ECON 210 Fall2014/15

HOMEWORK 1 (Due October 16, 3pm)

Table 1

Hours Open	Total Revenue (dollars)
1	$25
2	45
3	70
4	90
5	105
6	110

Deniz runs a small flower shop in Florida/USA. She is debating whether she should extend her hours of operation. Deniz figures that her sales revenue will depend on the number of hours the flower shop is open as shown in the table above. She would have to hire a worker for those hours at a wage rate of $16 per hour.

1) (4 points) *Refer to Table 1.* Using marginal analysis, how many hours should Deniz extend her flower shop's hours of operations? ***Show your calculations in order to get full credit from this question.***
A) 2 hours
B) 3 hours
C) 4 hours
D) 5 hours
E) 6 hours

Hint: Marginal Benefit=Marginal Revenue=Change in Total Revenue/Change in Output
For example: marginal revenue going from 1 hour to 2 hours is ($45-$25)/(2-1)=$20. That is, extra revenue received when she leaves the flower shop open for the first extra 1 hour is $20. What about the extra cost of this action? That is, what is the marginal cost of this action? Then, remember the optimal decision rule that we covered in 'test your understanding' part of the class.

2) (4 points) *Refer to Table 1.* What is Deniz's marginal benefit if she decides to stay open for three hours instead of two hours? ***Show your calculations in order to get full credit from this question.***
A) $0
B) $20
C) $25
D) $45
E) $70

3) (4 points) *Refer to Table 1.* What is Deniz's marginal cost if she decides to stay open for three hours instead of two hours? ***Show your calculations in order to get full credit from this question.***
A) $0
B) $16
C) $25
D) $32
E) $45

4) (3 points) Political candidates often hold fund raisers by charging "per plate" for dinner. Wendy purchased four tickets to a $1,000 per plate dinner for a local city council candidate. Is this transaction economically efficient? ***Write your explanation in order to get full credit from this question.***
A) No, political candidates should never be allowed to overcharge for a fund raising dinner.
B) Yes, it was a voluntary exchange that benefited both parties.
C) No, Wendy paid too much for four dinners.
D) Yes, it is efficient only from the perspective of the candidate but not from the perspective of Wendy.

5) (3 points) Which of the following is an example of an efficiency-equity trade-off faced by economic agents?
Write your explanation in order to get full credit from this question.
A) According to an article by in the American Journal of Public Health by Edward Kaplan and Michael Merson of Yale University School of Medicine, the federal government's current method of allocating HIV-prevention resources is not cost-effective. Instead of allocating resources to states in proportion to reported AIDS cases, resources should flow first to those activities that prevent more infections per dollar and then to less and less effective combinations of programs and populations until funds are exhausted, even if it means that some populations would be left without any prevention services.
B) Concerned about the falling birth rate, the French government has pledged more money for families with three children, in an effort to encourage working women to have more babies.
C) Some U.S. colleges are actively recruiting foreign students for their technology-based programs.
D) All New York City art museums are considering adopting a free-admission policy for local residents one weekend per month.

6) (10 points) The following table shows how many TVs or pharmaceutical drugs that a person in Japan or the United States can produce per day. For simplicity assume that all workers within each country have the same skills and that they can move freely between industries within each country, but they cannot move across countries. Furthermore, assume the U.S. has 200 workers and Japan has 90 workers.

Table 2

	Output per person per day	
	TV's	Drugs
United States	2	10
Japan	1	3

Use this information to answer the following questions: ***Show your calculations and write your explanation in order to get full credit from this question.***
   a. Draw the production possibilities frontier (PPF) for each country. Your PPF will show the daily production possibilities for each country. Put TV's on the x-axis. Assume constant opportunity costs (OC). **(1 point)**
   b. Which country has the absolute advantage in producing TVs? In producing drugs? **(2 points)**
   c. Calculate the OC of producing TV's in each country. **(1 point)**
   d. Calculate the OC of producing drugs in each country. **(1 point)**
   e. According to the law of comparative advantage, which product will the U.S. export? Which product will Japan export? **(2 points)**
   f. Given the information above, which of the following is an acceptable terms of trade? If it is not an acceptable terms of trade, then explain which country would be made worse off from the offer. **(3 points)**
        i. 10 TV: 20 drugs
        ii. 45 TV: 180 drugs
        iii. 50 TV: 300 drugs

7) (4 points) You have exams in economics and chemistry coming up and five hours available for studying. Use this information to draw a PPF. Label the vertical axis "score on economics exam" and label the horizontal axis "score on chemistry exam." Make sure to label the values where your PPF intersect the vertical and horizontal axis. ***Show your calculations and write your explanation in order to get full credit from this question.***
   • Suppose you spend ½ of your time studying for each exam. Label this point on your graph with the letter C.
   • Under what circumstances would spending all of your time studying for the economics exam make sense?

