Birzeit University
Economic Department

Economics 3311 ---- Intermediate Microeconomics I

2nd semester 2011/2012   *Sana' Sous Atari*

First Exam

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INSTRUCTIONS:

1. The exam lasts 1.5 hour.
2. The exam is worth 100 points in total: 60 points for the three analytical questions, and 40 points for the multiple choice.
3. Write your answers to Part A (the multiple choice section) in the blanks on page 1. YOU WON'T GET CREDIT FOR CIRCLED ANSWERS IN THE MULTIPLE CHOICE SECTION
4. Place all of your answers for part B in the spaces provided

PART (A)

1. d
2. ✗
3. ✗
4. C
5. d

6. ✗
7. d
8. C
9. a
10. ✗

11. b
12. C
13. b
14. C
15. ✗

16. b
17. d
18. a
19. d
20. a

Part A: The Multiple Choice Section(40 points 2 points each).

Please, circle the correct answer for each of the following 20 multiple-choice questions. For each question, only one of the answers is correct.

1-Suppose two goods coffee and creamer provide the consumer with utility but only if they are consumed in fixed proportions. An increase in the price of coffee will yield

a. a substitution effect and an income effect in opposite directions. $S.G$ $P_c\uparrow$ Qdx_y $Qdy\downarrow$

b. a substitution effect and an income effect in the same direction. $I.\epsilon$ $P_c\uparrow$ $P.w\downarrow$ $Qd\downarrow$

c. a substitution effect but no income effect. $S.\epsilon$ $P_c\uparrow$ $Qdc\downarrow$ $Qdp\downarrow$

d. an income effect but no substitution effect. $P_c\uparrow$

2-Suppose there are two goods (X and Y). On a traditional graph of a budget line a tripling of all prices and incomes will

a. alter the slope of the budget line only.

b. alter the slope of the budget line as well as the Y-intercept.

c. alter the slope of the budget line as well as the X-intercept.

d. leave the budget line unaltered. $P_x\uparrow$ Qd
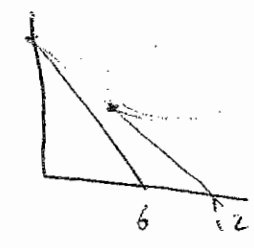
3-If a good is Giffen and its price increases, $S.\epsilon$ $P_x\uparrow$ $Qx\downarrow$ $Qy\uparrow$
$I.\epsilon$ $P_x\uparrow$ $G_xP.w\downarrow$ $Qx\uparrow$

a. the income effect will be positive and the substitution effect will be positive.

b. the income effect will be negative and the substitution effect will be negative.

c. the income effect will be positive and the substitution effect will be negative.

d. the income effect will be negative and the substitution effect will be positive.

4-Suppose $U = min(X, Y)$ and the price of X is 1, the price of Y is 1 and income is $12. If the price of X increases to 2, the substitution effect is

a. 2 $12 =$

b. -1

c. 0 $P_x\uparrow \to Qy\uparrow$

d. -4

5-The relationship between changes in income and purchase of a good indicates

    a. whether the good is a luxury or necessity.

    b. whether the good is normal or inferior.

    c. whether the good is a complement or substitute.

    d. Both a and b.

6-Consider the two statements:

    I. X is an inferior good.

    II. X exhibits Giffen's Paradox.

    Which of the following is true?
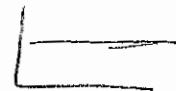
    a. I implies II, but II does not necessarily imply I.

    b. II implies I, but I does not necessarily imply II.

    c. I and II are statements of the same phenomenon.

7-Suppose demand can be written as $PQ = 1000$. The price elasticity of demand is)

    a. increasing as price rises.

    b. decreasing as price rises.

    c. constant regardless of prices and perfectly elastic.

    d. constant regardless of prices and unit elastic.
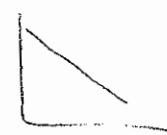
8-Suppose demand can be written as $P = 5$. The elasticity of demand is)

    a. increasing as price rises.

    b. decreasing as price rises.

    c. constant regardless of prices and perfectly elastic.

    d. constant regardless of prices and unit elastic.

