

UNIVERSITY OF TORONTO
Faculty of Arts and Science

AUGUST EXAMINATIONS 2011

ECO 100Y1 Y

Duration: 3 hours

Examination Aids allowed: Non-programmable calculators only

INSTRUCTIONS: Students are required to do Part I and ONE of Parts II, III, or IV. Part I is the multiple choice section and is worth 50%. Record all your answers for Part I on the SCANTRON sheet provided and in the examination booklets (Note: in case of any disagreement, the answer to be marked is the one on the SCANTRON sheet). For the Scantron sheets please use a black pencil or a black or blue ball-point pen. There is no penalty for guessing in the multiple choice so be sure to provide an answer for every question. Answers for the other Part will be written in examination booklets. The blank pages may be used for rough work (which will not be marked).

PART I To be answered by all students.

PART II To be answered by students from Professor Indart's sections (L0101 and L0201)

PART III To be answered by students from Professor Furlong's section (L5101)

PART IV To be answered by students from Professor Ho's sections (L5201)

PART I [50%]
MULTIPLE CHOICE QUESTIONS

(To be answered by all students)

INSTRUCTIONS:

- Multiple choice questions are to be answered using a **black pencil** or a **black or blue ball-point pen** on the separate **SCANTRON sheet** being supplied.
- **Be sure to fill in your name and student number on the SCANTRON sheet!** Write the **name of your instructor** on the **SCANTRON sheet** (in the area where it says “DO NOT WRITE IN THIS SPACE”).
- Each question is worth 1 mark. **No deductions will be made for incorrect answers.**
- **Write your answers to the multiple choice questions ALSO on the first page of the first examination booklet used for short answer questions.** You may use this question booklet for rough work, **and then transfer your answers to each multiple choice question onto the separate SCANTRON sheet.** Your answers **must be** on the SCANTRON sheet. In case of a disagreement, **the answer to be marked is the one on the SCANTRON sheet.**

1. Suppose that you cut lawns with your own lawnmower as an independent producer this summer. Which of the following is not true given that the lawn mowing industry is perfectly competitive?
 - a) Opportunity cost eventually rises as you cut more lawns.
 - b) Marginal cost eventually rises as you cut more lawns.
 - c) Total revenue always rises as you cut more lawns.
 - d) Total revenue of the lawn mowing industry always rises as firms cut more lawns.
 - e) Your marginal revenue remains constant as you cut more lawns.

2. Suppose that a country can produce 200 units of X and 80 units of Y or 160 units of X and 100 units of Y at efficient full employment. What is the (per unit) opportunity cost of increasing the production of X from 160 to 200 units?
 - a) 0.5 units of X.
 - b) 0.5 units of Y.
 - c) 2 units of X.
 - d) 2 units of Y.
 - e) None of the above is correct.

3. Which of the following is false for short-run production and cost functions?
 - a) A decrease in Marginal Product implies an increase in Marginal Cost.
 - b) An increase in Marginal Product implies a decrease in Marginal Cost.
 - c) A decrease in Marginal Product implies an increase in Average Variable Cost.
 - d) An increase in Marginal Product implies a decrease in Average Variable Cost
 - e) An increase in Marginal Product implies an increase in Average Product.

Refer to Table 1 to answer questions 4 and 5. Table 1 indicates the different quantities of corn and wine that 1 unit of resource can produce in Ontario and New York State.

Table 1

	Corn	Wine
Ontario	25	5
New York State	12	4

4. Refer to Table 1 above. Which of the following is true?
 - a) New York State has an absolute advantage in the production of both Corn and Wine.
 - b) Ontario has an opportunity cost of 1 unit of corn for 5 units of Wine.
 - c) New York has an opportunity cost of 1/3 unit of Corn for 1 unit of Wine.
 - d) New York has a comparative advantage in the production of Wine.
 - e) None of the above is true.