8) (10 points) Table 3 (Assume constant OC)

	Quilt	Dress
Helen	50 Hrs	10 Hrs
Carolyn	90 Hrs	45 Hrs

Show your calculations and write your explanation in order to get full credit from this question.

a) Who has the absolute advantage in making quilts? **(3 points)**
b) We could use the information in the table to draw a production possibilities frontier (PPF) for Helen and a second production possibilities frontier for Helen and a second production possibilities frontier for Carolyn. If we were to do this, measuring quilts along the horizontal axis, then what is the slope of Carolyn's PPF? Of Helen's PPF? **(3 points)**
c) Who has the comparative advantage in making quilts? In making Dress? **(4 points)**

9) (2 points) The substitution effect of a price change refers to
A) the change in quantity demanded that results from a change in price making a good more or less expensive relative to other goods that are substitutes.
B) the shift of a demand curve when the price of a substitute good changes.
C) the movement along the demand curve due to a change in purchasing power brought about by the price change.
D) the shift in the demand curve due to a change in purchasing power brought about by the price change.

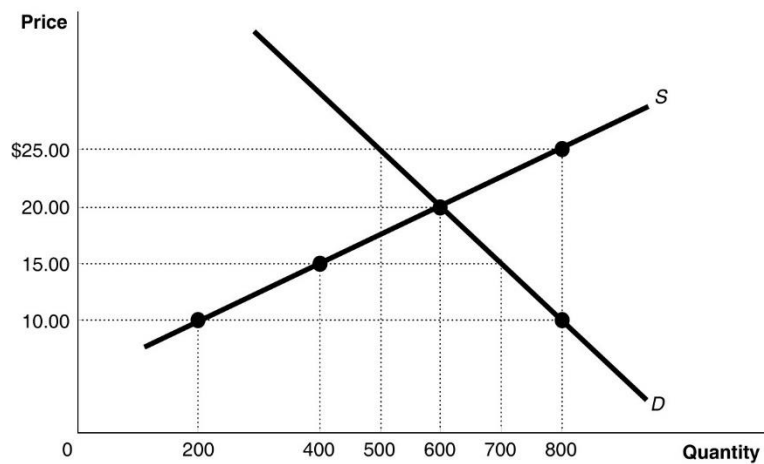**10) (2 points)** The phrase "demand has decreased" means that
A) a demand curve has shifted to the left.
B) there has been an upward movement along a demand curve.
C) there has been a downward movement along a demand curve.
D) a demand curve has shifted to the right.

11) (2 points) Studies have shown links between calcium consumption and a reduction in osteoporosis. How does this affect the market for calcium?
A) The calcium supply curve shifts to the right because of a change in tastes in favor of calcium.
B) The calcium demand curve shifts to the right because of a change in tastes in favor of calcium.
C) The calcium demand curve shifts to the left because this new information will increase the price of calcium.
D) The calcium supply curve shifts to the left because this new information will increase the price of calcium.

Figure 1 *Show your calculations in order to get full credit from questions 12-18.*

12) (4 points) ***Refer to Figure 1.*** If the price is $10,
A) there would be a surplus of 600 units.
B) there would be a shortage of 600 units.
C) there would be a surplus of 200 units.
D) there would be a shortage of 200 units.

13) (4 points) ***Refer to Figure 1.*** At a price of $10, how many units will be sold?
A) 200
B) 400
C) 600
D) 800

14) (4 points) ***Refer to Figure 1.*** If the current market price is $10, the market will achieve equilibrium by
A) a price increase, increasing the supply and decreasing the demand.
B) a price decrease, decreasing the supply and increasing the demand.
C) a price decrease, decreasing the quantity supplied and increasing the quantity demanded.
D) a price increase, increasing the quantity supplied and decreasing the quantity demanded.

15) (4 points) ***Refer to Figure 1.*** If the price is $25,
A) there would be a surplus of 300 units.
B) there would be a shortage of 300 units.
C) there would be a surplus of 200 units.
D) there would be a shortage of 200 units.