9- The price elasticity of demand for a linear demand curve follows the pattern (moving from high prices to low prices)

    a. elastic, unit elastic, inelastic.

    b. unit elastic, inelastic, elastic.   c. inelastic, unit elastic, elastic.
    d. elastic, inelastic, unit elastic.

10-If a consumer purchases only two goods (X and Y) and the demand for X is elastic, then a rise in the price of X
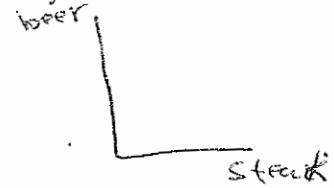
$P_x \uparrow$ $S = P_q \cdot Q \downarrow$

a.   will cause total spending on good Y to rise.

(b.) will cause total spending on good Y to fall.

c.   will cause total spending on good Y to remain unchanged.

d.   will have an indeterminate effect on total spending on good Y.

11-Suppose an individual's MRS (of steak for beer) is 2:1. That is, at the current consumption choices he or she is willing to give up 2 beers to get an extra steak. Suppose also that the price of a steak is $1 and a beer is 25¢. Then in order to increase utility the individual should

a.   buy more steak and less beer.

(b.) buy more beer and less steak.

c.   continue with current consumption plans.

d.   Not enough information to answer the question.

$$\frac{MU_X}{P_X} = \frac{MU_Y}{P_Y}$$

$$\frac{2}{1} \qquad \frac{1}{0.25}$$

beer

steak

12-An increase in an individual's income without changing relative prices will

a.   rotate the budget constraint about the X-axis.

b.   shift the indifference curves outward.

(c.) shift the budget constraint outward in a parallel way.

d.   rotate the budget constraint about the Y axis.

13-Suppose a cup of coffee at the campus coffee shop is $2.50 and a cup of hot tea is $1.25. Suppose a student's beverage budget is $20 per week. What is the most cups of tea the student could buy?

a.   20

(b.) 16

c.   10

d.   8

$$\frac{20}{1.25} =$$

$2 J$ 1 b

14-Suppose a little girl likes peanut butter and jelly sandwiches with exactly 2T of jelly and 1T of peanut butter. Suppose further that her mom agrees to make sandwiches to those exact specifications and the price of peanut butter is $.25/T and the price of jelly is $.10/T. If she has $1.8 to spend on peanut butter and jelly ingredients (ignore the bread) in a week, how many sandwiches will she make?

$1.8 = 0.1 J + 0.25 P$ $2 J$ $1 P$ $1 P = 2 J$

$= 0.1 J + 0.25 (2J)$ 0.1 0.25

$1.8 = 0.1 J + 0.5 J$ $1 P = \frac{2J}{=2 \times 3} = 6$

$J = 3$

a. 1

b. 2

c. 4

d. 8

15-Suppose a teenager likes both rap music (R) and country music (C) with a set of preferences so that $U = C^{1/2}R^{1/2}$. Which point (C, R) makes the teen the happiest?

a. 9, 16

b. 36, 1

c. 49, 4

d. 100, 0

16-Suppose a production possibilities frontier can be expressed as $9X^2 + Y^2 = 81$ what is the opportunity cost of going from 2 units of X to 3 units of X (in terms of units of Y)?
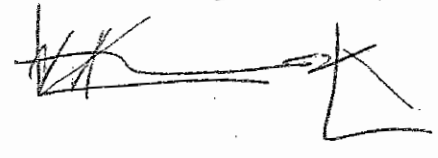
a. $\sqrt{72}$

c. 1

b. $\sqrt{45}$

d. 0

17-The Ricardian notion that of diminishing returns implies that

a. as more input is used more output will be made.

b. as more input is used less output will be made.

c. as more input is used the increase in output will increase.

d. as more input is used the increase in output will decrease.

18- If a person's indifference curves can be represented as a straight line, the person views the goods as

a. perfect substitutes

b. perfect complements

c. complements (but not perfect)

d. substitutes (but not perfect)

19-The slope of the production possibility frontier shows

a. how inputs must be changed to keep them fully employed.

b. the technically efficient combinations of the two goods.

c. how demanders are willing to trade one good for another.

d. the opportunity cost of one good in terms of the other.

