

**Economics 103**  
**Final exam**  
**ANSWER KEY**

**December 10, 2009**

**Dr. J. Friesen**

**3 hours**

**No calculators, no aids allowed.**

**Part 1. 40 Multiple Choice questions @ 1.5 marks each. Indicate your answers on the bubble sheet provided.**

1) During the next hour John can choose one of the following three activities: playing basketball, watching television, or reading a book. The opportunity cost of reading a book

- A) depends on how much the book cost when it was purchased.
- B) is the value of playing basketball if John prefers that to watching television.
- C) is the value of playing basketball *and* the value of watching television.
- D) depends on how much John enjoys the book.
- E) is the value of watching television if John prefers playing basketball to watching television.

Answer: B

2) Which of the following is true regarding marginal benefit?

- I. The marginal benefit curve shows the benefit firms receive by producing another unit of a good.
  - II. Marginal benefit increases as more and more of a good is consumed.
  - III. Marginal benefit is the maximum amount a person is willing to pay to obtain one more unit of a good.
- A) I only.
  - B) I and II.
  - C) I and III.
  - D) III only.
  - E) I, II, and III.

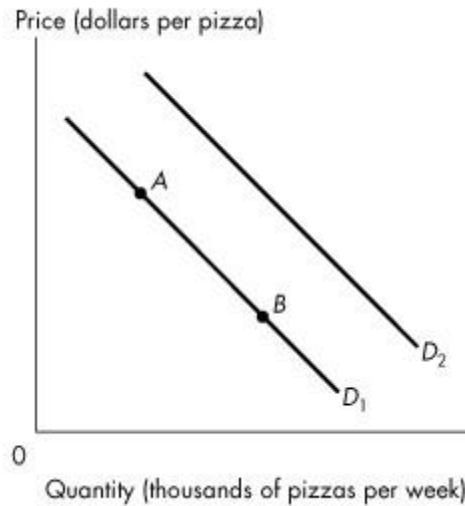
Answer: D

3) Individuals *A* and *B* can both produce good *X*. We say that *A* has a comparative advantage in the production of good *X* if

- A) *A* has a lower opportunity cost of producing *X* than *B*.
- B) *A* has a higher opportunity cost of producing *X* than *B*.
- C) *A* can produce more units of *X* in a given time period than *B*.
- D) *A* can produce *X* using newer technology than *B*.
- E) *A* can produce less units of *X* in a given time period than *B*.

Answer: A

*Use the figure below to answer the following questions.*



**Figure 3.2.2**

4) Refer to Figure 3.2.2. Which one of the following represents a decrease in quantity demanded?

- A) a shift from  $D_1$  to  $D_2$
- B) a shift from  $D_2$  to  $D_1$
- C) a movement from  $A$  to  $B$
- D) a movement from  $B$  to  $A$
- E) none of the above

Answer: D

5) The price of gasoline rises by 25 percent and remains fixed at the new higher level. Choose the correct statement.

- A) The demand for gasoline will increase after consumers adjust their consumption behaviour to the new higher price.
- B) The demand for gasoline will decrease after consumers adjust their consumption behaviour to the new higher price.
- C) Initially after the price change, the price elasticity of demand will be less elastic than it will be a few years after the price change.
- D) The price elasticity of demand for gasoline will decrease in the future.
- E) Initially after the price change, the price elasticity of demand will be more elastic than it will be a few years after the price change.

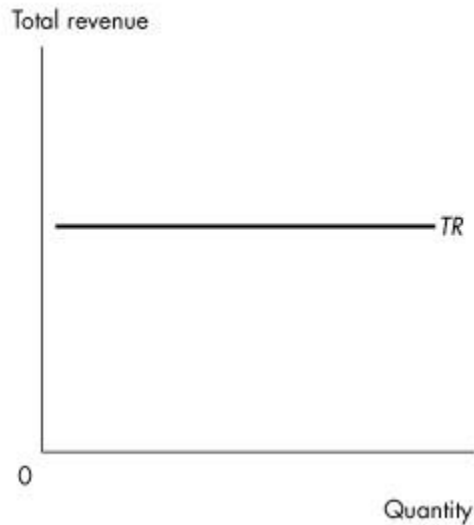
Answer: C

6) Suppose there is an increase in the cost of resources used in the production of good A. Then

- A) if the price of A rises, we know the demand for A is elastic.
- B) if the total revenue from sales of A rises, we know the demand for A is elastic.
- C) if the total revenue from sales of A falls, we know the demand for A is elastic.
- D) total revenue will increase because the price of A must rise.
- E) total revenue must fall because the quantity bought and sold of A must fall.

