Economics 103 F01 Fall 2007
Principles of Microeconomics: Test #2

Dr. H.J. Schuetze
80 Minutes

Part A Multiple Choice (60 points) – 2 points each
Please Select ONE Answer Only

Part B Short Answer (40 points)
Answer both short answer questions on the exam paper in the space provided

Please Circle your TA's Name and Lab Section

LF01	T, 12:30-1:30	DSBC126	Ahmed Hoque
LF02	T, 4:30-5:30	DSBC130	Jack Mol
LF03	M, 2:30-3:30	DSBC128	Ahmed Hoque
LF04	R, 3:30-4:30	DSBC128	Angela Chen
LF05	T, 1:30-2:30	CLED134	Angela Chen
LF06	F, 2:30-3:30	DSBC108	Jack Mol
LF07	W, 2:30-3:30	DSBC128	Ahmed Hoque

Signature: _____

Print Name – Surname (Family) name first: _____

Student Registration Number: _____

Part A of this exam consists of thirty (30) multiple-choice questions. **Enter in the table** below the letter (A, B, C, D, or E) of the best response to each question.

1 **D**	**2** **A**	**3** **B**	**4** **A**	**5** **D**	**6** **D**	**7** **A**
8 **C**	**9** **D**	**10** **D**	**11** **D**	**12** **B**	**13** **B**	**14** **D**
15 **D**	**16** **C**	**17** **C**	**18** **D**	**19** **B**	**20** **B**	**21** **D**
22 **B**	**23** **D**	**24** **D**	**25** **A**	**26** **D**	**27** **C**	**28** **B**
29 **B**	**30** **B**					

No books, notes, or other aids are permitted. You may, however, use an approved calculator. Do not turn to next pages until told to do so by examiner.

1. The only producer of chocolate bunnies in the world, Choco's Bunny Company, recently expanded its production capacity from 1,000 bunnies per day to 2,000 per day. Supposing the price elasticity of demand for Bunnies is 3.33, if you use the midpoint method of estimating the price elasticity of demand, by how much will the company need to reduce its price to sell the additional 1,000 bunnies?
   A) 2.5%
   B) 25%
   C) 125%
   D) 20%

2. Suppose the price of Vanilla Coke increases by 9% and quantity demanded falls by 13% overall, but only 4% for loyal Coca-Cola customers. This means that for the general public there are _____ for Vanilla Coke, but for loyal Coca-Cola customers, Vanilla Coke is more of a _____ item. This means that Coca-Cola will enjoy an increase in total revenue only from _____.
   A) several substitutes; necessity; loyal Coca-Cola customers
   B) few substitutes; luxury; the general public
   C) no substitutes, necessity; the general public
   D) several substitutes; necessity; the general public

3. Assume that the demand for Okanagan grapes is price elastic. An early frost in the Okanagan Valley cripples the grape harvest. As a result:
   A) there would be a reduction in the equilibrium price but an increase in total consumer spending for grapes.
   B) there would be a reduction in the equilibrium quantity as well as a decrease in total consumer spending for grapes.
   C) there would be a reduction in both the equilibrium price and the quantity of grapes.
   D) none of the above situations would occur.

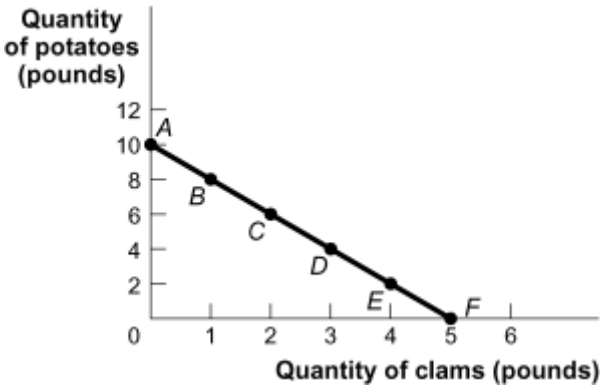
4. When Joe's income is $100 per week, he spends $20 per week on pizza. When his income rises to $110 per week, he spends $25 per week on pizza. If the price of pizza remains constant, this information implies that for Joe:
   A) pizza is a normal good and a luxury.
   B) pizza is a normal good and a necessity.
   C) pizza is an inferior good since his expenditure rose by less than the increase in income.
   D) demand for pizza is price-elastic.

