Concordia University
Department of Economics

ECON 201 - INTRODUCTION TO MICROECONOMICS
Fall 2016

COMMON FINAL EXAMINATION - VERSION 1

FIRST NAME: _____ **LAST NAME:**_____

STUDENT NUMBER: _____

Please, read all instructions carefully:

1. The exam consists of two parts:
   (i) Part I: 50 multiple-choice questions (100 marks);
   (ii) Part II: Choose 4 out of 5 long questions (100 marks).
2. Write your name, student ID and answers for the multiple-choice questions on the computer scan-sheet with a **pencil**. Please, also write the **version** of the exam on the computer scan-sheet. For Part II, write all your answers on this exam. Do not use additional booklets.
3. You are allowed to use a non-programmable calculator and a paper dictionary, provided that they are approved by the invigilator(s). You may use either pen or pencil to provide your answers for Part II.
4. You are not allowed to tear any pages out of this exam.

Grades:

Part I: _____

Part II:

Problem #1: _____

Problem #2: _____

Problem #3: _____

Problem #4: _____

Problem #5: _____

Total: _____

Part I: Multiple Choice Questions. Write your answers on the computer sheet in PENCIL.(Total=100 marks)

1. Which of the following statements is (are) CORRECT about opportunity cost?

   (a) If you buy a cup of coffee for $5, the opportunity cost of the coffee is a less expensive cup of tea.

   (b) If you have more income than you can spend in your lifetime, you have no opportunity cost.

   (c) **If you spend an hour studying instead of sleeping, the opportunity cost is the sleep you have given up.**

   (d) All of the answers are correct.

2. Suppose you give up a job that pays $30,000 a year in order to pursue your university education. Every year, you pay $4,000 for tuition and books, and $16,000 for food and rent. What is your opportunity cost of spending one year in university?

   (a) $50,000.

   (b) $46,000.

   (c) $30,000.

   (d) **$34,000.**

3. How is economic growth illustrated by a production possibilities frontier (PPF)?

   (a) A movement along the PPF.

   (b) By the steepness or flatness of the PPF.

   (c) By having a PPF that is a straight line or linear.

   (d) **An outward shift in the PPF.**

4. When we are moving along the frontier of a production possibilities frontier, we are examining

   (a) **The opportunity cost of producing more of one good in terms of the other good.**

   (b) Economic growth.

   (c) The unemployment rate of the economy.

   (d) Technological changes in the economy.

5. An effective price floor is associated most closely with

   (a) **A surplus.**

   (b) A shortage.

   (c) Equilibrium.

   (d) It depends if the price floor is above or below the equilibrium price.

6. If the price of good A were to change by 1 percent, then the quantity demanded of good B would change by x percent. This illustrates the concept of

   (a) **Cross-price elasticity.**
   (b) Income elasticity.
   (c) Price elasticity of demand.
   (d) Price elasticity of supply.

7. Supply would shift to the right if

   (a) Input prices decrease.
   (b) Technology improves.
   (c) Producers expect lower prices in the future.
   (d) **All of the above.**

8. In recent years, the demand for meat, such as chicken and pork, has increased due to higher global economic growth. Farmers feed corn to their chickens and pigs. In the meantime, the U.S. government has encouraged the production of corn-based ethanol, a supposedly cleaner energy compared to conventional oil. This policy will affect the supply of corn available to be used for feed. We can expect

   (a) A rise in the price of conventional oil.
   (b) A decrease in the total supply of corn.
   (c) **A rise in the price of chicken and pork.**
   (d) A rise in the quantity supplied of chicken and pork.

9. Market demand curves are _____ than individual demand curves because we _____ sum individual demand curves to derive the market demand curves.

   (a) Flatter; vertically.
   (b) Steeper; horizontally.
   (c) **Flatter; horizontally.**
   (d) Steeper; vertically.

10. If chicken and fish are substitute goods, then an increase in the price of chicken, ceteris paribus, will likely cause

    (a) The demand for fish to decrease.
    (b) The demand for chicken to shift inward.
    (c) **The price of fish to increase.**
    (d) Fish to become relatively more expensive than chicken.

11. Which of the following will cause the demand curve to shift to the right?

(a) An increase in the price of a complementary good.

(b) **An increase in the price of a substitute good.**

(c) A decrease in income if the good is normal.

(d) An increase in income if the good is inferior.