5. Refer to Table 1 above. Which of the following exchange rates (terms of trade) will benefit both countries through trade?
 - a) 1/6 unit of Wine for 1 unit of Corn.
 - b) 1/4 unit of Wine for 1 unit of Corn.
 - c) 1 unit of Wine for 3 units of Corn.
 - d) 1 unit of Wine for 5 units of Corn.
 - e) None of the above is correct.

6. Which of the following is true under free trade if the international price is greater than the domestic price of a commodity (ignoring transportation costs)?
 - a) The loss in Consumers Surplus is less than the gain in Producers Surplus.
 - b) The loss in Consumers Surplus is greater than the gain in Producers Surplus.
 - c) The gain in Consumers Surplus is less than the loss in Producers Surplus.
 - d) The gain in Consumers Surplus is greater than the loss in Producers Surplus.
 - e) The loss in Consumers Surplus is equal to the gain in Producers Surplus.

7. Which of the following is true for an increasing Average (Total) Cost curve?
 - a) The increase in Average Variable Cost is greater than the decrease in Average Fixed Cost.
 - b) The increase in Average Variable Cost is greater than the increase in Average Fixed Cost.
 - c) The increase in Average Variable Cost is less than the decrease in Average Fixed Cost.
 - d) The increase in Average Variable Cost is less than the increase in Average Fixed Cost.
 - e) None of the above is true.

8. Suppose that 5 workers produce 260 units of output, 6 workers produce 300 units of output and 7 workers produce 336 units of output. Which of the following is false?
- Marginal Product is less than Average Product.
 - Marginal Product is falling.
 - Marginal Cost is rising.
 - Marginal Cost is greater than Average Cost.
 - None of the above is false.

Refer to Table 2 to answer questions 9 to 11. Table 2 shows the marginal cost, average variable cost, and average (total) cost of producing various quantities of a commodity by a firm in a perfectly competitive industry.

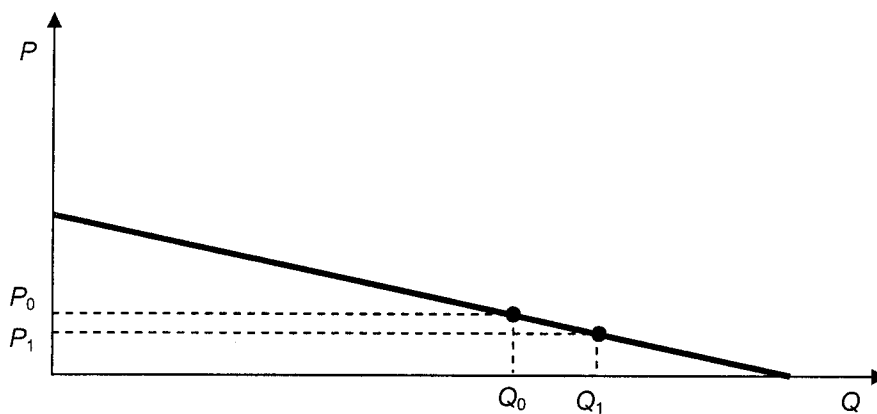
Table 2

Output (units)	4	5	8	10	20
Marginal Cost	\$10	\$12	\$18	\$22	\$42
Average Variable Cost		\$12	\$13.125	\$14.5	\$23.25
Average Cost	\$31	\$27	\$22.5	\$22	

9. Refer to Table 1 above. What is the output where Economic Losses are equal to Fixed Costs?
- 4.
 - 5.
 - 8.
 - 10.
 - None of the above.
10. Refer to Table 1 above. What is Economic Profit (+)/Loss(-) in equilibrium at a Price of \$18?
- \$25.
 - \$36.
 - \$39.
 - \$45
 - None of the above.
11. Refer to Table 1 above. What are Fixed Costs?
- \$36.
 - \$75.
 - \$84.
 - \$96.
 - None of the above.
12. Suppose that 800,000 litres of milk sell at \$1.60/litre. What is the percentage change in milk sold if the price of milk increases to \$2.40/litre and arc elasticity is 0.65 (in absolute value)?
- 20%.
 - 26%.
 - 32.5%.
 - 36%.
 - None of the above.