Answer: C

Use the figure below to answer the following question.



**Figure 4.1.3**

7) Suppose the demand curve for good X is horizontal. This shows that the demand for good X is

- A) unit elastic.
- B) inelastic.
- C) perfectly elastic.
- D) perfect inelastic.
- E) elastic.

Answer: C

8) Business people speak about cross elasticity of demand without using the actual term. Which one of the following statements reflects cross elasticity of demand?

- A) "A price cut won't help me. It won't increase sales, and I'll just get less money for each unit."
- B) "I don't think a price cut will make any difference to my bottom line. What I may gain from selling more I would lose on the lower price."
- C) "My customers are real bargain hunters. Since I set my prices just a few cents below my competitors, customers have flocked to the store and sales are booming."
- D) "With the recent economic recovery, people have more income to spend and sales are booming, even at the previous prices."
- E) "Since the price of gasoline fell at the neighbouring station, my milk sales have been booming."

Answer: E

9) A new car has a sticker price of \$35,000. Fred decided that he would pay no more than \$32,000 for this car. He bought the car for \$31,000. Fred obtained a consumer surplus of

- A) \$35,000.
- B) \$32,000.
- C) \$4,000.
- D) \$3,000.
- E) \$1,000.

Answer: E

10) The market for strawberries is perfectly competitive. Joe and Haley are consuming the same amount of strawberries, but Joe's demand is much more elastic than Haley's. Which statement is true?

- A) Joe's consumer surplus exceeds Haley's.
- B) Haley's consumer surplus equals Joe's.
- C) Haley's consumer surplus exceeds Joe's.
- D) In comparing consumer surpluses, no statement can be made.
- E) Any comparison of consumer surplus depends on the price of strawberries.

Answer: C

11) Which of the following lead to an inefficient outcome?

- I. Decreasing marginal social benefit
- II. Taxes
- III. High transaction costs
- A) I only
- B) II only
- C) I and III
- D) II and III
- E) I, II and III

Answer: D

12) Suppose the government introduces a ceiling on the fees that lawyers are permitted to charge. If the fee ceiling is set \_\_\_\_\_ the equilibrium wage rate, the amount of work done by lawyers \_\_\_\_\_, the consumer surplus of people who hire lawyers \_\_\_\_\_, and the producer surplus of law firms \_\_\_\_\_.

- A) below; increases; increases; increases
- B) above; decreases; decreases; decreases
- C) below; decreases; decreases; decreases
- D) above; increases; increases; increases
- E) below; decreases; increases; decreases

Answer: C

13) Suppose the minimum wage is \$4 per hour, and 1,100 units of labour are hired. Then the government raises the minimum wage to \$6 per hour, and 900 units are now hired. Choose the correct statement.

- A) Total wages paid to workers has fallen.
- B) The price elasticity of demand for labour is 0.5.
- C) There is unemployment in this labour market.
- D) The quantity of labour supplied is greater at the higher minimum wage.

E) all of the above except A.

Answer: E

14) A subsidy

A) lowers the price received by farmers.

B) decreases the quantity supplied in the market.

C) raises the price received by farmers.

D) prevents the deadweight loss from underproduction.

E) decreases total revenue received by farmers.

Answer: C

15) Suppose the Canadian Dairy Commission sets a production quota for dairy production above the equilibrium quantity. Then,

A) the policy will increase the quantity of milk produced in Canada.

B) the policy will raise the price of milk in the international market.

C) the policy will have no impact on the dairy industry.

D) the policy will increase revenue received by dairy producers.

E) the policy will decrease revenue received by dairy producers.