12. If the demand equation changes from P=25-6Q to P=25-8Q, which of the following statements is CORRECT?

(a) The demand for this product has increased, which is a pivot to the left.

(b) **The demand for this product has decreased, which is a pivot to the left.**

(c) The demand for this product has decreased, which is a pivot to the right.

(d) The demand for this product has increased, which is a pivot to the right.

13. If the government puts a $10 per unit tax on a product and the consumer price rises by $8, which of the following statements is CORRECT?

(a) The supply of this product is necessarily inelastic.

(b) The drop in the quantity purchased must be very large because of the price increase.

(c) The demand for this product is necessarily elastic.

(d) **None of the above.**

14. Which of the following statements is INCORRECT?

(a) A perfectly vertical demand has a price elasticity of demand that is equal to zero.

(b) A linear, downward-sloping demand has a constant slope but variable elasticities.

(c) A perfectly horizontal demand has a price elasticity of demand that is equal to infinity.

(d) **The steeper the demand, the larger is the value of its slope (in absolute value), the more elastic it is.**

15. If you allocate a fixed amount of money per month to spend on entertainment regardless of price changes, the price elasticity of demand for entertainment is

(a) Larger than unity.

(b) Cannot be determined without more information.

(c) **Equal to unity.**

(d) Less than zero.

16. Which of the following supplier statements reflects a perfectly elastic demand when a new sales tax of $5 per unit is introduced into the market and a positive quantity is exchanged?

(a) "I raised my supply prices by $6 in order to earn more money."

(b) "I did not change my supply prices, and my customers paid the full $5."

(c) "I had to lower my supply prices by $2 in order to avoid losing too many customers."

(d) **"I had to lower my supply prices by $5 in order to avoid losing all of my customers."**

17. Welfare economics deals with...

(a) **Evaluating how well an economy allocates its scarce resources.**

(b) Describing the characteristics and institutions in which a firm operates.

(c) Developing strategies to maximize a consumer's benefits from the welfare system.

(d) Measuring consumer happiness in a way that does not involve utility.

18. Producer surplus is...

(a) Sometimes less than zero.

(b) **The difference between what a producer receives and what the producer would be willing to receive.**

(c) Equal to consumer surplus in a competitive market.

(d) All of the above.

19. A tax in a market that does not have any externalities...

(a) **Creates a deadweight loss.**

(b) Increases consumer surplus.

(c) Causes a shortage.

(d) Improves society's well-being.

20. An example of a positive externality is...

(a) An individual getting a flu shot.

(b) A group of internet users agreeing to use HTML as the standard text editor for commercial websites.

(c) An individual getting a university education.

(d) **All of the above.**

21. The slope of an indifference curve is $-\frac{MU_1}{MU_2}$. This can be interpreted as...

(a) **To get one more unit of x_1 and maintain a constant level of happiness, a person would be willing to give up $\frac{MU_1}{MU_2}$ units of x_2.**

(b) To get one more unit of x_2 and maintain a constant level of happiness, a person would be willing to give up $\frac{MU_1}{MU_2}$ units of x_1.

(c) To get one more unit of x_1 and maintain a constant level of spending, a person must give up $\frac{MU_1}{MU_2}$ units of x_2.

(d) To get one more unit of x_2 and maintain a constant level of spending, a person must give up $\frac{MU_1}{MU_2}$ units of x_1.

22. Diminishing marginal utility means that...

(a) **Each additional good consumed adds to a consumer's happiness but at a decreasing rate.**

(b) Each additional good consumed diminishes a consumer's overall happiness.

(c) Both of the above.

(d) None of the above.

23. A utility-maximizing consumer is spending all of her income and sees that $MU_1 = z$, $MU_2 = 10$, $p_1 = 5$ and $p_2 = 1$. What is the optimal value of z?

(a) $\mathbf{z = 50.}$

(b) $z = 10$.

(c) $z = 2$.

(d) There is insufficient information to answer.

24. Indifference curves...

(a) Are convex if diminishing marginal utility is assumed.

(b) Cannot intersect.

(c) Slope down to reflect trade-offs.

(d) **All of the above.**

25. The inability of an owner to monitor effectively the actions of his staff is known as...

(a) **The principal-agent problem.**

(b) The insider-outsider theory.

(c) The time-is-money problem.

(d) The monetary misperceptions theory.

