

**McGill****October 2013
Midterm Exam****Microeconomic Analysis and Applications
Econ 208****Examiner: Mayssun El-Attar Vilalta**

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INSTRUCTIONS:

- **Make sure to indicate your name, ID, section and exam version on the scantron sheet and the exam book.**
- Mark your answers on the computer sheet using **PENCIL ONLY**.
- This examination consists of 20 multiple choice (each question accounts for 1.5 points) and 2 open questions (points indicated in each question). There are 60 points in total. You have 70 minutes to answer them.
- This examination is **PRINTED ON BOTH SIDES** of the paper.
- Answer the MCQ on the scantron sheet provided to you. Space is provided on the examination to answer open questions #1-2.
- This examination paper **MUST BE RETURNED**.
- A non-scientific calculator is permitted. A regular hard-copy translation dictionary is permitted.
- This is a **MULTIPLE CHOICE** examination. The Examination Security Monitor Program detects pairs of students with unusually similar answer patterns on multiple-choice exams. Data generated by this program can be used as admissible evidence, either to initiate or corroborate an investigation or a charge of cheating under Section 16 of the Code of Student Conduct and Disciplinary Procedures.

Question 1 (20 points)

Consider the market for gasoline. Suppose that the market demand and supply curves are as given below. In each case, quantity refers to millions of litres of gasoline per month; price is the price per litre (in cents):

$$\begin{aligned}p &= 80 - 5Q^D \\p &= 24 + 2Q^S\end{aligned}$$

1. Compute the equilibrium price and quantity. Sketch your own diagram. (3 points)

Answer: Sketch a diagram with supply and demand indicating price and quantity of equilibrium. The diagram does not have to be at scale. (1 point)

V1. Answer: $P=40$ and $Q=8$

V2. Answer: $P=40$ and $Q=8$

V3. Answer: $P=45$ and $Q=7$

V4. Answer: $P=50$ and $Q=6$

2. Now suppose that the government imposes a tax of 7 cents per litre. Show in your graph how this affects the market equilibrium. (2 points)

Answer: Draw a diagram indicating the effect of a tax. Parallel shift of the supply curve upwards, new equilibrium. Now P_c is different than P_s .

If you subtract points, please indicate what is missing in the graph or not correct.

3. What are the new consumer price and the new producer price? (3 points)

V1. Answer: $P_c=45$ and $P_s=38$

V2. Answer: $P_c=65$ and $P_s=30$

V3. Answer: $P_c=55$ and $P_s=41$

V4. Answer: $P_c=60$ and $P_s=46$

4. Compute the total revenue raised by the gasoline tax. (3 point). What share of this tax revenue is “paid” by consumers, and what share is “paid” by producers? (3 points)

V1. Answer: Government Revenue $= 7 \times 7 = 49$

V2. Answer: Government Revenue $= 3 \times 35 = 105$

V3. Answer: Government Revenue $= 5 \times 14 = 70$

V4. Answer: Government Revenue $= 4 \times 14 = 56$

5. How would your answer be affected if the demand for gasoline became more elastic? Explain your answer. (3 points).

Answer: They may discuss it in different ways, give full points if the answer states that when demand is elastic relative to supply, producers bear most of the burden of excise taxes.

6. What elasticity measure would be useful in answering the following question: “What effect will rising gasoline prices have on the sale of cars that use propane gas?” Discuss the expected sign of the elasticity measure. (3 points)

Answer: Cross elasticity of demand. We expect a positive sign since a price increase of a substitute leads to an increase in quantity demanded of this good.

Question 2 (10 points)

Many medical and hospital services in Canada are provided at zero cost to all Canadians and are financed out of general government revenues. What would be the marginal value of such services consumed by each Canadian if the government provided the necessary resources to satisfy all demand? (5 points) How does this relate to the total value that Canadians probably place on medical services? (5 points) Use a graph to support your argument.

Complete answer from the book: Students should show that they understand the difference between marginal and total value. Given a downward-sloping demand for medical and hospital services, the unlimited government-provision at a zero price implies that the marginal value of these services will be driven to zero. The total value, of course, will be quite high, but consumers will use these services up to the point where price (zero) equals marginal benefit. If the government then restricts supply (for whatever reason), the total value of services to consumers will fall but the marginal value will rise.

For grading: I would like them to show that they understand the difference between marginal and total value. In their discussion they should be able to notice that in this example we expect a low (zero) marginal value but a high total value. Similar to the case of water in the paradox of value (chapter 6 page 138).