13. Suppose that a firm is producing at an output where average cost is \$15, marginal cost is \$12, and average variable cost is \$8. If price is \$7 and minimum average variable cost is \$6, how should the firm change output to attain equilibrium?
- Decrease output, resulting in a lower economic loss.
 - Decrease output, resulting in a higher economic profit.
 - Increase output, resulting in a higher economic loss.
 - Increase output, resulting in a lower economic profit.
 - None of the above.
14. Suppose that a commodity's demand function is $P = 280 - 0.02Q$. What is marginal revenue when $P = \$120$?
- \$40.
 - \$20.
 - \$40.
 - \$120.
 - None of the above.

Diagram 1: Demand for Good X



15. Refer to Diagram 1 above. What can you say about the price elasticity of demand for good X as price falls from P_0 to P_1 ?
- Demand is inelastic.
 - Demand is unit elastic.
 - Demand is elastic.
 - Elasticity is greater than 2.
 - None of the above.
16. Suppose that the demand for good Y is elastic and its supply is inelastic at the initial equilibrium. Which of the following describes the effect of a per unit tax on good Y?
- The incidence of the tax falls mostly on producers and total revenue decreases.
 - The incidence of the tax falls mostly on producers and total revenue increases.
 - The incidence of the tax falls mostly on consumers and total revenue decreases.
 - The incidence of the tax falls mostly on consumers and total revenue increases.
 - None of the above describes the effect of the unit tax.

17. Suppose that the demand and supply functions for a commodity are $P = 180 - 0.025Q$ and $P = 20 + 0.015Q$, respectively. What is the producers' (sellers') share of a per-unit tax of \$12?
- \$3.00.
 - \$4.50.
 - \$6.00.
 - \$7.50
 - None of the above.
18. Consider an industry where the demand curve is perfectly elastic and the supply curve is elastic at the initial equilibrium. What is the effect of a per-unit tax on the market price?
- No change in market price.
 - Increase in market price less than the increase in the tax per unit.
 - Increase in market price equal to the increase in the tax per unit.
 - Increase in market price greater than the increase in the tax per unit.
 - None to the above is correct.
19. Which one of the following will cause the demand for ham to decrease?
- The price of bacon (a substitute) increases.
 - Disposable income increases and ham is a normal good.
 - The price of eggs (a complement) increases.
 - The price of ham decreases.
 - Both c) and d) are correct.
20. Suppose the technology of an industry is such that the typical firm's minimum efficient scale is 8000 units per month at an average long-run cost of \$5 per unit. If the total quantity demanded at a price of \$5 per unit is 7500 units per month, the likely result would be
- the formation of a cartel.
 - the existence of a large number of perfectly competitive firms.
 - a concentrated oligopoly.
 - price discrimination on the part of producers.
 - the formation of a natural monopoly.
21. If a profit-maximizing firm in perfect competition is earning economic losses in the short run, then it must be producing a level of output where
- price is greater than marginal cost.
 - price is greater than marginal revenue.
 - marginal cost is greater than marginal revenue.
 - average total cost is greater than marginal cost.
 - average variable cost is greater than price.
22. Consider a perfectly competitive firm in the following position: output = 4000 units, total revenue = \$4000, fixed costs = \$2000, variable costs = \$3000, and marginal cost = \$1.10. In the short run, this firm should
- shut down.
 - expand output.
 - increase the market price.
 - reduce output.
 - not change output.