Answer: C

16) Canada exports athletic coaching services and imports computer tech support. The price of computer tech support in Canada is \_\_\_\_\_ with international trade than without international trade. As a result of trade in computer tech support, the Canadian producer surplus from computer tech support \_\_\_\_\_ and the Canadian consumer surplus from computer tech support \_\_\_\_\_.

A) higher; increases; increases

B) lower; decreases; increases

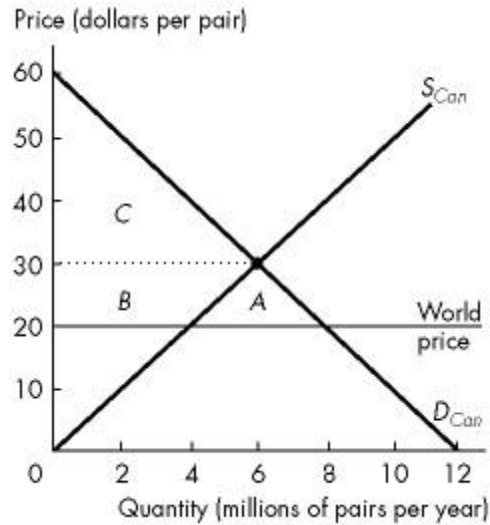
C) lower; decreases; decreases

D) higher; increases; decreases

E) lower; increases; increases

Answer: B

*Refer to the figure below to answer the following question.*



**Figure 7.2.3**

17) Refer to Figure 7.2.3. The graph shows the market for shoes in Canada. The world price of a pair of shoes is \$20. With free international trade, Canadian consumer surplus \_\_\_\_\_ and Canadian producer surplus \_\_\_\_\_.

- A) increases by area  $A + B$ ; decreases by area  $B$
- B) increases by area  $B$ ; decreases by area  $B$
- C) increases by area  $A$ ; decreases by area  $B$
- D) decreases by area  $A + B$ ; increases by area  $B$
- E) decreases by area  $B$ ; increases by area  $A$

Answer: A

18) Import quotas \_\_\_\_\_ the price of imported goods and \_\_\_\_\_ the quantity consumed in the country imposing the quota.

- A) raise; increase
- B) raise; decrease
- C) lower; increase
- D) lower; decrease
- E) raise; do not change

Answer: B

19) Guy has an income ( $Y$ ) of \$50 with which he can purchase DVDs ( $D$ ) at \$10 each and haircuts ( $H$ ) at \$20 each. Which one of the following represents Guy's budget line?

- A)  $Y = 10Q_D - 20Q_H$
- B)  $50 = Q_D + Q_H$
- C)  $Y = 50 + Q_D + Q_H$
- D)  $20Y = Q_D + 10Q_H$
- E)  $50 = 10Q_D + 20Q_H$

Answer: E

20) The magnitude of the slope of the budget line is the

- A) relative price of the good measured on the vertical axis.
- B) relative price of the good measured on the horizontal axis.
- C) absolute price of the good measured on the horizontal axis.
- D) real price of the good measured on the vertical axis.
- E) price of the good measured on the vertical axis.

Answer: B

21) A change in the price of the good measured on the vertical axis changes \_\_\_\_\_ of the budget line.

- A) the slope and y-intercept
- B) the slope and x-intercept
- C) the x- and y-intercepts but not the slope
- D) only the slope
- E) only the y-intercept

Answer: A

22) Leah consumes at a point on her budget line where her marginal rate of substitution is less than the magnitude of the slope of her budget line. As Leah moves towards her best affordable point, she will move to

- A) a lower budget line.
- B) a higher budget line.
- C) a lower indifference curve.
- D) a higher indifference curve.
- E) a tangent point on the same indifference curve.

Answer: D

23) The substitution effect is the effect of

- A) a change in income on the quantity bought.
- B) a change in price on the quantity bought when the consumer moves to a higher indifference curve.
- C) a change in income on the quantity bought when the consumer moves to a higher indifference curve.
- D) a change in the best affordable point.
- E) a change in price on the quantity bought when the consumer hypothetically remains on the same indifference curve.