5. Suppose the government imposes a $4 excise tax on good *X*. If the demand for good *X* is perfectly elastic and the supply curve is elastic, then the price of good *X* will:
   A) increase by more than $4.
   B) increase by exactly $4.
   C) increase, but by less than $4.
   D) remain constant.

6. Assume the price elasticity of demand for tobacco is 0.5, and the income elasticity of demand for tobacco is 0.4. Then:
   A) an increase in the price of tobacco will decrease total revenue from sales of tobacco.
   B) a 20% increase in the price of tobacco will decrease the quantity demanded of tobacco by 8%.
   C) tobacco is an inferior good.
   D) a 50% increase in income will increase the quantity demanded of tobacco by 20%.

Use the following to answer question 7:

Figure and Table: The Budget Line



Consumption bundle	Quantity of clams (pounds)	Quantity of potatoes (pounds)
A	0	10
B	1	8
C	2	6
D	3	4
E	4	2
F	5	0

7. (Figure and Table: The Budget Line) In the accompanying figure, a(n) _____ in the price of clams would rotate the budget line along the _____ axis _____ the origin.
   A) increase; horizontal; toward
   B) decrease; horizontal; toward
   C) increase; vertical; toward
   D) decrease; vertical; away from

8. James finds a new job that doubles his income. He adjusts his consumption. From this we know that for every normal good James buys:
   A) James's marginal utility per dollar will rise.
   B) James's marginal utility per dollar will fall.
   C) James's marginal utility per dollar will stay constant.
   D) Jame's total utility will fall.

9. Brad spends all his income on two goods: *X* and *Y*. He is purchasing the optimal consumption bundle, bundle *E*, that maximizes his utility given his budget constraint. At the optimal consumption bundle, which of the following statements is correct?
   A) If the price of *X* is greater than the price of *Y*, then the marginal utility of *X* is greater than the marginal utility of *Y*.
   B) If the price of *X* is less than the price of *Y*, then the marginal utility of *X* is less than the marginal utility of *Y*.
   C) If the price of *X* is equal to the price of *Y*, then the marginal utility of *X* is equal to the marginal utility of *Y*.
   D) All of the above are correct.

10. Brad spends all his income on two goods: beer and pizza. He is purchasing the optimal consumption bundle, bundle *E*, that maximizes his utility, given his budget constraint. At the optimal consumption bundle, which of the following statements is INCORRECT?
   A) If the price of beer is greater than the price of pizza, then the marginal utility of beer is greater than the marginal utility of pizza.
   B) If the price of beer is greater than the price of pizza, then the marginal utility of beer is less than the marginal utility of pizza.
   C) If the price of beer is equal to the price of pizza, then the marginal utility of beer is equal to the marginal utility of pizza.
   D) All of the above are incorrect.

Use the following to answer question 11:

Table: Marginal Utility per Dollar

Clams (price of clams = $8 per pound)				Potatoes (price of potatoes = $4 per pound)			
Quantity of clams	Utility from clams	Marginal utility per pound of clam	Marginal utility per dollar	Quantity of potatoes	Utility from potatoes	Marginal utility per pound of potatoes	Marginal utility per dollar
0	0			0	0		
		15	1.88			11.5	2.88
1	15			1	11.5		
		10	1.25			9.9	2.48
2	25			2	21.4		
		6	0.75			8.4	2.10
3	31			3	29.8		
		3	0.38			7.0	1.75
4	34			4	36.8		
		2	0.25			5.7	1.43
5	36			5	42.5		
						4.5	1.13
				6	47.0		
						3.5	0.88
				7	50.5		
						2.7	0.68
				8	53.2		
						2.0	0.50
				9	55.2		
						1.5	0.38
				10	56.7		

11. (Table: Marginal Utility per Dollar) According to data in the accompanying table, if the price of clams is $8 per pound, the price of potatoes is $4 per pound, and this consumer has $40 to spend on potatoes and clams, then the utility-maximizing combination is _____ pounds of clams and _____ pounds of potatoes.
    A) 3; 4
    B) 2; 5
    C) 1; 8
    D) 2; 6

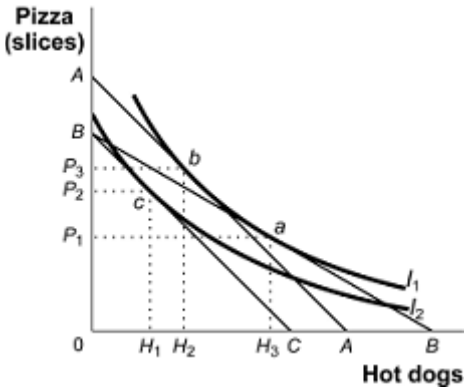
12. Karen consumes gasoline and other goods. A new excise tax on gasoline raises gas prices. However, the government pays Karen an income subsidy which is just enough for her to stay on her original (pre-tax) indifference curve. Her new optimal consumption bundle will have:
    A) the same amount of both gasoline and other goods as before.
    B) less gas and more of other goods.
    C) less of other goods and more gas.
    D) This question can't be answered, since some essential information (such as Karen's income, the pre- and post-tax prices of gas, etc.) is missing.