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

- 1) The Smith family is allocating its monthly household expenditure between only two goods, food and clothing. Suppose that the price of food is \$10 per unit, and the price of clothing is \$13 per unit and that the marginal utility that the family is receiving from its consumption of food is currently 200. What is the family's marginal utility from its consumption of food if it is maximizing its utility? 1) _____

A) 200 B) 75 C) 260 D) 16 E) 150

Answer: C

- 2) Let I_1 stand for "any given period" and I_2 stand for "base period". The formula of any index number can be written as: 2) _____

A) value of index at $I_1 = \frac{\text{relative value at } I_1}{\text{relative value at } I_2} \times 100$

B) value of index at $I_1 = \frac{\text{absolute value at } I_1}{\text{absolute value at } I_2} \times 100$

C) value of index at $I_1 = \frac{\text{relative value at } I_1}{\text{relative value at } I_2}$

D) value of index at $I_1 = \frac{\text{absolute value at } I_2}{\text{absolute value at } I_1} \times 100$

E) value of index at $I_1 = \frac{\text{absolute value at } I_1}{\text{absolute value at } I_2}$

Answer: B

The table below shows hypothetical per-minute cell phone charges for "pay-and-talk" service over several years.

2005	0.55
2006	0.50
2007	0.40
2008	0.35
2009	0.25

TABLE 2-2

- 3) Refer to Table 2-2. Assume that 2005 is used as the base year, with the index number = 100. The value of the index number in 2008 is 3) _____

A) 137.5 B) 0.727 C) 63.64 D) 100 E) 72.73

Answer: C

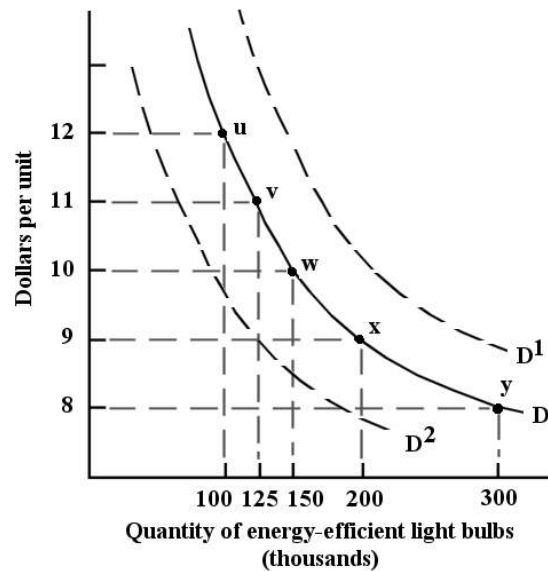


FIGURE 3-1

- 4) Refer to Figure 3-1. A shift of the demand curve for energy-efficient light bulbs from D to D^2 could be caused by 4) _____

A) an increase in the price of ordinary light bulbs.
 B) a decrease in the price of energy-efficient light bulbs.
 C) a news bulletin stating that energy-efficient light bulbs emit a harmful gas.
 D) a change in preferences away from ordinary bulbs to energy-efficient bulbs.
 E) an expectation that new government regulation will require the use of energy-efficient light bulbs only.

Answer: C

- 5) Refer to Figure 3-1. If demand is given by the curve D , the _____ energy-efficient light bulbs is 200 000 at a price of \$9. 5) _____

A) quantity sold of
 B) demand for
 C) quantity demanded of
 D) demand schedule for
 E) quantity purchased of

Answer: C

- 6) Suppose you are advising the government on changes in the gasoline market. The current price is \$1.00 per litre and the quantity demanded is 2.5 million litres per day. Short-run price elasticity of demand is constant at 0.5. If the supply of gasoline is reduced so that the price rises to \$1.50 per litre, then quantity demanded is predicted to fall in the short run by 6) _____

A) 13.3 percent, and total expenditure will rise.
 B) 15 percent, and total expenditure will rise.
 C) 20 percent, and total expenditure will rise.
 D) 50 percent, and total expenditure will fall.
 E) 12 percent, and total expenditure will fall.