20- The lump sum principle suggests that the tax that reduces utility the least is

a. a tax on income

b. a tax on a good with many substitutes

c. an equal tax per-unit on all goods

d. a tax on a good with only a few substitutes

Part B: The Essay Questions (60 points)

Solve the following three questions

(15)

Question # 1 : (20 points)

The market of corn has the following equations for the demand and supply curves:

$$Q_D = 8000 - 1000\,P$$

$$Q_S = -4000 + 2000\,P$$

$4000 = 2000$

$P =$

$-1000 +$

Quantities are measured in millions of bushels; prices are measured in dollars per bushel.

a. Find the equilibrium price and quantity for corn.

$$Q_D = Q_S$$

$$8000 - 1000\,P = -4000 + 2000\,P$$

$$12,000 = 3,000\,P$$

$$\boxed{P = 4}$$

$$Q = 8000 - 1,000\,P$$

$$= 8000 - 1,000 \times 4$$

$$\boxed{Q = 4,000}$$

b. at equilibrium price, what is the price elasticity of demand for corn? Is the demand for corn elastic or inelastic?

?

$$e = \frac{1}{slope} \times \frac{P}{Q}$$

$$\frac{dq}{dx} = -1000$$

$$= \left(-\frac{1}{1,000}\right) \times \frac{4}{4,000} = -\frac{4}{4,000,000} = -\frac{1}{1,000,000} \qquad \sim 2$$

So Because $\frac{1}{1,000,000} < 1$ it is inelastic demand.

c. In order to raise revenue from corn sales, should Agriculture Department change the price of corn? If so, should they raise or lower prices? Explain

Yes it change the price.

if it $P\uparrow \Rightarrow$ TR = P. Q$\downarrow$ $\Rightarrow$ TR$\uparrow$ -3 $\frac{4}{4,000}$

Because the inelastic when it increase price.

that small effect on Q so the TR is increase

f it $P\downarrow \Rightarrow$ TR = P$\downarrow$ Q$\uparrow$ $\Rightarrow$ TR$\downarrow$

So should increase the price.

d. Define consumer surplus and producer surplus?

~~Consumer surplus : the amounts of the customors willingies~~
~~wilingies to pay it and the actu~~

consumer surpleus & the differance between the amount it Customor
Can pay it or (willingies) to pay it and the price he paid it actual

Producer surplus & The differance between the ~~price~~ the amount, between
the price that Surpluse ~~whant~~ want to recive it and the amout of price
recived actually

e. At the equilibrium, what is consumer surplus and producer surplus, show and calculate all of these algebra as well as graphically?
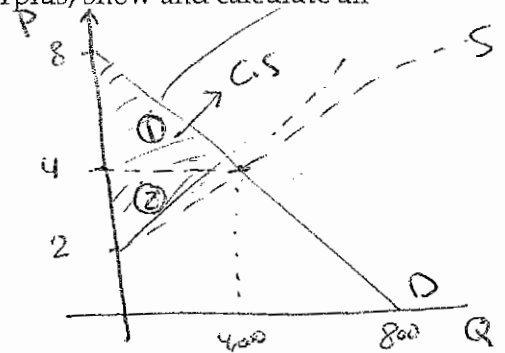
C.S = area 1 in the curve

$= \frac{1}{2} \times 4000 \times 8-4$

$= 8,000$

P.S = area in 2 in curve
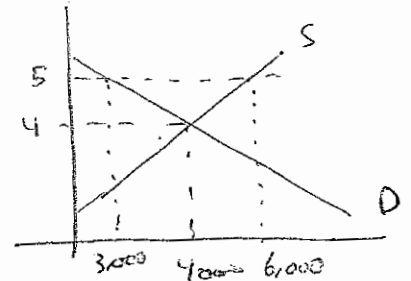
$= \frac{1}{2} \times 4000 \times 4-2$

$= 4,000$

f. If the government impose a price floor at $5 per unit, will there be an excess supply or excess demand? How much will it be?

excess in supply.

surplues = Qs - Qd

$= 6,000 - 3,000 = 3,000$

g. If the government decide to buy 1000 units at any price level, what is the new equilibrium price and quantity?