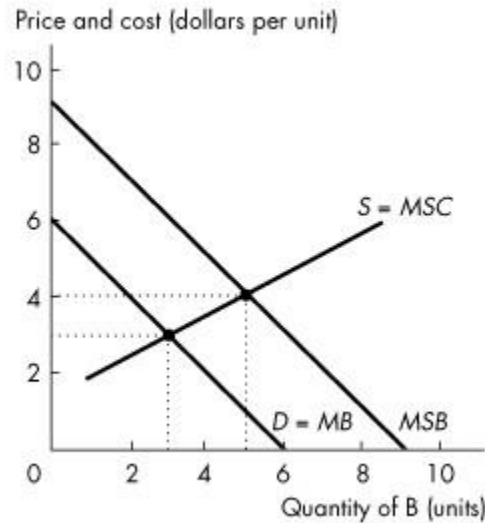
Answer: E

24) A battery acid producer pollutes the water upstream from the Polar Bear Club, a swimming club. If transactions costs are low, the quantity of pollution will be efficient

- A) only if Ronald Coase is a member of the Polar Bear Club.
- B) only if Ronald Coase is not a member of the Polar Bear Club.
- C) only if water property rights are assigned to the producer.
- D) only if water property rights are assigned to the Polar Bear Club.
- E) if water property rights are assigned either to the producer or to the Polar Bear Club.

Answer: E

Use the figure below to answer the following questions.



**Figure 16.3.2**

25) Refer to Figure 16.3.2. The figure shows the market for good *B*. What is the efficient quantity of good *B*?

- A) 0 units
- B) 3 units
- C) 5 units
- D) 6 units
- E) 9 units

Answer: C

26) In Figure 16.3.2. The figure shows the market for good *B*. Which of the following government policies creates an efficient outcome?

- A) Tax the production of *B* by \$3 per unit.
- B) Tax the production of *B* by \$4 per unit.
- C) Provide vouchers for consumption of *B* of \$1 per unit.
- D) Provide vouchers for consumption of *B* of \$3 per unit.
- E) Provide vouchers for consumption of *B* of \$4 per unit.

Answer: D

27) Suppose in a country there are only two persons. Person A is willing to pay \$50 to have one unit of a public good produced; person B is willing to pay \$60 to have one unit of a public good produced and \$50 to have two units produced. A point on the country's marginal social benefit curve for this public good is a price of \_\_\_\_\_ and quantity demanded of \_\_\_\_\_.

- A) \$50; 2 units
- B) \$60; 1 unit
- C) \$110; 2 units
- D) \$110; 1 unit
- E) \$55; 1 unit



Answer: D

28) One way to alleviate the tragedy of the commons is to

A) eliminate quotas for using the common resource.

B) make the resource private property.

C) allow all individuals to use the common resource free of charge.

D) distribute common resources among those individuals who really need the resource free of charge.

E) set a price of \$1 per unit of the common resource because it is an affordable price.

Answer: B

29) Common resources are overused because

A) the marginal private benefit of operating a boat is the quantity of fish a boat can catch.

B) the social costs outweigh the private costs.

C) the marginal private benefit will always exceed the marginal social cost.

D) the marginal social benefit is not taken into consideration by producers.

E) social costs are controlled by quotas.

Answer: D

*Use the table below to answer the following question.*

**Table 17.3.4**

Number of wells	Oil output (litres per day)	Marginal social benefits (litres per well)	Marginal private benefits (litres per well)
0	0		
		9.0	
2	18	8.0	9.0
4	34	7.0	8.5
6	48		8.0

30) Refer to Table 17.3.4. An oil reserve runs under plots of land owned by seven people. Each person has the right to sink a well on her or his land and take oil from the reserve. The amount of oil that is produced depends on the number of wells sunk and is shown in the table. The marginal private cost of a well is the equivalent of 7.0 litres a day. The efficient number of wells is \_\_\_\_\_ and the efficient quantity of oil to produce is \_\_\_\_\_ litres a day.

A) 2; 18

B) 3; 26

C) 4; 34

D) 5; 41

E) 6; 48

Answer: D

31) Gerald is a freelance writer who could work for a newspaper at \$25,000 a year but instead runs his own business making a revenue of \$40,000 a year. His only business expenses are \$1,000 for writing materials and \$12,000 for rent. What is Gerald's economic profit from working as a freelance writer?