23. A profit-maximizing business incurs an economic loss of \$8,000 per year at equilibrium. Its fixed cost is \$10,000 per year. Given the above, which one of the following statements is correct?
- The firm should shut down in the short run.
 - The firm should increase output to raise revenues until losses are eliminated.
 - The firms should decrease output until price equals marginal cost.
 - The firm should continue producing in the short run.
 - Information provided is not sufficient to evaluate statements.
24. At a garage sale, Sonja purchases a used bicycle for \$60 when she was willing to pay \$100. Before paying for the bicycle she realizes that it needs repair at a cost of \$15 but she buys it anyway. If the bicycle costs \$200 new, Sonja's consumer surplus is
- \$140.
 - \$115.
 - \$100.
 - \$40.
 - \$25.
25. In a competitive market, consumer surplus exists because
- some sellers are willing to take a lower price than the equilibrium price.
 - some consumers are willing to pay more than the equilibrium price.
 - sellers will only sell at prices above the actual price.
 - consumers are willing to make purchases only if the price is below the actual price.
 - all consumers are willing to make purchases only at equilibrium price.
26. When the price of milk used to produce cheese rises, the consumer surplus associated with the consumption of cheese
- will definitely increase.
 - will definitely decrease.
 - will increase if cheese is a normal good.
 - will decrease if cheese is an inferior good.
 - None of the above is true.
27. All else equal, which one of the following events would cause an increase in the demand curve for butter?
- The price of margarine (a substitute) decreased.
 - Disposable income decreased and butter is a normal good.
 - The price of bagels (a complement) increased.
 - Disposable income increased and butter is an inferior good.
 - None of the above.
28. Rachel consumes only books (Y-axis) and CDs (X-axis). Books and CDs are both normal goods for Rachel. If the price of CDs increases, which of the following statements is correct?
- Her budget line becomes flatter.
 - Her quantity demanded of books increases as a result of the income effect.
 - Her quantity demanded of books decreases as a result of the substitution effect.
 - At her new optimal consumption bundle her marginal rate of substitution (i.e., books given for of CDs) will be greater than before.
 - None of the above is correct.

29. Margarine, an inferior good, has a positively-sloped market supply curve. A decrease in household income will cause
- the equilibrium price to increase and the equilibrium quantity of margarine to decrease.
 - both the equilibrium price and the equilibrium quantity of margarine to decrease.
 - the equilibrium price to decrease and the equilibrium quantity of margarine to increase.
 - both the equilibrium price and the equilibrium quantity of margarine to increase.
 - none of the above.
30. Suppose that in a perfectly competitive industry, the market price of the product is \$10. Firm A is producing the output level at which average total cost equals marginal cost, both of which are \$12. Average variable cost is \$8. To achieve its optimum output, firm A should
- reduce output.
 - expand output.
 - leave output unchanged.
 - shut down.
 - increase the price of the product.
31. A perfectly competitive industry is in long-run equilibrium with a constant cost industry supply curve. The government now provides a permanent subsidy to every firm of \$5 per unit of output. As a result, which one of the following statements is correct in the long run?
- Market price will decrease by \$5, each firm's output will rise, and industry output will rise.
 - Market price will decrease, but not by \$5, and industry output will rise.
 - Market price will decrease by \$5, industry output will rise but each firm's output will remain constant.
 - Industry output will increase and market price will increase.
 - None of the above is correct.
32. A perfectly competitive industry with "n" identical firms is in short run equilibrium. Each firm has a total fixed cost of \$80,000 and is initially making economic profits of \$50,000 per year. Now, each firm faces an increase in property taxes of \$80,000 per year. As a result of this shock, which one of the following statements is correct in the short-run?
- All firms will shut down.
 - Each firm will produce an unchanged output.
 - Each firm will produce an increased output and make economic losses of \$30,000.
 - Each firm will produce a lower output and make zero economic profits.
 - None of the above is correct.
33. If a profit-maximizing firm in perfect competition is making economic losses, then it must be producing a level of output where
- average total cost is greater than marginal cost.
 - price is greater than marginal cost.
 - price is greater than marginal revenue.
 - marginal cost is greater than marginal revenue.
 - price is greater than variable cost.