13. Suppose the Ontario provincial government decides to help poor families with kids by subsidizing the purchase of milk. The subsidy takes the form of a 50% discount in the price of milk. Suppose also that poor families buy only milk and Spam (an inferior good). What happens to the amount of Spam poor families buy?
    A) The amount of Spam purchased increases.
    B) The amount of Spam purchased decreases.
    C) The amount of Spam purchased stays the same.
    D) The answer depends on the shape of the family's indifference curve.

14. Gwen is consuming the optimal consumption bundle of potatoes and steak. Call this bundle *A*. Her income is $100, the price of steak is $10, and the price of potatoes is $1. Put potatoes on the horizontal axis and put steak on the vertical axis. Now let's assume that her income increases to $500, and the price of steak and potatoes remains constant. With the increase in income, Gwen changes her consumption of the two goods and now maximizes utility at bundle *B*. If potatoes are an inferior good for Gwen, which of the following is CORRECT?
    A) At bundle *B*, Gwen consumes fewer potatoes.
    B) At bundle *B*, Gwen consumes more steak.
    C) At bundle *A* and bundle *B*, the marginal rate of substitution is 10.
    D) All of the above are correct.

Use the following to answer questions 15-16:

Figure: Indifference Curves and Consumption Bundles



15. (Figure: Indifference Curves and Consumption Bundles) In the accompanying figure, the lines *AA* and *BC* are parallel. The optimal consumption point could shift from *b* to *c* as a result of:
    A) an equal percentage increase in the price of both hot dogs and pizza, while income is unchanged.
    B) a decrease in income with prices constant.
    C) a change in tastes.
    D) both a and b.

16. (Figure: Indifference Curves and Consumption Bundles) In the accompanying figure, the initial optimum is at *a*. The price of hot dogs now increases, and the new equilibrium point is *c*. The change in hot dog consumption due to the income effect of the price change is:
    A) H_3 to H_2.
    B) H_3 to H_1.
    C) H_2 to H_1.
    D) H_1 to H_2.

17. A major university in the West recently raised tuition by 12%. An economics professor at this university asked his students, “Due to the increase in tuition, how many of you will transfer to another university?” One student out of about 300 said that he or she would transfer. The price elasticity of demand for education at this university is:
    A) 1.
    B) highly elastic.
    C) highly inelastic.
    D) 0.

18. Peanut butter and jelly are complements. If there is a decrease in the price of jelly, producer surplus in the peanut butter market:
    A) will increase.
    B) will decrease.
    C) will not change.
    D) may change, but it is impossible to tell if it will increase or decrease.

19. Suzy knows she has maximized her utility, because:
    A) consumption of good *X* equals consumption of good *Y*.
    B) *MUx/Px = MUy/Py*.
    C) *MUx = MUy*.
    D) We need more information to answer appropriately.

20. For the vast majority of goods, demand curves slope downward because:
    A) marginal utility rises as quantity demanded increases.
    B) the substitution effect constitutes almost the entire effect of a price change, and this effect always causes quantity demanded and price to be inversely related.
    C) the income effect constitutes almost the entire effect of a price change, and this effect always causes quantity demanded and price to be inversely related.
    D) of none of the above.

21. A Giffen good:
    A) must be an inferior good.
    B) must be such that the income effect and the substitution effect move in opposite directions, and the income effect outweighs the substitution effect.
    C) must have an upward sloping demand curve.
    D) is all of the above.

22. Anne, who is consuming two goods, *X* and *Y*, is characterized by a typical downward-sloping, convex indifference curves. Which of the following best represents her optimal consumption point?
    A) The intersection of the indifference curve and a budget line.
    B) The tangency of the indifference curve and a budget line.
    C) A point that lies above a budget line.
    D) At the optimal consumption point, the *MRS* between *X* and *Y* equals zero.