16) (4 points) ***Refer to Figure 1.*** At a price of $25, how many units will be sold?
A) 400
B) 500
C) 600
D) 800

17) (4 points) *Refer to Figure 1.* At a price of $25, how many units will be supplied?
A) 400
B) 500
C) 600
D) 800

18) (4 points) *Refer to Figure 1.* At a price of $20, how many units will be sold?
A) 400
B) 500
C) 600
D) 800

19) (10 points) Ethanol is an environmentally friendly, alcohol-based alternative fuel produced from corn and other crops that contain starches. Several states have passed legislation that requires gas stations to sell a mixture of gasoline and ethanol. As the demand for ethanol and corn increases, so does the price of corn. With refiners hogging corn supplies, *real* hogs have felt the impact. Corn has long been a staple of the pig diet. But soaring corn prices—in December 2011 a bushel of corn cost nearly $6, more than double the price of a few years before—have caused many farmers to turn to a cheaper alternative: junk food! Apparently, pigs have a real sweet tooth. "Pigs can be picky eaters, but they like the sweet stuff" noted Alfred Smith, a North Carolina pig farmer. ***Show your calculations and write your explanation in order to get full credit from this question.***

- a. On two separate graphs draw the demand for corn and the demand for junk food. Assume that the initial price of corn is $3 per unit and the initial price of junk food is $4 per unit. Label these prices and the quantity demanded on each graph. **(2 points)**
- b. On your graph for corn, show what happened in the corn market when the states passed legislation that required gas stations to sell an ethanol-gasoline mixture.
    - i. Is there a shortage or surplus at the original price? Explain. **(1 point)**
    - ii. On your graph identify the new equilibrium price of corn ($6) and the equilibrium quantity. **(1 point)**
- c. According to pig farmers, what is the relationship between junk food and corn? **(3 points)**
- d. On your graph for junk food, show what happened in the junk food market when the price of corn increased. What has happened to the price of junk food and the quantity of junk food consumed? Is this a violation of the law of demand? Why or why not? **(3 points)**

20) (8 points) A survey indicated that chocolate is Americans' favorite ice cream flavor. For each of the following, indicate the possible effects on demand, supply, or both as well as the effect on the equilibrium price and quantity of chocolate ice cream. ***Write your explanation in order to get full credit from this question.***

    a. A severe drought in the Midwest causes dairy farmers to reduce the number of milk-producing cattle in their herds by a third. These dairy farmers supply cream that is used to manufacture chocolate ice cream. **(2 points)**

    b. A new report by the American Medical Association reveals that chocolate does, in fact, have significant health benefits. **(2 points)**

    c. The discovery of cheaper synthetic vanilla flavoring lowers the price of vanilla ice cream. **(2 points)**

    d. New technology for mixing and freezing ice cream lowers manufacturers' costs of producing chocolate ice cream. **(2 points)**

21) **(3 points)** DeShawn's Detailing is a service that details cars at the customers' homes or places of work. DeShawn's cost for a basic detailing package is $40, and he charges $75 for this service. For a total price of $90, DeShawn will also detail the car's engine, a service that adds an additional $20 to the total cost of the package. Should DeShawn continue to offer the engine detailing service? ***Write your explanation in order to get full credit from this question.***
A) Yes, he still makes a profit by selling the engine detailing service with the basic detailing package.
B) Yes, but only if he raises the price of the basic detailing package.
C) No, his marginal benefit is less than his marginal cost.
D) More information is needed for DeShawn to make this decision.

22) **(3 points)** Pookie's Pinball Palace restores old Pinball machines. Pookie has just spent $300 purchasing and cleaning a 1960s-era machine which he expects to sell for $2,000 once he is finished with the restoration. After having spent $300, Pookie discovers that he will need to rewire the entire machine at a cost of $1,100 in order to finish the restoration. Alternatively, he can sell the machine "as is" now for $1,000. What should he do? ***Write your explanation in order to get full credit from this question.***
A) He should sell the machine now to make the most profit.
B) It does not matter what he does; he is going to take a loss on his project.
C) He should rewire the machine, complete the task and then sell the machine.
D) He should have never purchased the machine because he has already spent too much time on it and has not been paid for that time.

NOTE: If you don't show your calculations and write explanations when necessary, you will lose half of the point for that question (or the corresponding category of that question).