- A) \$2,000
- B) \$28,000
- C) \$15,000
- D) \$25,000
- E) \$27,000

Answer: A

32) To produce a unit of output, Alphaworks uses 10 hours of labour and 5 kilos of material. Betaworks uses 5 hours of labour and 10 kilos of material, and Gammaworks uses 10 hours of labour and 10 kilos of material. If labour costs \$10 per hour and material costs \$5 per kilo, which firm is *economically* efficient?

- A) Alphaworks only
- B) Betaworks only
- C) Gammaworks only
- D) Alphaworks and Betaworks
- E) Alphaworks and Gammaworks

Answer: B

33) A firm's total product curve describes

- A) the minimum cost of producing a given amount of output.
- B) the maximum output that a given quantity of labour can produce.
- C) how the maximum attainable output varies as the size of the firm's plant varies, given the quantity of labour employed.
- D) how the management of the firm makes decisions over the short run.
- E) how the amount of labour varies as the amount of output varies.

Answer: B

34) Which one of the following statements is *true*?

- A) The highest value of average product occurs where average product is greater than marginal product.
- B) When the average product curve is rising, marginal product is less than average product.
- C) When the average product curve is falling, marginal product is greater than average product.
- D) The maximum total product occurs at minimum marginal product.
- E) The highest value of average product occurs where average product equals marginal product.

Answer: E

35) Which one of the following statements is *false*?

- A) Total variable cost plus total fixed cost equals total cost.
- B) Marginal cost equals the change in total cost divided by the change in output.
- C) Average total cost is calculated by dividing total cost by the level of output.

- D) The average cost curve is U-shaped.  
E) The total cost curve is U-shaped.

Answer: E

36) Which of the following quotes *best* illustrates the idea of fixed cost?

- A) "As we increase output, per-unit costs fall."  
B) "My primary source of overhead cost is the cost of running the head office."  
C) "If I need to, I can negotiate more overtime with my work force to meet unexpected orders."  
D) "If I double the number of workers and trucks, I get only 80 percent more packages delivered."  
E) None of the above.

Answer: B

37) A firm will want to increase its scale of plant if

- A) it is persistently producing on the upward-sloping part of its short-run average total cost curve.  
B) it is persistently producing on the downward-sloping part of its short-run average total cost curve.  
C) it is producing below minimum efficient scale.  
D) marginal cost is below average total cost.  
E) marginal cost is below average variable cost.

Answer: A

*Use the table below to answer the following questions.*

**Table 12.2.2**

Output (pizzas per hour)	Total Cost (dollars per hour)
0	10
1	12
2	16
3	22
4	30
5	40
6	55

38) Refer to Table 12.2.2, which gives the total cost schedule for Chip's Pizza Palace, a perfectly competitive firm. If the price of a pizza is \$7, what is Chip's profit-maximizing output per hour?

- A) zero pizzas  
B) 1 pizza  
C) 2 pizzas  
D) 3 pizzas  
E) 4 pizzas

Answer: D

39) A firm that temporarily shuts down and produces no output incurs a loss equal to its

- A) total fixed cost.
- B) total variable cost.
- C) marginal cost.
- D) marginal revenue.
- E) average total cost.

Answer: A

Diff: 2

18) Consider the perfectly competitive market for widgets. Neither external economies nor diseconomies exist. A news story is released, stating that consumption of widgets helps to fight cancer. As a result,

- A) in the short run both price and quantity increase. In the long run quantity increases and the price falls.
- B) in the short run both price and quantity increase. In the long run the price returns to the original level and quantity increases.
- C) in the short run price remains constant and quantity increases. In the long run both price and quantity increase.
- D) in the short run price and quantity increase. In the long run both price and quantity increase above their original values.
- E) in the short run both price and quantity remain unchanged. In the long run price and quantity increase.