if the government buy 1000 units the ~~QD~~ D is shifts
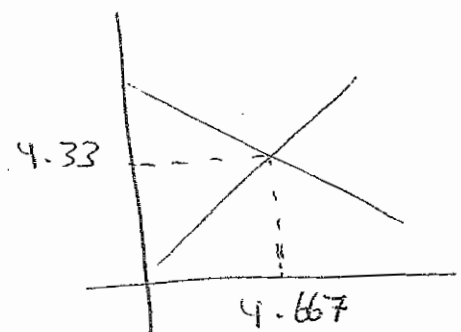to right and by 1000

Qd = 8000 - 1000 P + 1000
   = 9,000 - 1000 P

Qd = Qs
9000 - 1000 P = -4000 + 2000P

13,000 = 3,000 P

$\boxed{P = 4.33}$

$\boxed{Q = 4,667}$

$$MU_x = \frac{MU_Y}{Y} \qquad \frac{MU_x}{P_x} = \frac{MU_Y}{P_Y}$$

$$X^2 Y \qquad -\frac{P_t}{P_y}$$

Question # 2 : (20 points)

Elizabeth has the following utility function for goods X and Y: $U = X2\,Y$. Her income is $300 per unit of time, the price of X equals $10 per unit, and the price of good Y equals $2 per unit.

a. Find the MRS.

$$MU_x = 2X \cdot Y$$
$$MU_y = X^2$$

$$MRS = \frac{MU_X}{MU_Y} = \frac{2 \cdot X \cdot Y}{X^2} = \frac{2Y}{X}$$

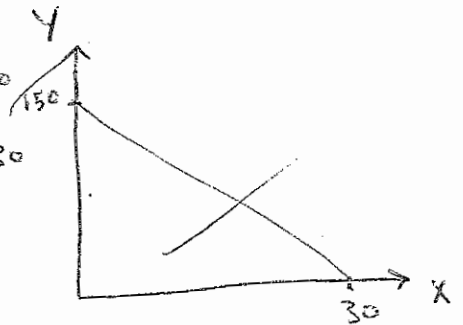$$MRS = -\frac{P_x}{P_y} = -\frac{10}{2} = -5$$

b. Calculate and sketch the budget constraint.

$$I = P_x X + P_y Y$$
$$300 = 10 X + 2 Y$$

$$Y \text{ Intercept} = \frac{I}{Y} = \frac{300}{2} = 150$$
$$X \text{ intersect} = \frac{I}{X} = \frac{300}{10} = 30$$

c. What is the utility-maximizing consumption bundle for Elizabeth?

The utility max. is at the point tangent when tangent with Budget Line

$$\frac{2Y}{X} = -5 \Rightarrow (2Y = 5 X) \cdots ①$$

$$I = P_x X + P_y Y$$
$$300 = 10 X + 2Y$$

$$\Rightarrow 2Y = 300 - 10 X \cdots ②$$

$$+5X = 300 - 10 X$$
$$15 X = 300 \Rightarrow X = 20$$

$$2Y = 5X$$
$$Y = 50$$

d. How would your answer to part (c) change if the price of X increased to $20 per unit?

$$\frac{2Y}{X} = \frac{P_x}{P_y} = \frac{20}{2} \Rightarrow \frac{2Y}{X} = 10 \Rightarrow 2Y = 10 X \cdots ①$$

$$300 = 20 X + 2 Y \Rightarrow 2Y = 300 - 20X$$
$$10 X = 300 - 20 X$$
$$10 X = 300 \Rightarrow X = 30$$

$$2Y = 10 X$$
$$2Y = 300 \Rightarrow Y = 150$$

e. If her income doubles and prices stay unchanged, will her demand for both goods double?

Income	X	Y	
0	20	50	300
0	40	100	

So Yes, it doubles when I doubles.

$$2Y = 5X$$
$$2Y = 5 \times 40$$
$$Y = 100$$

$$\frac{MU_X}{MU_Y} = \frac{P_x}{P_y}$$

$$\frac{2Y}{}$$

$$660 = 10 X + 2 Y \cdots ②$$

$$\frac{2Y}{X} = 5 \Rightarrow 2Y = 5X$$

$$600 = 10 X + 5X$$
$$15 X = 600$$
$$X = 40$$

a- To what effect (income or substitution) do you attribute the change in utility levels between part a and part b.

