Last Five Digits of Your Student Number:

YOUR NAME:

Thursday, February 25, 2000

YOUR NUMBER:

First Exam Economics 304K

Professor R. P. McAfee
University of Texas at Austin

Instructions: You will have 75 minutes for the exam. Do not cheat. Raise your hand if you have a question, but continue to work on the exam while waiting for your question to be answered. Allocate your time like an economist would - do the easy/valuable questions first. Short answer questions should not require more than two lines. Question values are in parentheses. Use the back of the page as scratch paper.

(5 pt.) 1. Draw and label a market with a perfectly elastic demand and a perfectly inelastic supply.

(5 pt) 2. (Short answer, no graph) What is consumer surplus?

(5 pt) 3. (Short answer) What is an inferior good, as economists use the term? Provide an example.

(5 pt) 4. (Short answer) Provide two examples of by-products of the production of goods. What does the increase in price of a by-product do to the other good's supply? Why?

(5 pt) 5. Suppose the elasticity of demand is 2, and the price rises by 10%. By what percentage does revenue change?

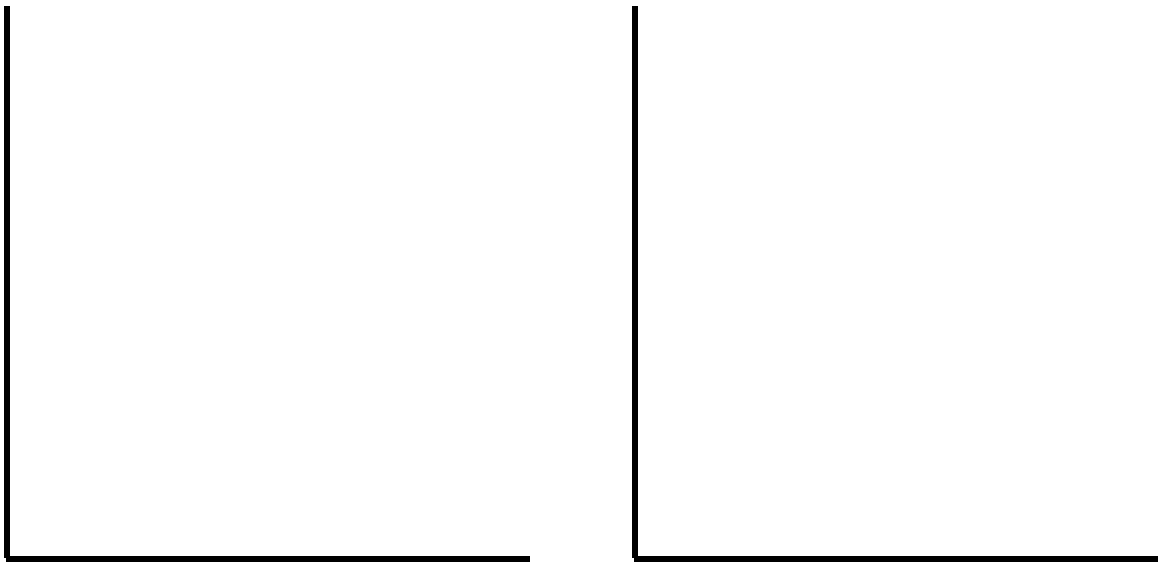
(5 pt) 6. If *a* and *b* are substitutes in production and the price of *a* falls, the supply of *b* will

a. increase, and thus the price of *b* will increase.
b. increase, and thus the price of *b* will decrease.
c. decrease, and thus the price of *b* will decrease.
d. decrease, and thus the price of *b* will increase.

(10 pt) 7. Bowties and neckties are substitutes in demand.

(i) (Short Answer) If the supply for bowties falls, but the supply for neckties is unchanged, what will happen to the prices of bowties and neckties?