34. Assume that a perfectly competitive industry has a perfectly inelastic supply curve. The government introduces a specific commodity tax of \$2.50 per unit of output. As a result, which one of the following statements would be correct in the short run?
- The consumer price would increase by \$2.50.
 - The consumer price would fall by \$2.50.
 - The incidence of the tax would fall completely on consumers.
 - The price received by the producer would decrease by \$2.50.
 - None of the above is correct.
35. For a single-price monopolist, marginal revenue falls faster than price (as output rises) because
- in order to sell additional units, the price must be lowered on all units.
 - the firm has no supply curve.
 - profits are maximized when marginal cost equals marginal revenue.
 - the cost of producing extra units of output increases as production is increased.
 - none of the above is true since marginal revenue does not fall faster than price.
36. If a single-price monopolist sets price where the price elasticity of demand exactly equals 1, its
- marginal revenue is always positive.
 - total revenue is rising, although marginal revenue is falling.
 - total profits are at a maximum.
 - total revenue is at its maximum.
 - total revenue is falling.
37. If a single-price monopolist is presently producing an output at which marginal revenue is less than marginal cost, it can increase its profits by
- reducing barriers to entry.
 - reducing output and raising price.
 - expanding output and lowering price.
 - reducing output and holding price unchanged.
 - expanding output and raising price.
38. Which of the following purchases by households is considered a consumption expenditure for the purposes of national-income accounting?
- Tractors for use on a family farm.
 - A Government of Canada Treasury bill.
 - A new house.
 - Legal services.
 - Shares of Air Canada.
39. In the national income and product accounts, a reduction of inventories counts as
- negative investment.
 - consumption.
 - depreciation.
 - saving.
 - none of the above.

40. In a simple macro (Aggregate Expenditure) model, an increase in households' wealth is generally assumed to
- cause an upward shift in the consumption function.
 - cause no change in consumption because consumption is a function of disposable income only.
 - affect only saving, not consumption.
 - cause no change in consumption because the increase is always expected.
 - cause a downward shift in the consumption function.
41. If nominal GDP in some year is \$3800 and the GDP deflator for the same year is 152, then the real GDP for that year is
- \$5776.
 - \$3800.
 - \$3500.
 - \$2500.
 - \$2280.
42. If the Jones family's disposable income increases from \$1200 to \$1700 and their saving increases from -\$100 to +\$100, then the family's
- Average Propensity to Consume out of disposable income is 0.40.
 - Marginal Propensity to Save out of disposable income is 1.
 - Marginal Propensity to Consume out of disposable income is 0.60.
 - Marginal Propensity to Consume out of disposable income is 0.40.
 - Average Propensity to Consume out of disposable income is 0.60.
43. A decrease in the marginal propensity to spend out of income will cause
- a decrease in the slope of the Aggregate Expenditure curve, which rotates downward.
 - a movement to the right along the Aggregate Expenditure curve.
 - a movement to the left along the Aggregate Expenditure curve.
 - an increase in the slope of the Aggregate Expenditure curve, which rotates upward.
 - a parallel downward shift in the Aggregate Expenditure curve.
44. Consider a simple macro (Aggregate Expenditure) model. If income is above its equilibrium level, it is likely that inventories are _____, and so income tends to _____.
- constant; fall.
 - increasing; fall.
 - decreasing; rise.
 - decreasing; fall.
 - increasing; rise.
45. Consider a simple macro (Aggregate Expenditure) model. In such a model, the multiplier is larger, the
- lower the level of Autonomous Expenditure.
 - flatter the slope of the Aggregate Expenditure function.
 - lower the Aggregate Propensity to Consume out of income.
 - steeper the slope of the Aggregate Expenditure function.
 - higher the level of Autonomous Expenditure.