Question #3 : (20 points)

P↓

Assume two goods , X and y , y is normal good but x is inferior good , show the effect of a decrease in the price of good x, (indifference curves,u1 and u2, budget lines BL1 and BL2, quantities of x &y, income effect and substitution effect) all this on the same graph. don't forget to show me your analysis.
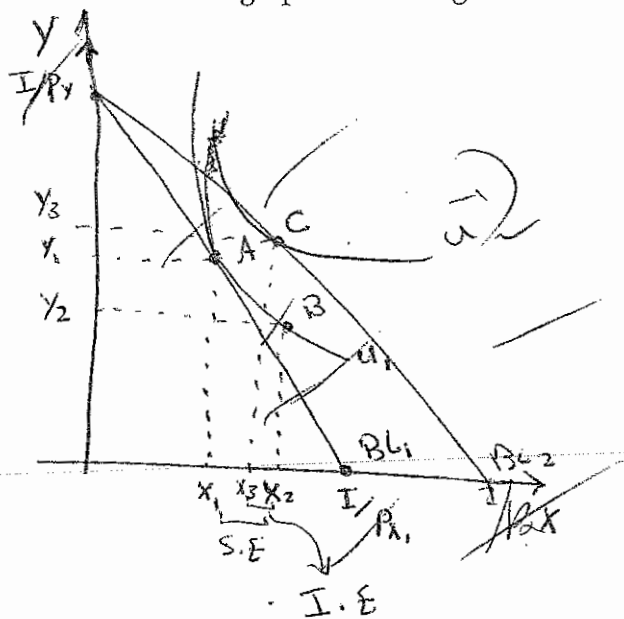
if $P_x \downarrow$

$\underline{\underline{S.E}}$ $P_x \rightarrow Qdx \uparrow \rightarrow Qdx \downarrow$
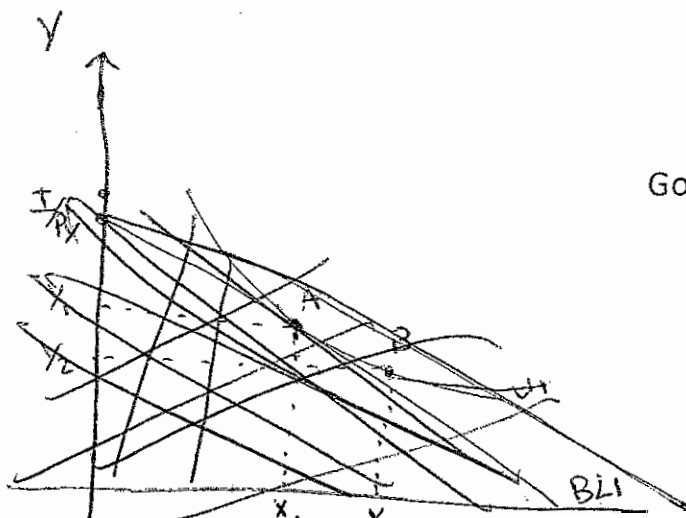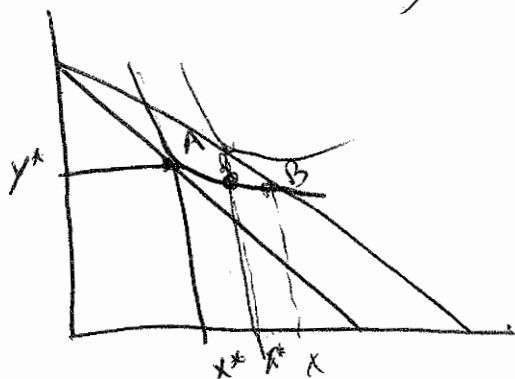$P_x \downarrow \rightarrow Qdy \downarrow \rightarrow Qdx \uparrow$

$I.E$ $P_x \downarrow \rightarrow P.P \uparrow \rightarrow Qdx \downarrow$

so tow effect is opposite direction.

from A to B ⟹ S.E
from B to ⟹ I.E

Good Luck