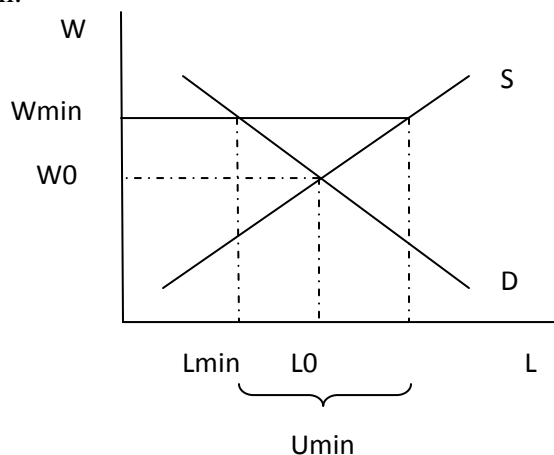
Answer: B

**Part 2. Short Answer. Provide your answers in the spaces indicated below.**

**41) (6 marks) Minimum wages**

a) (2 marks) In a simple diagram, illustrate price and quantity determination in an unregulated labour market. Label all axes and curves. Label the equilibrium price of labour  $W_0$  and the equilibrium level of employment  $L_0$ .

Now suppose the government imposes a minimum wage that exceeds the market-clearing wage. Illustrate this wage in the same diagram and label it  $W_{min}$ . Label the new level of employment  $L_{min}$ .

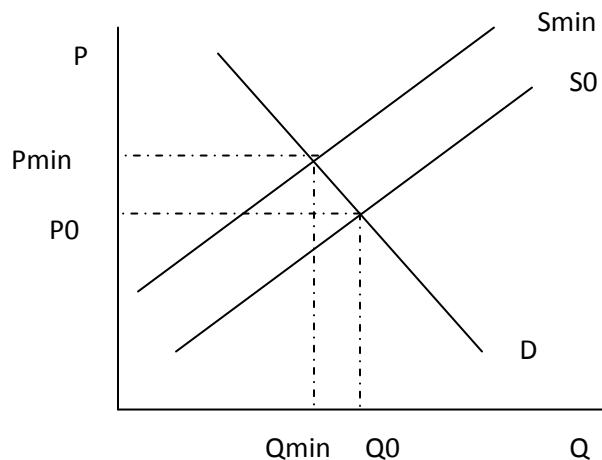


b) (3 marks) Under what circumstances would the imposition of the minimum wage lead to an increase in the total payments to workers in this market? Explain briefly.

*Total payments to workers =  $W_{min} \times L_{min}$ . This amount would increase with an increase in the minimum wage if the demand curve for labour was inelastic, so that the %age reduction in employment was smaller than the %age increase in the wage.*

c) (1 mark) Would the minimum wage lead to unemployment? YES/NO (circle one). If so, indicate the amount of unemployment in your diagram and label it  $U_{min}$ .

d) (4 marks) Now consider an industry that uses minimum wage workers as an input in production. How would the imposition of the minimum wage affect the price and quantity exchanged of this good? Illustrate this effect in a new supply and demand diagram.



*The minimum wage causes firms' production costs to increase. The height of the supply curve measures the minimum price that the firm must receive in order to be willing to supply a given quantity. When the minimum wage is imposed this minimum price increases, shifting the supply curve upwards. The equilibrium price increases and the equilibrium quantity exchanged falls.*

#### 42) (10 marks) Many people download music files over the internet.

(i) (1.5 marks) Before the technology to download video files became widely available, very few people were able to reproduce movies. By selling access to movies only through movie theatres and video rentals, movie producers ensured that their product was excludable/non-excludable (circle one). Movie theatres were rarely full, so, movies were essentially rival/non-rival (circle one). Before downloading, therefore, movies were a common property resource/public good/private good/natural monopoly (circle one).

(ii) (1.5 marks) Now that downloading technology is available, movies are excludable/non-excludable (circle one) and rival/non-rival (circle one), and therefore have become a common property resource/public good/private good (circle one).