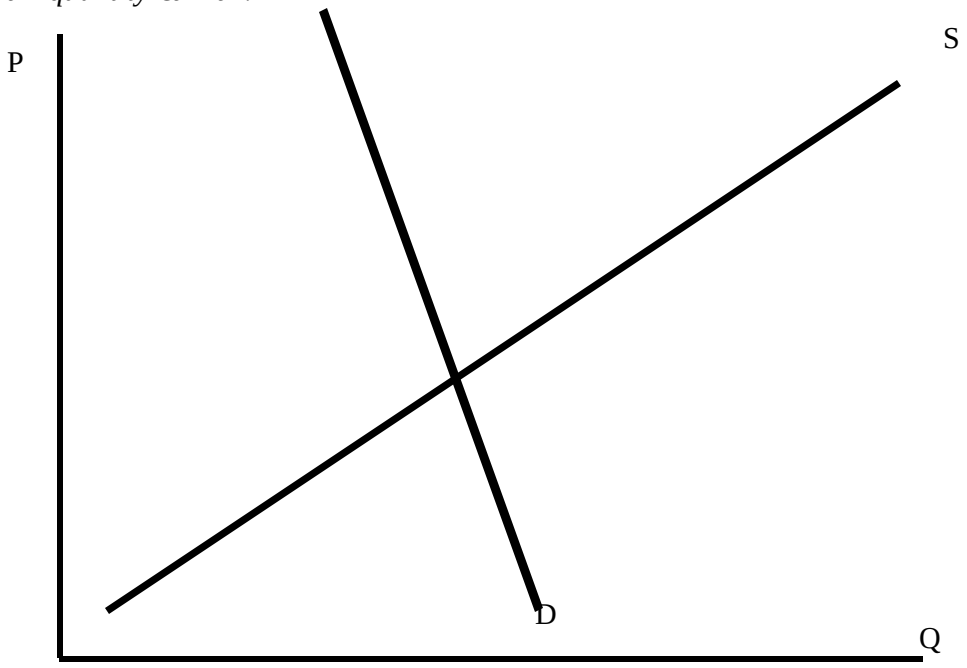
(ii) Illustrate your answer with supply and demand diagrams:



Bowtie Market Necktie Market

(10 pt) 8. Suppose that the elasticity of demand for cigarettes is 0.5. The government adds a 10% tax, imposed on sellers, to the price.

(i) Using one diagram, illustrate the effect of the tax, and find the maximum percentage that the equilibrium *quantity* can fall.



(ii) Now assume, in addition, that the supply elasticity is 2.5. By how much does the equilibrium quantity fall? No diagram is necessary.

(10 pt) 9. Consider the controlled substances experiment 4.

