’s income will increase the marginal rate of transformation.

Short Answer/Numerical

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

\[
Q = 550 - 20p \\
Q = 5p - 50
\]

Quantitatively (with numbers) answer the following questions.

   (a) Describe the market equilibrium price, quantity, and welfare measures.
   
   (b) What happens to the market equilibrium when the government imposes an ad-valorem tax on sellers of 20%?
   
   (c) A policy maker watches a rerun of Robin Hood on TV (the one with Kevin Costner and Morgan Freeman). In their dream that night, they get a crazy idea to steal from the rich and give to the poor. For some reason they think that firms are rich and consumers are poor. What happens to the market equilibrium when they keep the ad-valorem tax on sellers of 20% and give an ad-valorem subsidy of 20% to buyers?
   
   (d) As an adviser to the policy maker would you advise them to keep the Robin Hood style tax/subsidy or to just keep the ad-valorem tax on sellers? Why?
3. 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.

4. A consumer has the following utility function.

\[ U(x, y) = \ln(x) + y \]

Given prices \( p_x = 1, \ p_y = 10 \) and income \( m = 30 \):

(a) find the marginal rate of substitution,

(b) find the interior solution to the consumer’s utility maximization problem,

(c) find the corner solutions to the consumer’s utility maximization problem,

(d) find the optimal consumption bundle of \( x \) and \( y \).

(e) If the price of good \( y \) is \( p_y = 2 \), how does you answer to part d change?