Answer: C

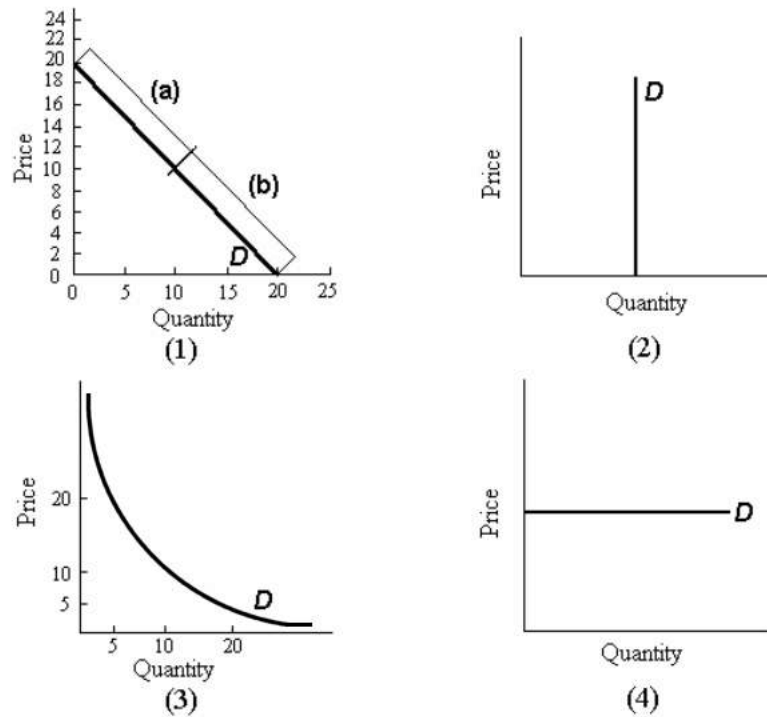


FIGURE 4-2

7) Refer to Figure 4-2. In part 1 of the figure, the elasticity of demand for prices below \$10 is

7) _____

- A) 0.
- B) less than 1.
- C) 1.
- D) greater than 1.
- E) infinity.

Answer: B

8) In a market for a good or service, the quantities demanded and supplied are

8) _____

- A) both flow variables.
- B) neither stock nor flow variables.
- C) a stock variable and a flow variable, respectively.
- D) a flow variable and a stock variable, respectively.
- E) both stock variables.

Answer: A

The supply and demand schedules for dozens of roses are given below:

Price	Quantity Supplied per period	Quantity Demanded per period
\$10	200	500
\$20	300	450
\$30	400	400
\$40	500	350
\$50	600	300

TABLE 3-1

- 9) Refer to Table 3-1. At a price of _____ there would be an excess _____ of 300 dozen roses. 9) _____
- A) \$30; demand
 - B) \$50; demand
 - C) \$30; supply
 - D) \$10; supply
 - E) \$10; demand

Answer: E

With a budget of \$200 million, the government can choose to purchase 4 helicopters or repair 200 km of highway.

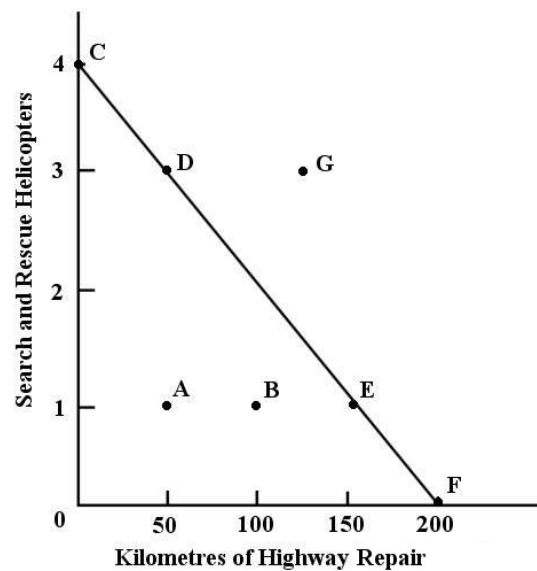


FIGURE 1-1

- 10) Refer to Figure 1-1. For the government, the opportunity cost of one search and rescue helicopter is _____ 10) _____
- A) 0 kilometres of highway repair.
 - B) 150 kilometres of highway repair.
 - C) 200 kilometres of highway repair.
 - D) 100 kilometres of highway repair.
 - E) 50 kilometres of highway repair.

Answer: E

11) Diamonds have a higher price than water because

11) _____

- A) The marginal consumption value of diamonds is higher than that of water.
- B) None of the other answers is correct.
- C) Households are willing to pay more in total for diamonds than for water.
- D) All necessities in life have a high marginal value in consumption.

Answer: A

Demand Schedule for Ski Tickets

Price (\$)	Quantity Demanded (no. of tickets)
120	0
110	100
100	200
90	300
80	400
70	500
60	600
50	700
40	800
30	900
20	1000
10	1100
0	1200

TABLE 4-2

12) Refer to Table 4-2. Using the data provided to plot the demand curve for ski tickets results in a _____ demand curve. Price elasticity along this demand curve is therefore _____ as price is falling.

12) _____

- A) horizontal; constant at a value of 8
- B) downward sloping and linear; continuously increasing
- C) downward sloping and linear; continuously decreasing
- D) rectangular hyperbola; constant at a value of 1
- E) vertical; constant at a value of 0

Answer: C

The table below provides the annual revenues and costs for a family-owned firm producing catered meals.