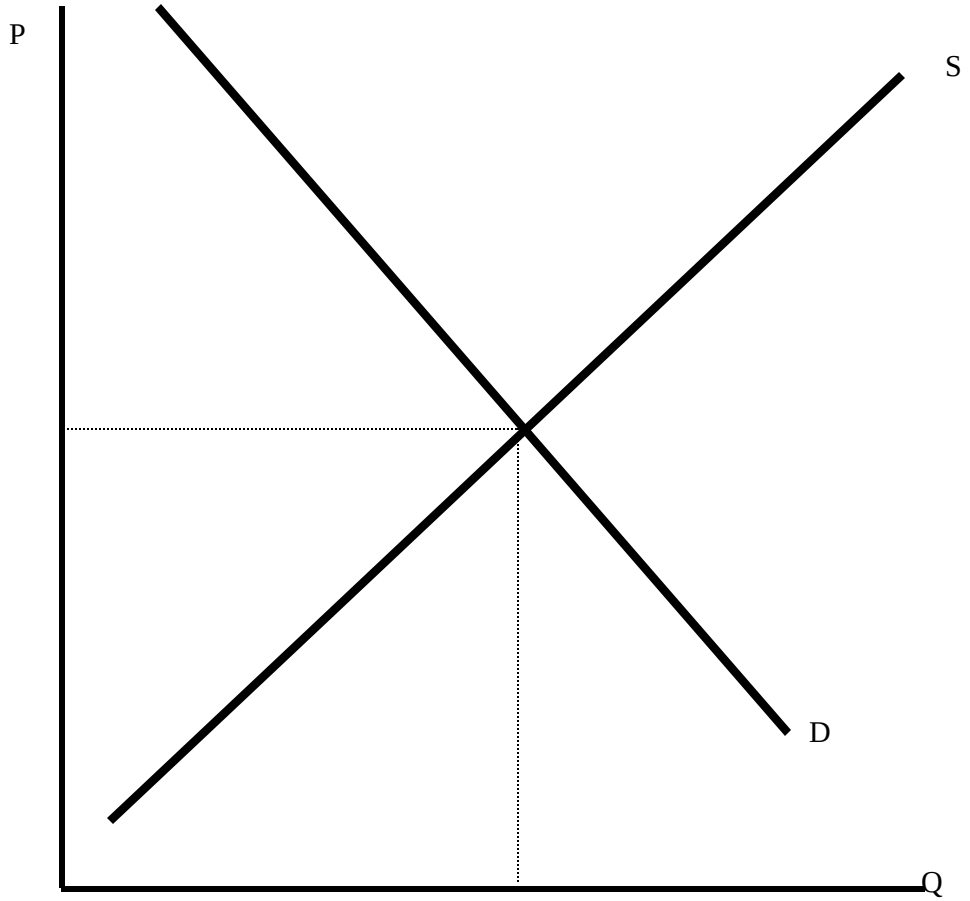
(i) In 4.3, police confiscated half the units. What were seller costs for each unit the sellers sold? (That is, at what price would sellers break even?)

(ii) In experiment 4.4, the police resold confiscated units. What does this resale do to the predicted price?

(iii) Explain your answer to part (ii) utilizing a supply and demand diagram.

(10 pt) 10. Consider the sales tax like that imposed in experiment 3.

(i) Using the supply and demand diagram below, show how the tax on suppliers reduces quantity, raises the price paid by consumers by an amount less than the tax, and lowers the price paid to suppliers. On the same diagram, illustrate the dead weight loss, and outline the area corresponding to the total tax revenue collected.



(ii) (Short answer) Did it matter, in Experiment 3, who paid the tax? Why or why not?

(10 pt) 11. Consider experiment 2, where the fishers sometimes caught one or two fish.

(i) Explain how an increase in the number of fish caught can reduce the total earnings of fishers.

(ii) Fishers paid ★10 to run their boats. If prices fall to ★1, these fishers lose money. How many would you expect them to exit the industry? (Hint: What should happen to prices?)

(20 pt) 12. Consider a competitive market with 9 consumers, each of whom will buy at most one unit of the good, and 8 sellers, each of whom will sell at most one unit of the good. The distribution of buyer values (or buyer reservation prices) is as follows:

Buyer Value	Number of Buyers
$4	4
$8	2
$12	3

The distribution of seller costs (or seller reservation prices) is as follows:

Seller Cost	Number of Sellers
$2	6
$6	2

12 (i). In this market, what price (P) and quantity (Q) would arise in a competitive equilibrium?

12(ii) What are the equilibrium price and quantity if buyers are required to pay a tax of $8 for each unit of the good sold?

12(iii). How much tax revenue is raised by this $8 per unit tax paid by buyers?

12(iv). What is the excess burden or dead weight loss of this $8 per unit tax paid by sellers?

12 (v). What are the equilibrium price and quantity if buyers, instead of sellers, are required to pay the tax of $8 for each unit of the good sold?

12 (vi) What is the excess burden or dead weight loss if buyers, instead of sellers, are required to pay the tax of $8 for each unit of the good sold?

(12) (vii) Draw the supply and demand diagram for this market, and illustrate the effect of a tax imposed on the buyers.