**Solution (Assignment 2)**

**A/ Problems**

**Problem 1**

Illustrate the following with supply/demand curves and equilibrium:

a) Starting from an initial equilibrium, the demand for laptops has increased considerably with increase access to wireless technology and lighter weight. In addition, laptops have become easier and cheaper to produce. Despite the shift in demand, prices have decreased.

b) Russia, Brazil and Japan have been selling steel on world markets at $610 per metric ton, well below what equilibrium would be in the USA with no imports. If no imported steel was permitted in the USA, the equilibrium price would be $970 per metric ton. Show supply/demand curves and equilibrium for the USA, assuming no imports. Show what the graph would look like if US buyers could purchase all the steel they wanted from world markets at $610 per metric ton. Show the quantity of imported steel.

c) In the summer of 2006, Gustav Klimt’s portrait of Adele Bloch-Bauer was sold for $135 million.

d) Starting from an initial equilibrium, an increase in the price of chicken has an impact on the price of hamburger.

**a)**

S0

P

P0

S1

P1

D1

D0

Laptops

Q1

Q0

**b)**

P

P

SUS

SUS

SUS + imports

970$

970$

610$

610$

D

D

QS by US producers

Q

Q

QD with imports

QD with no imports

**c)**

P

$135 million

S

D

Q

1 (the portrait)

**d)**

P

S

P1

P0

D1

D0

Q (burgers)

Q1

Q0

**Problem 2**

Do you agree or disagree with the following statements? (Explain your answer)

1. The price of a good rises, causing the demand for another good to rise. Thus, the two goods are complements (complementary goods).
2. A shift in demand causes the price of a good to fall. The shift must have been a decrease in demand.
3. When the price of a good changes, the quantity of that good demanded or supplied changes; that is, the curve shifts.
4. Two normal goods cannot be substitutes.
5. If demand increases and supply increases at the same time, price will clearly rise.
6. The price of a good A falls. This causes a decrease in the price of good B. Thus, goods A and B are substitutes.

a) Disagree. The two goods are substitutes (when the price of one of them goes up 🡺 the demand for the other one increases)

b) Agree. Holding other things constant, a decrease in D will 🡺 lower price

c) Disagree. There will be movements along the curves since other things remained constant

d) Disagree. Two goods can be substitutes regardless of their nature (normal or inferior goods): steak and fish.

e) Disagree. If the increase in S is larger than the increase in D 🡺 price will fall

f) Agree. If goods A and B are substitutes 🡺 the decrease in the price of good A 🡺 a decrease in the QD of good B **at each price level** 🡸🡺 a decrease in the **demand** for good B 🡸🡺 a shift to the left of the D curve for good B 🡺 a decrease of the price of good B. Since this is what is stated, A and B are thus substitutes (when the price of one good (A) decreases 🡺 the demand for the other good (B) decreases)

**Problem 3**

The following statements contain errors. Identify and explain each error using demand/supply curves.

1. Starting from equilibrium, demand increases causing prices to increase. Higher prices cause demand to fall. Therefore, prices fall back to their initial level.
2. Starting from equilibrium, the supply of meat in Lebanon increases, causing meat prices to fall. Lower prices of meat mean that Lebanese households will spend more on meat.

a) This sequence confuses changes in demand (shifts of the demand curve) with changes in quantity demanded (movements along a demand curve). First, a demand shift does cause price to rise. As price rises, the quantity supplied increases along the supply curve, and the quantity demanded ***declines along the new demand curve*** as the market moves to reestablish equilibrium.

All in all, price will not fall back to its initial level:

P

S

D0

P1

P0

D1

Q

Q2

Q1

Q0

b) This sequence confuses a change in price (per unit) with a change in total spending on meat. When price falls, the quantity demanded increases along the demand curve. Thus, the total amount spent (price quantity demanded) depends on whether quantity demanded goes up by more than price per unit falls. Total spending could increase if demand responds strongly to the lower price 🡺 total spending increase with the “responsiveness” of demand relatively to price variation

Second case

First case

P

P

D

S0

S0

S1

D

S1

 P0

P0

 P1

P1

Q

Q

Q1

Q0

Q1

Q0

In the first case: the increase in the quantity demanded is less than the decrease in the price 🡺 total spending is likely to decrease. The quantity demanded did not increase sufficiently (was not very responsive) to increase total spending on meat.

In the second case: the increase in the quantity demanded outweigh the decrease in the price level 🡺 total spending on meat is likely to increase. In this case, the quantity demanded increased sufficiently (was very responsive) to induce higher total spending.