46. A central bank can “create” money by
- selling government Treasury bills to the commercial banks.
 - increasing the rate of inflation.
 - purchasing government securities on the open market.
 - issuing its own Central Bank bonds.
 - selling some of its foreign-currency reserves.
47. Payments made to foreign firms arising from Canadians’ purchases of foreign goods and services are shown in Canada’s
- current account.
 - foreign-currency reserves.
 - capital account.
 - official financing account.
 - capital-service account.
48. An appreciation of the Canadian dollar implies
- a fall in the external value of the dollar, such that fewer dollars are required to purchase foreign currency.
 - a rise in the external value of the dollar, such that more dollars are required to purchase foreign currency.
 - a rise in the external value of the dollar, such that fewer dollars are required to purchase foreign currency.
 - a fall in the external value of the dollar, such that more dollars are required to buy foreign currency.
 - is shown only by changes in the official reserves of the Bank of Canada and does not influence the exchange rate.
49. Canadian exports to the U.S. gives rise to
- a demand for U.S. dollars on the foreign-exchange market.
 - a depreciation of the Canadian dollar.
 - a decrease in U.S. dollar reserves in Canada.
 - a lower value of the Canadian dollar.
 - a supply of U.S. dollars on the foreign-exchange market.
50. Other things being equal, a contractionary monetary policy in Canada will tend to cause a(n)
- depreciation of the Canadian dollar.
 - financial capital outflows.
 - appreciation of the Canadian dollar.
 - appreciation of the European currency.
 - a decreased external value of the Canadian dollar.

PART II [50%]**PART II To be answered by students from Professor Indart's sections (L0101 & L0201)**

Answer ALL five questions. When required to provide a numerical answer, show ALL the work that allows you to arrive to that answer.

Question 1

Suppose that a country's domestic demand and domestic supply for widgets are $P = 12 - 0.075 Q$ and $P = 2 + 0.025 Q$, where P is in dollars per unit and Q is in thousands of units per month. Further suppose that the world price of widgets is \$6 per unit and that this country is very small and takes the world price as given.

- a) In the absence of international trade, what is this country's equilibrium price and equilibrium quantity of widgets? Show all your work. (2 marks)
- b) In a neat and clearly labelled diagram, draw the domestic demand curve and domestic supply curve and indicate this equilibrium (point A). (1 mark)
- c) Suppose now that this country starts trading with the rest of the world. Given that the international price of widgets is \$6, will this country become an importer or an exporter of widgets? Briefly explain. How many widgets will this country import or export? Show all your work. (2 marks)
- d) In your diagram, draw the international supply curve for widgets and show the quantity demanded and the quantity domestically supplied after this country starts trading in the international market. (1 mark)
- e) The government wants this industry to grow and, to that end, introduces a subsidy to domestic producers of \$1 per widget produced. What is the expression for the new domestic supply curve? How many widgets will domestic producers supply now? How many widgets will this country import or export now? (3 marks)
- f) In your diagram, show the change caused by the introduction of this subsidy to the equilibrium of part d) above. (1 mark)

Question 2

The demand curve of an unregulated, single-price monopolist is $P = 100 - 0.5Q$, where P is the dollar-price and Q is the number of units per month. The monopolist's marginal cost is constant at \$20 per unit. The monopolist's fixed cost is \$400 per month. [Note: Although it is not a requirement, you might find it useful to draw a diagram when answering this question.]

- a) What are the monopolist's equilibrium price and equilibrium output? What is the monopolist's average total cost at this equilibrium? What is the monopolist's level of economic profits? Briefly show how you obtained all these figures. (4 marks)
- b) Suppose now that the monopolist is able to perfectly price discriminate (i.e., charge each customer the maximum price that the customer is willing to pay). What output will this perfectly price-discriminating monopolist produce? What is the monopolist's level of economic profits now? Briefly show how you obtained all these figures. (2 marks)
- c) Go back to the single-price monopolist's equilibrium of part a) above. Suppose now that the government decides to regulate the monopolist in order to: 1) achieve allocative efficiency; and 2) eliminate the monopolist's economic profits. What should the government do to achieve these two goals simultaneously? Briefly explain. What are the monopolist's equilibrium price and equilibrium output? What is the monopolist's average total cost at this equilibrium? What is the monopolist's level of economic profits? Briefly show how you obtained all these figures. (4 marks)

Question 3

Suppose the Canadian banking system is characterized as follows: 1) there is only one commercial bank; 2) the desired reserve ratio is 10% against demand deposits; 3) the commercial bank does not hold any reserves above the desired level; 4) there is no currency drain from the banking system. Considering only the M1 definition of money supply answer the following questions:

- a) Suppose the Bank of Canada purchases \$100 millions in Government of Canada bonds from the public. With the help of T-accounts (balance sheets) for the public, the commercial bank, and the Bank of Canada, answer the following questions: What is the change in the reserves of the commercial bank? What is the total (final) change in the money supply? What is the change in bank loans to the public as a result of this open market operation? (3 marks)
- b) Suppose that the Bank of Canada sells \$100 millions in Government of Canada bonds to the commercial bank. With the help of T-accounts (balance sheets) for the public, the commercial bank, and the Bank of Canada, answer the following questions: What is the change in the reserves of the commercial bank? What is the total (final) change in the money supply? What is the change in bank loans to the public as a result of this open market operation? (3 marks)
- c) Suppose now that the government borrows \$100 millions from the Bank of Canada to finance its deficit (that is, the government sells \$100 millions in bonds to the Bank of Canada). Assume that the government first borrows the money and then spends it. With the help of T-accounts (balance sheets) for the public, the commercial bank, the government, and the Bank of Canada, answer the following questions: What is the change in the reserves of the commercial bank? What is the total (final) change in the money supply? What is the change in bank loans to the public as a result of this government action? (4 marks)

Question 4

Consider an economy defined by the following behavioural equations:

Consumption	$C = 100 + 0.8 YD$
Disposable Income	$YD = Y - TA$
Taxes	$TA = 100 + 0.125 Y$
Investment	$I = 460$
Government Expenditure	$G = 400$
Exports	$X = 200$
Imports	$IM = 100 + 0.1 Y$
Full employment GDP	$Y_{fe} = 2,800$

- What is the equilibrium level of GDP? Show how you obtained this figure. (2 marks)
- What is the value of the marginal propensity to spend? What is the value of the expenditure multiplier? Show how you obtained these figures. (2 marks)
- Is the government budget balanced? If not, what is the size of the deficit or surplus? Show how you obtained this figure. (2 marks)
- Is there a recessionary or inflationary gap? If there is one, what is the size of the recessionary or inflationary gap? Show how you obtained this figure. (2 marks)
- If the government wants to achieve full-employment in the economy, *ceteris paribus*, by how much should it reduce autonomous (lump-sum) taxes (that is, those taxes that are independent of Y)? What is the balance in the government budget now? Show how you obtained these figures. (2 marks)

Question 5

A hypothetical country produces only two goods, wool and lumber. Given the current level of technology, 1 unit of resources can produce either 1 unit of wool or 2 units of lumber in this small country. This country has a total resource endowment of 1,000 units. The wool and lumber industries are both constant cost industries.

- a) What is this country's opportunity cost of producing 1 unit of lumber? And of producing 1 unit of wool? Briefly explain. (1 mark)
- b) In a carefully labelled diagram, draw this country's production possibility curve measuring the quantity of lumber on the horizontal axis. If this country is presently producing 800 units of lumber, how many units of wool might it be producing as well? Identify this point on your production possibility curve (point A). (2 marks)
- c) What is the consumption possibility curve of this country under autarky (i.e., before trade takes place)? Briefly explain. (1 mark)
- d) Now this country starts trading in the world market where 1 unit of wool exchanges for 4 units of lumber. What good will this country sell (export) in the international market? Briefly explain. (2 marks)
- e) Suppose now that this country fully specializes in production according to its comparative advantage. What combination of wool and lumber will it produce? Identify this point on your production possibility curve (point B). (1 mark)
- f) Draw in your diagram this country's new consumption possibility curve. How many units of wool will this country end up consuming if it chooses to consume 1,600 units of lumber? Show all your work. Identify this point on your consumption possibility curve (point C). (2 marks) Is this country better off as a result of trade? Briefly explain. (1 mark)

PART III [50%]

PART III To be answered by students from Professor Furlong's section (L5101)

This part of the exam consists of two sections.