26. Accounting profits are always bigger than economic profits because accounting profits account for _____ costs and economic profits account for _____ costs.

(a) **Explicit; explicit and implicit.**

(b) Explicit and implicit; explicit.

(c) Implicit; explicit and implicit.

(d) Explicit and implicit; implicit.

27. Risk pooling is

(a) **Combining individual risks in a way that reduces aggregate risk.**

(b) Spreading an individual risk among a group of insurers.

(c) Asking for a variety of opinions about the risk of an action before deciding what to do.

(d) Using a swimming pool without a lifeguard present.

28. One way to pool risk is to...

(a) **Diversify.**

(b) Divest.

(c) Disintermediate.

(d) Discriminate.

29. The process that converts inputs into outputs is called...

(a) **A production function.**

(b) Learning by doing.

(c) A price-discriminating monopoly.

(d) Economies of scope.

30. If all inputs are variable, then a firm is operating...

(a) **In the long run.**

(b) In the short run.

(c) At its break-even point.

(d) At an economic loss.

31. Minimum efficient scale occurs when a firm operates...

(a) **At its lowest average cost.**

(b) At its lowest average variable cost.

(c) At its lowest average fixed cost.

(d) Within the lowest possible number of competitors.

32. Average cost (AC) is falling but average variable cost (AVC) is rising. It must be that marginal cost is...

(a) **Greater than AVC but less than AC.**

(b) Greater than AC but less than AVC.

(c) Less than both AVC and AC.

(d) Greater than both AVC and AC.

33. All inputs have doubled but costs have less than doubled. The firm is experiencing...

(a) **Increasing returns to scale.**

(b) Constant returns to scale.

(c) Decreasing returns to scale.

(d) There is insufficient information to answer.

34. If a perfectly-competitive firm's price equals its average variable cost, then

(a) Total revenue equals total fixed cost, and the loss equals total variable cost.

(b) **Total revenue equals total variable cost, and the loss equals total fixed cost.**

(c) Total fixed cost is zero.

(d) Total variable cost equals total fixed cost.

35. A perfectly competitive firm maximizes profits if

(a) **Marginal cost equals price and price is not below the minimum average variable cost.**

(b) Marginal cost equals price and price is not below the minimum average fixed cost.

(c) Total revenue is maximized.

(d) Average variable cost is minimized.

36. In the price range below minimum average variable cost, a perfectly competitive firm's supply curve is

(a) Horizontal at the market price.

(b) **Vertical at zero output.**

(c) The same as its marginal cost curve.

(d) The same as its average variable cost curve.

37. Refer to Figure 1, which shows the cost curves of Paul's Picture Frames Inc. The picture frame market is perfectly competitive and the market price is \$12 a frame. Paul produces _____ frames each week and makes _____ total revenue.

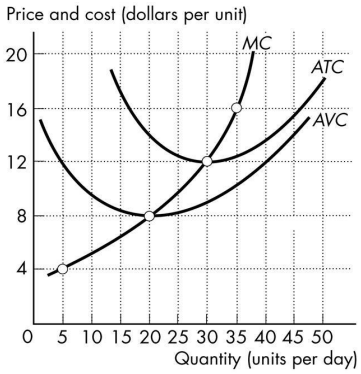
(a) 20; \$240.

(b) 20; \$96.

(c) zero; zero.

(d) **30; \$360.**

Figure 1:



38. Refer to Figure 2, which shows the cost curves and marginal revenue curve of a firm in a perfectly competitive market. In the long run, market

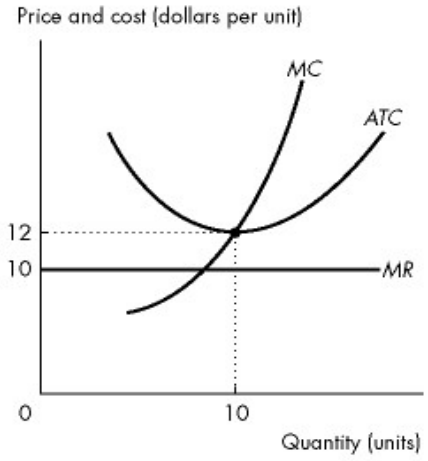
    (a) Demand will increase.

    (b) Demand will decrease.

    (c) Supply will increase.