**Problem 4**

Suppose the market demand for pizza is given by:

QD = 300 – 20 P;

And the market supply for pizza is given by:

QS = 20P – 100; (where P is the price per pizza)

1. Graph the demand and supply schedules for pizza using $5 through $15 ($5; $10; and $15) as the value of P.
2. In equilibrium, how many pizzas would be sold and at what price?
3. What would happen if suppliers set the price of pizza at $15? Explain the market adjustment process.
4. Suppose the price of hamburgers (a substitute for pizza), doubles. This leads to a doubling of the demand for pizza. Write the new equation of the market demand for pizza.
5. Find the new equilibrium price and quantity of pizza

a) Let us compute QS for three alternative prices:

If P = 5 🡺 QS = 100 – 100 = 0

If P = 10 🡺 QS = 200 – 100 = 100

If P= 15 🡺 QS = 300 – 100 = 200

Let us compute QD for the same possible prices:

If P = 5 🡺 QD = 300 – 100 = 200

If P = 10 🡺 QD = 300 – 200 = 100

If P = 15 🡺 QD = 300 – 300 = 0

🡺 We obtain the following diagram:



b) At equilibrium QS = QD 🡺 300 – 20P = 20P – 100 🡺 400 = 40×P 🡺 equilibrium P = 400/40 = 10$

We can use the value of the equilibrium price in either one of the demand or the supply equation to obtain the equilibrium quantity: QD at equilibrium = 300 – (20×10) = 100 🡺 equilibrium quantity if 100 pizzas

c) At a price of $15, QS = 200 while QD = 0: clearly there will be an excess supply of pizzas. This would put downward pressure on the price 🡺 quantity demanded would increase and quantity supplied would decrease until both are equal at $10

d) Q’D = 2(QD) = 2 (300 – 20P) = 600 – 40P

e) At equilibrium Q’D = QS 🡺 600 – 40P = 20P – 100 🡺 700 = 60P 🡺 P = 700/60 = 11.67 🡺 the new equilibrium price is $11.67. We can use the value of the equilibrium price in either one of the demand or the supply equation to obtain the equilibrium quantity: QS at equilibrium = 20(11.67) – 100 = 233.4 – 100 = 133.4. The equilibrium quantity is thus 133 pizzas.

**Problem 5**

Many real estate experts attribute the recent rise in real estate/apartments prices in Lebanon to an increase in the demand for apartments. They argue that underlying the increase in the demand was the sustained increase of oil prices in between 2002-2008 that significantly boosted the financial resources of Lebanese expatriates living in the Gulf countries.

a) Starting from an initial equilibrium, illustrate the impact of oil prices on the demand for apartments in Lebanon

b) Why should you expect prices to stabilize?

a) Much of the additional financial resources were used by Lebanese to acquire apartments (either directly or thru remittances) 🡺 at any given price level of apartments, the QD increased 🡸🡺 the demand curve shifted to the right (from D0 to D1):

S

D0

P1

P0

D1

Q1D

Q0 (QS = Q0D)

b) At the initial price (P0) there was excess demand (Q1D > QS) 🡺 prices started to increase. The increase in prices have triggered two dynamics: i) new houses have been built/existing houses have been offered for sale (QS increased along the same S curve) as it became profitable to enter the real estate market; and ii) some of the buyers dropped out of the market as prices increased substantially (QD decreased along the new D curve). Eventually, prices will stabilize at a higher level (compared with the initial equilibrium price) where the quantity supplied will equal the quantity demanded (at P1).

**B/ Multiple choice questions**

1. In the U.S, a decrease in the supply of American cars might be caused by:

(a) an increase in the price of imported Japanese cars.

(b) an increase in the wages of U.S. car workers.

(c) an increase in demand that causes car prices to rise.

(d) a reduction in the cost of steel.

The supply of American cars will decrease if input prices, such as the wages of U.S. car workers, increase.

2. Tintin’s Bowling Balls and Captain Haddock’s Bowling Shoes are complements. Captain Haddock notices a decrease in the quantity demanded of bowling shoes (a movement along the market demand curve for his bowling shoes). This could have been caused by:

(a) a decrease in the income of Captain Haddock’s customers.

(b) an increase in the price of Captain Haddock’s Bowling Shoes.

(c) an increase in the price of Tintin’s Bowling Balls.

(d) an increased expectation that Captain Haddock will reduce the price of his bowling shoes in the near future.

This is a change in quantity demanded, not a change in demand! The only thing that can cause a change in quantity demanded is a change in price. The remaining options induce a change in demand

3. Laptops are available in both Lebanon and Jordan. During the past year, incomes have grown by 10% in each country. The demand for laptops has grown by 12% in Lebanon and by 3% in Jordan. We can conclude that laptops are:

(a) normal goods in Lebanon and normal goods in Jordan.

(b) normal goods in Lebanon and inferior goods in Jordan.

(c) inferior goods in Lebanon and normal goods in Jordan.

(d) inferior goods in Lebanon and inferior goods in Jordan.

In each case, demand has increased as income has increased. The magnitude of the increase of demand is irrelevant