Total Revenues (\$)	500 000
Total Costs (\$)	
– wages and salaries	200 000
– risk-free return of 6% on owners' capital of 250 000	15 000
– rent	105 000
– depreciation of capital equipment	25 000
– risk premium of 8% on owners' capital of 250 000	20 000
– intermediate inputs	150 000
– forgone wages of owners in alternative employment	80 000
– interest on bank loan	10 000

TABLE 7-1

13) Refer to Table 7-1. The economic profits for this family-owned firm are

13) _____

- A) -\$10 000
- B) \$10 000
- C) \$115 000
- D) \$0
- E) -\$105 000

Answer: E

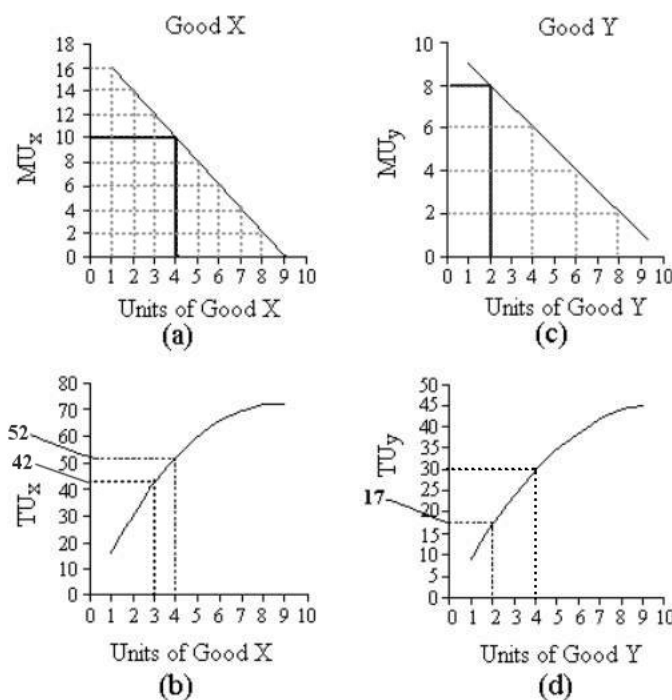


FIGURE 6-2

- 14) Refer to Figure 6-2. Suppose the price of Y is \$1, the consumer's income is \$10, and the consumer is currently buying 3 units of good X and 4 units of good Y. If this consumer is maximizing her utility, then the price of X must be _____
- A) \$1.
 B) \$2.
 C) \$3.
 D) \$4.
 E) impossible to tell with the given information.

Answer: B

- 15) Imagine a consumer who spends a total of \$10 each week on 10 cans of fruit juice. Assume that the consumer is willing to spend \$15 for them if she had to. The price of one can is \$1. _____
- A) The difference between \$15 and \$10 is called marginal value.
 B) None of the other answers is correct.
 C) The consumer does not buy more than 10 cans because the marginal value of an additional can is zero.
 D) The consumer does not buy more than 10 cans because the marginal value of an additional can is less than its cost.

Answer: D

16) Which of the following statements best describes the underlying feature in most economic problems? 16) _____

- A) Our country is rich; we just don't realize it.
- B) People have unlimited wants in the face of limited resources.
- C) People have limited wants in the face of limited resources.
- D) There are unlimited resources.
- E) Governments should never interfere in the workings of a market economy.

Answer: B

17) The demand for a given commodity will remain the same with a change in 17) _____

- A) population.
- B) average household income.
- C) tastes in favour of the commodity.
- D) the distribution of income.
- E) the price of the commodity.

Answer: E

18) Consider the following two statements. (1) An increase in the price of eggs will cause a decrease in the demand for eggs. (2) An increase in the price of eggs will cause a decrease in the demand for bacon. In which of these two statements is the term "demand" used correctly? 18) _____

- A) the first statement only
- B) both statements
- C) the second statement only
- D) neither statement
- E) more information is needed

Answer: C

19)) Chuck and Barry have identical total utility schedules but Barry has a much higher income. If each is maximizing his total utility, then 19) _____

- A) Barry will have lower marginal utility than Chuck for each normal good consumed.
- B) Barry will have lower total utility than Chuck.
- C) Chuck will have lower marginal utility than Barry for each normal good consumed.
- D) they will have equal marginal utilities for each normal good consumed.

Answer: A

20) When a price ceiling creates excess demand by preventing a market from reaching equilibrium, what alternative methods may develop to allocate the available quantity supplied among demanders? 20) _____

- A) Rationing by government.
- B) Seller's preferences.
- C) First-come-first-served.
- D) All the other answers are correct.

Answer: D