    (d) **Supply will decrease.**

Figure 2:



39. Refer to Figure 2, which shows the cost curves and marginal revenue curve of a firm in a perfectly competitive market. In the long run,

    (a) **Firms will exit the market.**
    (b) Market demand will increase.
    (c) Market supply will increase.
    (d) Firms will enter the market.

40. If a profit-maximizing monopoly is producing an output at which marginal cost exceeds marginal revenue, it

    (a) **Should raise the price and decrease output.**
    (b) Should lower the price and increase output.
    (c) Should lower the price and decrease output.
    (d) Is necessarily incurring an economic loss.

41. The marginal revenue curve for a single-price monopoly is

    (a) **Below its demand curve.**
    (b) The same as its demand curve.
    (c) Above its demand curve.
    (d) Horizontal.

42. Refer to Figure 3. If this market were perfectly competitive, the output level would exceed the single-price monopoly output level by

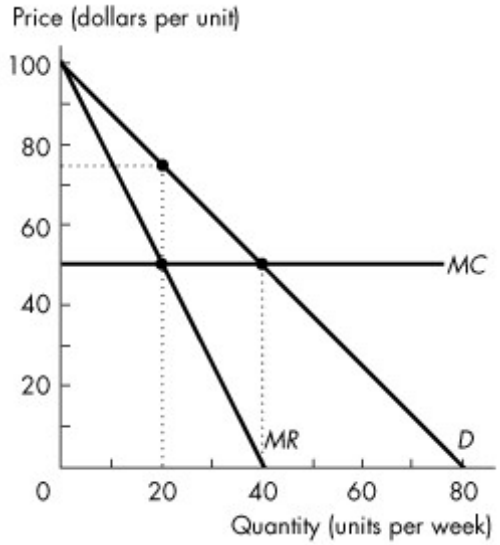
    (a) **20 units.**

    (b) 40 units.

    (c) 60 units.

    (d) 0 units. The perfectly competitive market and the single-price monopoly produce the same quantity because marginal cost is constant.

Figure 3:



43. Refer to the Figure 3. The efficient quantity is

    (a) 20 units.

    (b) **40 units.**

    (c) 60 units.

    (d) 0 units.

44. Refer to Figure 4. Which demand curve does this monopolistically competitive firm face in the long run?

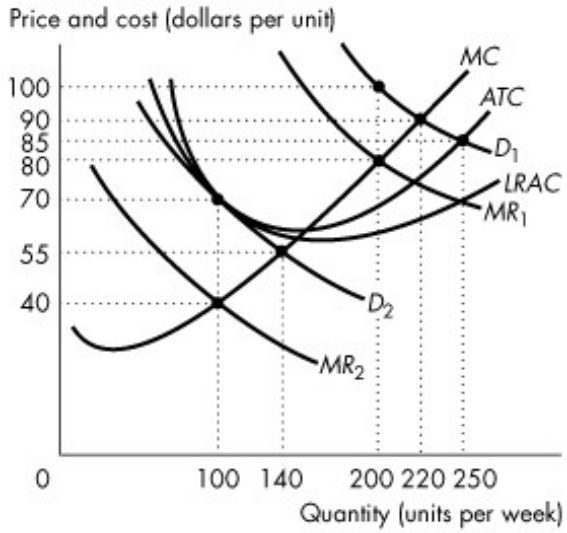
    (a) D1.

    (b) **D2.**

    (c) Either D1 or D2.

(d) Neither D1 nor D2.

Figure 4:



45. Refer to Figure 4. Assume this firm faces demand curve D1. To maximize economic profit, this monopolistically competitive firm will charge a price of _____ and produce an output of _____ units.

    (a) **$100; 200.**
    (b) $90; 220.
    (c) $80; 200.
    (d) $70; 100.

46. In the long run, all firms in a monopolistically competitive industry

    (a) **Make zero economic profit.**
    (b) Set price equal to marginal cost.
    (c) Make an economic loss.
    (d) Make an economic profit.

47. Consider a monopolistically competitive industry in long-run equilibrium. Suppose there is a large increase in wages that raises the costs for all firms. What happens within each firm in the short run?

    (a) They will be forced to close down due to the excess costs.
    (b) They will lower prices and try to steal customers away from their rivals.

(c) **They will decrease production and produce the quantity at which marginal revenue equals the new (higher) marginal cost curve; this means a rise in price.**

(d) They will continue producing as before, cushioned by their previous excess profits.

48. If a firm practices perfect price discrimination,

(a) Its marginal cost curve is horizontal.