23. Suppose Frank buys only milk and cereal, both of which are normal goods, and he always maximizes his utility. Suppose Frank's boss decides to cut Frank's pay by $200 per month. What happens to Frank's marginal rate of substitution between milk and cereal?
    A) It depends on the shape of his indifference curve.
    B) It decreases.
    C) It increases.
    D) It stays constant.

Use the following to answer question 24:

Figure: Market for Lattes

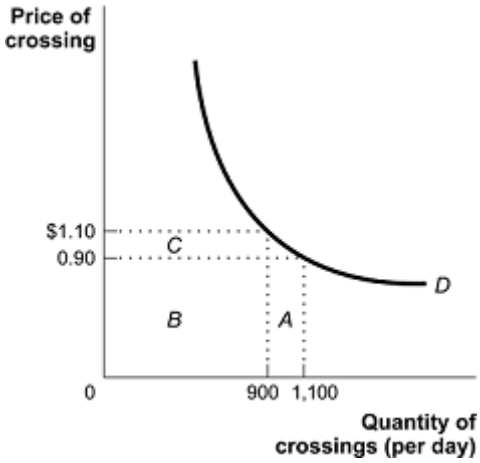
24. (Figure: Market for Lattes) In the market for lattes shown in the accompanying figure, what is the price elasticity of demand between prices of $2 and $2.50 per cup using the midpoint formula?
    A) 1
    B) 1.29
    C) 2.51
    D) 3

25. Suppose the price of cereal rose by 25% and the quantity of milk sold decreased by 50%. Then we know the:
    A) cross-price elasticity between cereal and milk is –2.
    B) cross-price elasticity between cereal and milk is –0.5.
    C) price elasticity of demand for milk is 2.
    D) cross-price elasticity of demand for milk is 2.

26. The publisher of an economics textbook finds that when the book's price is lowered from $70 to $60, sales rise from 10,000 to 15,000. Using the midpoint method, you can calculate that the price elasticity of demand is:
    A) 500.
    B) 50%.
    C) 3.5.
    D) 2.6.

Use the following to answer question 27:

Figure: Demand Curve for Crossings



27. (Figure: Demand Curve for Crossings) In the accompanying figure, demand is price-_____ between $0.90 and $1.10, since total revenue _____ when price _____.
    A) elastic; increases; decreases.
    B) inelastic; stays the same; decreases.
    C) unit-elastic; stays the same; increases.
    D) inelastic; increases; increases.

28. Chuck spends all his income on two goods: tacos and milkshakes. His income is $100, the price of tacos is $10, and the price of milkshakes is $2. Put tacos on the horizontal axis and put milkshakes on the vertical axis. The slope of Chuck's budget line is equal to:
    A) –1/5.
    B) –5.
    C) 1/5.
    D) 5.

29. Suppose the price elasticity of demand for cheeseburgers equals 0.37. This means the overall demand for cheeseburgers is:
    A) price-elastic.
    B) price-inelastic.
    C) price unit-elastic.
    D) perfectly price-inelastic.

30. Suppose the price elasticity of demand for fishing lures equals 1 in Quebec and 0.63 in New Brunswick. To increase revenue, fishing lure manufacturers should:
    A) lower prices in each province.
    B) raise prices in each province.
    C) lower prices in Quebec and raise prices in New Brunswick.
    D) leave prices unchanged in Quebec and raise prices in New Brunswick.

Part B – Short Answer Questions

1. The table below gives part of the supply schedule for personal computers in Canada.

Price of Computer	Quantity of computers supplied (thousands)
$1,100	12,000
$900	8,000

a. Calculate the price elasticity of supply when the price rises from $900 to $1,100 using the midpoint method. Show all your calculations.
b. Suppose firms produce 1,000 more computers at a given price due to improved technology. As price increase from $900 to $1,100, is the price elasticity of supply now greater than, less than, or the same as it was in part a?
c. Suppose that a longer time period under considerations means that the quantity supplied at any given price is 20% higher than the figures given in the table. As price increases from $900 to $1,100, is the price elasticity of supply now greater than, less than , or the same as it was in part a?

