CONCORDIA UNIVERSITY
Department of Economics

ECON 201

MIDTERM EXAMINATION WITH ANSWERS

Multiple Choice Questions (3 marks each).

1.All the following statements are incorrect except

A) When a market is in equilibrium, there may be either excess demand or excess supply.
B) When a market is in equilibrium, buyers are happy because price is low.
C) When a market is in equilibrium, both excess demand and excess supply are zero.
D) When a market is in equilibrium, sellers are happy because price is high.

2. If the government wishes to discourage smoking by tax increases the policy will be more effective if:

A) demand is price inelastic.
B) supply is price elastic.
C) demand is income elastic.
D) demand is price elastic.

3. Suppose that an increase in consumer income of 5% causes the consumption of a good to fall from 10 to 7 units, then using the initial quantity as the reference quantity, the income elasticity is:

A) -10.
B) -7.
C) -5.
D) -6.

4.As more and more of the environment is cleaned up:

A) the marginal benefit of pollution reduction increases.
B) firms become more willing to undertake programs that improve environmental quality.
C) the marginal benefit of pollution reduction declines.
D) the ratio of marginal benefits to marginal costs becomes much greater than 1.

5.The difference between a straight-line production possibilities frontier and one that is concave is that:

A) the concave production possibilities frontier exhibits constant opportunity costs, while the straight line frontier does not.
B) the concave frontier reflects the problem of scarcity but the straight line frontier does not.
C) the straight line frontier reflects constant opportunity costs but the concave frontier does not.
D) neither the straight line nor the concave frontier reflect output limits.

6.If goods J and K are substitutes, an increase in the price of J causes:

A) quantity demanded of J to fall and the demand curve for K to shift toward the origin.
B) a decrease in quantity demanded for J and an outward shift of K's demand curve.
C) quantity demanded of J remains constant, but the demand for K decreases.
D) the demand curve for both J and K shift.

7.Which one of the following statements is incorrect?

A) If there are positive benefits associated with a good outside of its own market, too little of the good is being produced.
B) An external cost or benefit is not included in a good's market price.
C) If there are external costs associated with a good, there is an under-allocation of resources in the production of the good.
D) The externalities associated with the production or consumption of a good may be either positive or negative.

8. All of the following statements are incorrect except:

A) demand is more elastic in the short run than in the long run.
B) the time period available for adjustment to changes in a good's price does not affect the elasticity of demand for the good.
C) the longer the time period consumers have to adjust to price changes, the more elastic will be demand.
D) the long-run demand curve for a good is steeper than the good's short-run demand curve.

9. "Mad cow" disease led to lower price of Alberta beef, because:

A) The leftward shift of the demand curve of Alberta beef was greater than the leftward shift of the supply curve of Alberta beef.
B) The leftward shift of the demand curve of Alberta beef was smaller than the leftward shift of the supply curve of Alberta beef.
C) The leftward shift of the demand curve of Alberta beef was greater than the rightward shift of the supply curve of Alberta beef.
D) The rightward shift of the demand curve of Alberta beef was greater than the leftward shift of the supply curve of Alberta beef.

10. If the CPI for 2005 was 284.1, and economists predicted an inflation rate of 3.5 per cent for 2006, the predicted CPI at the end of 2006 was:

A) 287.1.
B) 290.1.
C) 297.5.
D) 294.

Part II: Answer all questions (total of 70 marks)

1. (20 marks) The supply of gazebos is given by P = 2 + 0.4Q; demand is given by Q = 10. A specific tax of $4 per unit is subsequently imposed and that shifts the supply curve to P = 6 + 0.4Q. Please make sure your final answer(s) are accurate to the nearest whole number.

(i) Solve for the equilibrium price and quantity before and after the tax.

Before:

P = 2 + 0.4Q
= 2 + 0.4(10)
= $6

The quantity is constant at 10.

After:

P = 6 + 0.4Q
= 6 + 0.4(10)
= $10

The quantity is constant at 10.