(b) It maximizes total revenue.

(c) It produces the quantity at which the marginal revenue curve intersects the average total cost curve.

(d) **It produces the quantity at which the marginal cost curve intersects the demand curve.**

49. Which of the following is not a source of comparative advantage?

(a) Natural resources.

(b) Investment on education.

(c) Economies of scale.

(d) **Taxes and tariffs.**

50. Which of the following is not a benefit of trade?

(a) An increased variety of goods.

(b) Lower costs through economies of scale.

(c) Increased competition.

(d) **An ability to control domestic and world prices.**

Part II: Answer FOUR of the following FIVE questions. If more than four questions are answered, only the first four attempted will be marked.(Total=100 marks)

1. Assume a demand equation: $P = 200 - 0.5Qd$ and a supply equation: $P = 20 + 0.25Qs$

   (a) Calculate the market-clearing quantity and price and illustrate the equilibrium on a diagram. (5 marks)

   In equilibrium, $Pc = Ps = P*$ **and** $Qd = Qs = Q*$**. Thus,** $200–0.5Q* = 20+0.25Q*$ **gives** $Q* = 240$ **units and P* = \$80.**

   (b) Introduce an excise tax of \$60 per unit sold. What is the seller's price after the tax has been imposed? What is the tax incidence on the seller? Illustrate on a diagram. (5 marks)

   With an excise tax of \$60, the supply curve shifts parallely to the left. The new supply equation is therefore written as, $P = 80+0.25Qs$ **. The new market-clearing quantity is** $Q** = 160$ **units. The buyer's price is** $P** = 120$**. The seller's price is calculated by plugging in Q** = 160 units into the pre-tax supply equation. So, seller's price is Ps = \$60. The tax incidence on the seller is P* - Ps = \$20.**

   (c) Calculate the loss in Consumers' Surplus due to taxation and indicate it on a diagram. (5 marks)

   Loss in C.S. = [½ (120*240) - ½ (160*80)] = \$8000

   (d) What is the value of the revenue collected by the government? What is the value of the dead-weight loss? Show them on a diagram. (5 marks)

   Tax Revenue collected by the Government = 160*60 = \$9600

   Dead weight Loss = [Loss in C.S. + Loss in P.S.] – Tax Revenue = \$2400 Or, Area [½ (40*80) + ½ (20*80)] = \$2400

   (e) Is the after-tax equilibrium quantity, market efficient? (5 marks)

   No. A market efficient outcome requires, complete appropriation of the Total surplus = Consumer's Surplus + Producer's Surplus at Q* and P*. In case of this after-tax equilibrium, Q and P**, the loss in (Consumer's Surplus + Producer's Surplus) has partially been offset by the gain in Government Revenue. However, there has been a net loss from the economy to the extent of the dead weight loss which is the equivalent of the loss in (Consumer's Surplus + Producer's Surplus) that could not be recovered. This net loss indicates that the after-tax outcome must not have been efficient.**

2. Zoë spends \$120 per week on dog food (D) and bird feed (B). The price of a bag of dog food is \$4 and the price of a bag of bird feed is \$12.

   (a) Write down Zoë's budget constraint. If dog food were to go on the horizontal axis and bird feed on the vertical axis, calculate the slope of her budget constraint and plot it on a diagram. (4 marks)

   $p_D D + p_B B = I$**, so** $4D + 12B = 120$

   $-\frac{p_D}{p_B} = -\frac{1}{3}$

The graph has a vertical intercept of 10 an horizontal intercept of 30.

Zoë's marginal utility of dog food is $MU_D = \frac{1}{\sqrt{D}}$ and her marginal utility of bird feed is $MU_B = 1$, regardless of how many bags of bird feed she buys.

(b) Briefly explain if dog food exhibits diminishing marginal utility. (3 marks)

If $D > 0$, then $MU_D > 0$ and $MU_D \downarrow$ as $D \uparrow$. Therefore, dog food exhibits diminishing marginal utility.