2. Horatio is a utility maximizer. His income is $100 which he can spend on cafeteria meals and on notepads. Each meal costs $5 and each notepad costs $2. At these prices Horatio chooses to buy 16 cafeteria meals and 10 notepads.

a. Draw a diagram that shows Horatio's choice using an indifference curve and his budget line, place notepads on the vertical axis and cafeteria meals on the horizontal axis. Label the indifference curve I_1 and the budget line BL_1.

b. The price of notepads falls to $1; the price of cafeteria meals remains the same. On the same diagram, draw Horatio's budget line with the new prices and label is BL_H.

c. Lastly, Horatio's income falls to $90. On the same diagram, draw his budget line with this income and the new price and label it BL_2. Is he worse off, better off, or equally well of with these new price and lower income than compared to the original prices and higher income? Illustrate your answer using an indifference curve and label it I_2

Short Answer Solutions

a. [5 marks] Using the midpoint method, the percent change in the quantity supplied is:

$$\frac{12{,}000 - 8{,}000}{8{,}000 + 12{,}000/2} x100 = \frac{4{,}000}{10{,}000} x100 = 40\%$$

$$\frac{\$1{,}100 - \$900}{(\$900 + \$1{,}100)/2} x100 = \frac{\$200}{\$1{,}000} x100 = 20\%$$

The price elasticity of supply therefore is: 40%/20% = 2

Note: you should give students full marks if they get the correct answer with the

b. [10 marks] The elasticity estimate would be lower. A price change from $900 to $1,100 is a 20% price change just as calculated in part a. Previously, when this quantity supplied changed from 8,000 to 12,000 that was a 40% change in the quantity supplied. Now that the quantity supplied at each price is higher by 1,000, the same price change would imply a change in the quantity supplied from 9,000 to 13,000, which is a 46% p change. Since the percentage change in quantity is now lower but the percent change in price is the same as before, the elasticity estimate is lower.

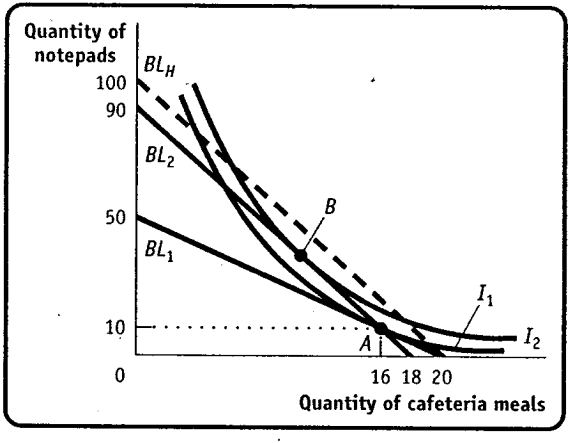
c. [5 marks] The price increase from $900 to $1,100 is a 20% increase, just as calculated in part a. But now that all quantities are 20% higher, the quantity supplied increases from 9,600 to 14,400. Using the midpoint method, this is a :

$$\frac{14{,}400 - 9{,}600}{(9{,}600 + 14{,}400)/2} x100 = 40\%$$

Increase so that the price elasticity of supply is: 40%/20% = 2

2. See attached

9. a. Tyrone's initial optimal bundle of 16 meals and 10 notepads is given by point *A*, the point at which I_1 and BL_1 are tangent. BL_1 is found by calculating its horizontal intercept (the quantity of cafeteria meals he can buy if he spends all his income on meals, equal to \$100/\$5 = 20) and its vertical intercept (the quantity of notepads he can buy if he spends all his income on notepads, equal to \$100/\$2 = 50).



b. Given that the price of notepads falls to \$1 while the price of meals stays unchanged at \$5, Tyrone's budget line, BL_H, is given by its vertical intercept (\$100/\$1 = 100) and its horizontal intercept (\$100/\$5 = 20).

c. Given that the price of notepads drops to \$1 while the price of meals stays unchanged at \$5, and his income drops to \$90, Tyrone's budget line is BL_2. It is given by its vertical intercept (\$90/\$1 = 90) and its horizontal intercept (\$90/\$5 = \$18). Note that Tyrone can indeed buy his original consumption bundle of 16 meals and 10 notepads at the new prices and lower income: (16 *H* \$5) + (10 *H* \$1) = \$90. So he cannot be any worse off than he was originally. But, in fact, he is better off: as can be seen from the diagram, BL_2 allows him to reach a higher indifference curve, I_2, than he achieved before.

d. Despite having a lower income (\$90 instead of \$100), Tyrone is better off because the fall in the price of notepads has made him richer in a real sense. The fall in the price of notepads has been sufficiently large so that once he reallocates his consumption towards more notepads and fewer meals, he is more than compensated for the fall in his income level.