(ii) Draw the demand curve and two supply curves.

The demand curve is vertical with an equation Q=10.

The supply curve before tax has an intercept 2 and slope .4, equation is P=2+.4Q.

The supply curve after tax has an intercept 6 and slope .4, equation is P=6+.4Q.

(iii) Suppose now that the supply conditions remain the same as in part a), but that the demand curve is given by P = 8. Solve for the equilibrium price and quantity before and after the tax is imposed.
Before:
P=8, Solving for Q with P = 8 and P = 2 + 0.4Q, results in Q = 15.

After:

P=8, Solving for Q with P = 8 and P = 6 + 0.4Q, results in Q = 5.

(iv) Draw the demand curve and two supply curves from part iii). Who bears the burden of the tax in parts i) and iii)?
Demand curve is perfectly elastic, a horizontal line at P=8. Supply curves before and after tax are the same as in b).

Part a) - The consumers bear all the tax burden.

Part c) - The suppliers bear all the tax burden.

2. (20 marks) In the recent years, the growing health concerns amongst Canadians have led them to turn to turkey as an alternative to red meats such as beef and pork. You are working as an economist for the turkey industry, and below describes the industry practices of the turkey industry:

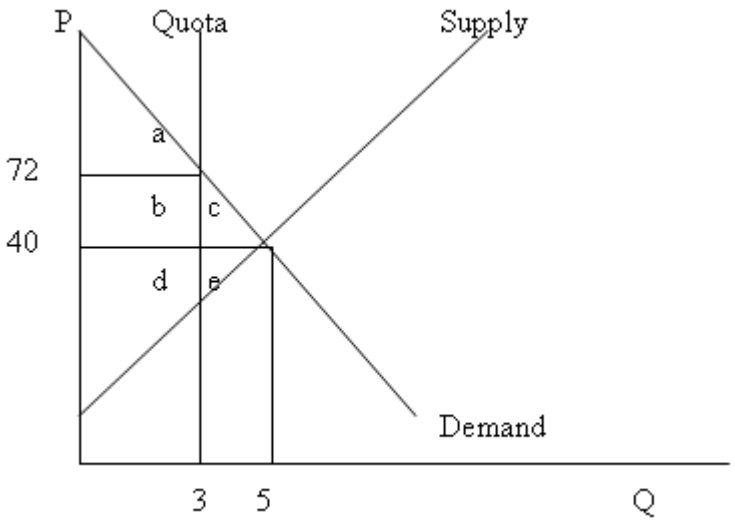
Demand: P=120-16Qd
Supply: P=20+4Qs

(i) Find the current total revenues for the industry before any quotas are in place.

P=40, Q=5, TR=200

(ii) In reality, the turkey industry imposes a "supply management strategy" onto themselves, which is simply to restrict its total output. Show that the industry benefits by imposing a maximum output quantity, or quota, at Q=3, by finding the new total revenues of the suppliers. Graphically illustrate your answers. Also label the changes in consumer surplus, producer surplus and the dead-weight loss arising from this quota. Does the quota benefit Canada as a whole? Explain.