(c) Calculate Zoë's marginal rate of substitution. Write down the optimality condition for Zoë to maximize her utility. (6 marks)

$MRS = -\frac{MU_D}{MU_B} = -\frac{1}{\sqrt{D}}$

$MRS = -\frac{p_D}{p_B} = \frac{1}{\sqrt{D}} = \frac{1}{3}$

(d) Use your result in parts (c) and (a) to solve for the optimal amount of dog food and bird feed that Zoë should buy and illustrate it on a diagram. (6 marks)

$D^* = 9$

$B^* = 7$

(e) If Zoë's were to spend \$180 per week on dog food and bird feed, briefly explain and illustrate on a diagram how it would change your answers to part (d). (3 marks)

From part (c), Zoë's utility-maximizing amount of dog food is 9 bags regardless of her income. If her income increases from \$120 to \$180, then the extra income must be spent on bird feed: $B^* = 12$.

(f) Based on your answer to part (e), briefly explain whether dog food and bird feed are normal or inferior goods. (3 marks)

Since the utility-maximizing amount of dog food did not change when income changed, dog food is neither a normal good nor an inferior good. The utility-maximizing amount of bird feed, on the other hand, did increase when income increased. Therefore, it is a normal good.

3. Fill in the blanks. Assume fixed costs are incurred before production decisions are made (Hint: If the average fixed cost of producing 10 units is \$12, what is the total fixed cost?) (1 mark each)

Q	TVC	TFC	TC	AVC	AFC	AC	MC
0				-	-	-	-
10			200		12		
20				7			6
30	180						
40						8	

Q	TVC	TFC	TC	AVC	AFC	AC	MC
0	**0**	**120**	**120**	-	-	-	-
10	**80**	**120**	200	**8**	12	**20**	**8**
20	**140**	**120**	**260**	7	**6**	**13**	6
30	180	**120**	**300**	**6**	**4**	**10**	**4**
40	**200**	**120**	**320**	**5**	**3**	8	**2**

4. A monopolist faces a market demand defined by $P = 100 - (1/5)Q$. Her marginal cost is given by $MC = 20$. There are no fixed costs.

   (a) Graph the market demand, the marginal revenue curve and the marginal cost curve, labeling the intercepts. (5 marks)

   Demand: vertical intercept is 100, slope -1/5, MR: vertical intercept is 100, slope is - 2/5, MC is constant at 20.

   (b) Calculate the monopolist's profit-maximizing price, output and profit. (5 marks)

   Q = 200; P = $60. Profit = $8,000.

   (c) Suppose that this market can now be divided into two separate markets and the supplier can discriminate between them. The demand curves are given by $P = 100 - (1/3)Q$ and $P = 100 - (1/2)Q$. Graph each of these demands in a new figure and insert their marginal revenue curves. Label the intercepts. (5 marks)

   Demand 1: vertical intercept is 100, slope is -1/3, demand 2: vertical intercept is 100, slope is -1/2. Both MR have the same intercepts as the demands with twice steeper slope.

   (d) Calculate the profit-maximizing output level and price in each of these two markets. (5 marks)

   Q = 120 and Q = 80. Price in each market is $60.

   (e) Without calculating profit in each of these markets, will the profit be more, less or the same as in the market where just a single price is charged for all buyers? (5 marks)

   Profit must be the same as in the single price market (this is due to the form of the functions used here), because the total quantity sold is the same and so too is the price.

5. The market for an internationally-traded good is defined by the following demand and supply conditions respectively: $P = 100 - Q; P = 4 + Q$. The world price for the good is $P = 40$.

   (a) Graph this market, labeling the intercepts and calculate the no-trade equilibrium price and quantity. (5 marks)

   Q = 48; P =$52

   (b) If free trade opens up, calculate the new price and quantity values, and compute the quantity of the good that will be imported. Illustrate the outcome on your diagram. (5 marks)

   Q = 60; imports =24, P=40.

   (c) Compute the producer surplus earned by domestic suppliers in part (b). (5 marks)

   PS = 36*36*0.5 = $648.

   (d) If the government imposes an import tax of $8 per unit, calculate and illustrate on a diagram the new market equilibrium, and calculate the tax revenue that will be generated. (5 marks)

   total Q sold = 52; dom Q sold = 44. Tax revenue = $8*8 = $64. The world supply curve at $P = 40$ shifts up by $8 to $P = 48$.

(e) Suppose now that domestic suppliers are also subject to the $8 tax. In a new diagram illustrate the market equilibrium. How many units of the good will be produced in this equilibrium by domestic suppliers? What will be the total tax revenue from the tariff and the tax on domestic suppliers? (5 marks)

total Q sold =52 again; dom Q sold = 36. Tax revenue = 52*$8= $416.