(iii) (2 mark) Describe briefly how this new technology affects the incentive to create movies. (1 or 2 brief sentences) *the incentive to create movies has been weakened, because people's*

*willingness-to-pay for movies has been reduced – some consumers choose to free-ride by illegally downloading movies.*

(iv) (2 marks) Is it economically efficient for people to download movies? Explain briefly, explaining carefully what is meant by the term “efficient.” (1 or 2 brief sentences)

*Efficiency requires that total surplus is maximized. This requires that the quantity of movies produced satisfy the condition  $MC=MB$ . When some people free-ride, there is underproduction of public goods. In this case, not enough movies will be produced, because producers do not take into account the value of the externality – the benefit enjoyed by people who view the movie but do not pay for it.*

(v) (3 marks) Describe briefly a policy that government could in theory take to address this situation. (1 or 2 brief sentences)

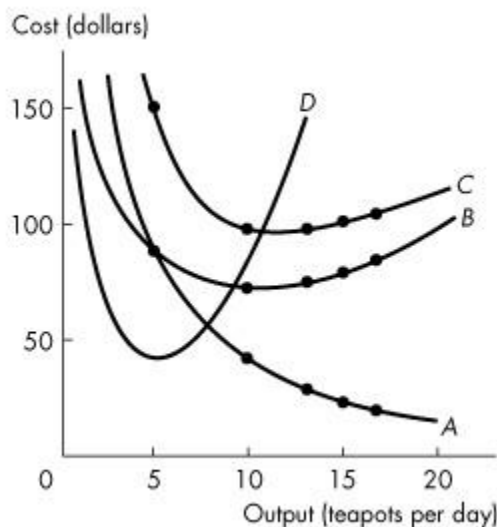
*The government could tax everyone who watches movies online and use these funds to subsidize the movie industry.*

**43) (10 marks) Consider a firm that produces output using two inputs, capital and labour, using a technology that exhibits diminishing marginal returns.**

a) (5 marks) In the space below, use two diagrams to illustrate the total product curve and the total cost curve. Stack these two diagrams, one above the other, in order to illustrate the relationship between their shapes.

*Please see the textbook.*

b) (5 marks) In the space below, use a single diagram to illustrate the following cost curves for this firm in the short- run: AFC, AVC, ATC, MC.



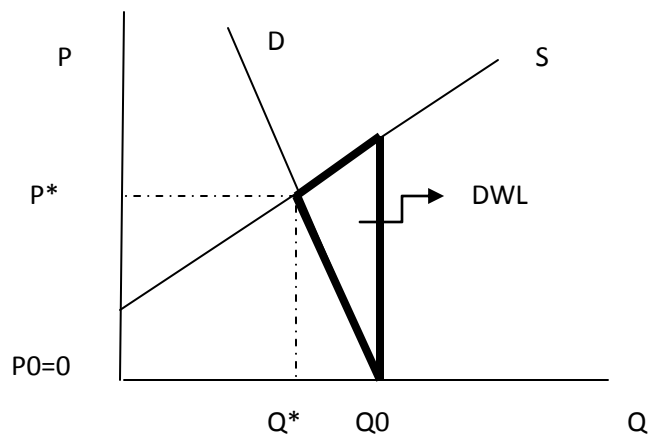
A:AFC, B:AVC, C:ATC, D:MC.

**44) (4 marks) If there were only two goods in the world, can you say whether they would be complements or substitutes? Explain in several brief sentences.**

*Law of Demand tells us that if price falls you consume more of that good. If there are only two goods and resources are scarce (the fundamental premise of economics), it must be the case that to consume more of one good you must consume less of the other good. The two goods must be substitutes.*

**45) (6 marks) Health care**

(i) In Canada, health care is free. Assume there are no externalities related to health care. Using a diagram, show that Canadians will use “too much” health care. Indicate the size of the deadweight loss associated with the level of health care consumed under this system. **(3 marks)**



(ii) In the U.S. health care is, for most people, bought and sold in a standard market. Now assume there are externalities associated with health care. Is there any reason to think that a market-based health system would NOT provide the efficient level of health care? Illustrate your answer with a diagram. **(3 marks)**

*It is easy to think that there might be positive consumption externalities with respect to health care – eg. if I get a flu shot, you are less likely to get sick. In this case, the MSB curve would lie above the MPB (Demand curve). The quantity of health care that would be consumed would be  $Q^*$ , but the efficient quantity of health care would be  $Q_{opt}$ . There is a deadweight loss triangle because the units of health care  $Q_{opt} - Q^*$  are not produced and consumed, but it would be efficient to do so (because the  $MSB > MSC$ ). See diagram on next page.*