P=72, Q=3, TR=216



Initial CS =abc
Final CS =a changeCS=-bc

Initial PS =de
Final PS =bd
changePS=b-e

Total=-(c+e)<0

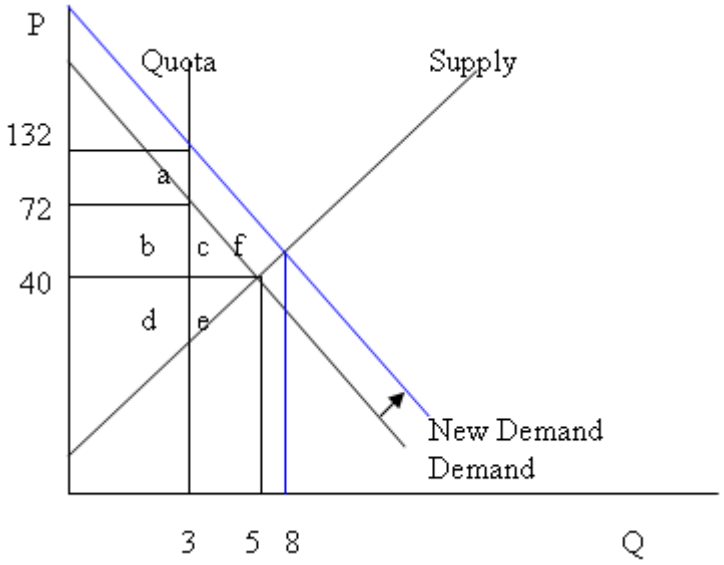
The area –(c+e) is the deadweight loss. This is the loss to consumer surplus and producer surplus that is forever lost due to the quota (unlike the loss in c in CS is recovered by the firms through a higher price). The country as a whole loses. Notice that the effect on the firms is b-e. The area b>0 comes from the gain from higher price, the loss of e<0 comes from the lower quantity sold

(iii) Suppose you now realize that the demand for turkey has increased from the current P=120-16Qd to P=180-16Qd. The turkey producers are considering to abolish this quota system and let the free market determine the equilibrium price and quantity. In your capacity as the "turkey economist" who looks after the income of the turkey farmers, would you recommend keeping the quota at Q=3 or abolishing the quota? Explain and compare the total revenues.

No quota will yield P=52, Q=8, TR=416; With quota, P=132, Q=3, TR=396. You would advise abolishing the quota.

(iv) Continue from (ii), i.e., the demand is P=180-16Qd: In your capacity as the "Canadian economist" who looks after the welfare of Canadians, would you recommend the quota or no quota? Explain, and illustrate the new demand and the new dead-weight loss under the quota on your diagram in (iii). Is the dead-weight loss increasing or decreasing if the quota remains? Why?

The new deadweight loss is –(c+e+f), which is now larger if the quota remains. You would also recommend abolishing the quota.



3. (30 marks) Multi-Lever company producers Glayde, a popular room deodorizer. Unfortunately, the production process releases sulphur dioxide into the atmosphere.

The marginal private cost (MC) of producing Glayde is MC=Qs,
The marginal social cost (MSC) is MSC=1.5Qs,
The demand curve for Glayde (there are no external benefits) is P=12-0.5Qd.

(i) In an unregulated market, what is the equilibrium quantity of Glayde?
Ans: P=8=Q.

(ii) To achieve efficiency, what should be the equilibrium quantity of Glayde?

Ans: Q=6, P=9

(iii) The government wants to impose a per unit tax on Glayde to achieve the efficient quantity of output. What should the tax be?
Ans: The tax should be set such that output is 6 units. This means MC should be now MC=Qs+t, and set it equal to demand. This means the tax should be $3 in order to get Q=6 and Pc=$9 and Pp=$6.

(iv) Calculate CS, PS, Social Cost (SC) and Total Surplus (CS, PS and SC taken together) before the tax is imposed, i.e. at Q=8?
CS=4*8/2=16
PS=8*8/2=32
SC=12*8/2-8*8/2=16
CS+PS+SC=16+32-16=32

(v) Calculate CS, PS, Social Cost (SC), government tax revenue (TR) and Total Surplus (CS, PS, SC and TR taken together) after the tax was imposed, i.e. at Q=6? Which Total Surplus is bigger – before or after the tax, by how much and why?

CS=6*3/2=9
TR=6*3=18
PS=6*6/2=18
SC=9*6/2-6*6/2=9
CS+PS+TR+SC=9+18+18-9=36

Total surplus after the tax is imposed in bigger by 36-32=$4. This is because of the negative externality which was not taken into account with the before tax production. The tax here increases the total surplus, i.e. improves the efficiency of the outcome of the free market.