Section I:

- Answer 6 of the possible 7 questions.
- Each question is worth 7 marks for a potential total of 42 marks.
- If you answer more than 6 questions, only the 6 worst questions will count

Section II:

- Answer all 8 of the explanation questions.
- Each correct answer is worth 1 mark for a potential total of 8 marks.

SECTION I (42 marks): ANSWER ONLY 6 OF THE FOLLOWING 7 QUESTIONS

1. Income and Substitution Effects (7 marks)

Draw an Indifference Curve/Budget Line diagram and Demand diagram to demonstrate the Substitution and Income effects and the derivation of two points of an inelastic demand curve for a good X given a decrease in the price of X if X is an inferior good. The subsections below help you through this exercise. Clearly label your diagrams.

- Show the quantity of X_0 at initial consumer equilibrium given Income (m), the Price of all other goods (P_Y), and the price of X (P_{X_0}). **(1 mark)**
- Indicate a quantity of X_1 at equilibrium for the decrease in the price of X to P_{X_1} . **(1 mark)**
- Indicate the Substitution Effect (SE) of the decrease in the price of X to P_{X_1} . **(1 mark)**
- Indicate the Income Effect (IE) of the decrease in the price of X to P_{X_1} . **(2 marks)**
- Derive two points of Demand in a Demand diagram below your Indifference Curve/Budget Line diagram. **(1 mark)**
- Derive two points of Income Compensated Demand in your Demand diagram. **(1 mark)**

2. Per Unit Subsidy: Short-run and Long-run (7 marks)

A perfectly competitive constant-cost industry is presently at long-run equilibrium P_0 , q_0 , and Q_0 with inelastic Demand and elastic Supply. Suppose that the government gives the industry a per unit subsidy.

- a) Draw a firm and industry diagram to show the short-run (subscript 's') and long-run (subscript 'l') changes in curves, economic profit/loss, and equilibria that result from this subsidy. In particular
 - i) Draw the initial long-run firm and industry equilibrium.
 - ii) Show the changes in the firm cost curves in the short-run due to the subsidy. **(1 mark)**
 - iii) Show short-run equilibrium Price (P_s), industry output (Q_s), and firm output (q_s). **(2 marks)**
 - iv) Show short-run equilibrium Economic Profit or Loss. **(1 mark)**
 - v) Show long-run equilibrium Price (P_l), industry output (Q_l), and firm output (q_l). **(1 mark)**
- b) What is the effect of the tax/unit on the total economic profit of the industry (i.e., of the profit of the total number of firms) in the long-run? Explain your answer. **(1 mark)**
- c) Does the consumer or the individual firm benefit from the subsidy in the long-run? Briefly explain. **(1 mark)**

3. Monopoly (7 marks)

Suppose that the city of Toronto removes all crosswalks and lights from St. George Street but allows a monopoly to build a pedestrian bridge to enable students to cross the street for a fee. Assume that Marginal Costs are zero with present Demand and that this Monopoly can make a monopoly profit.

- a) Draw a diagram with the necessary functions (curves) to indicate the equilibrium price, quantity, and economic profit of this monopolist. **(3 marks)**
- b) Why can't this monopoly charge a fee that would give the optimal allocation of resources? **(1 mark)**
- c) Indicate on the diagram the Price (P^*) and Quantity (Q^*) that you would recommend to regulate this monopolist. **(1 mark)**
- d) Indicate on your diagram the Price (P_0) and Output (Q_0) that would maximize the consumer surplus of the students. **(1 mark)**
- e) Indicate on your diagram the economic efficiency loss at the Price and Quantity that maximizes consumer surplus. **(1 mark)**

4. Macromodel (7 marks)

Suppose that the U.S. economy has the following Consumption (C), Aggregate Expenditure (AE: C is already included in AE, as are other components of AE), and Net Tax (T) functions. Variables are in billions (e.g., 500 = \$500b).

$$C = 500 + 0.75Y_d$$

$$AE = 2,400 + 0.8Y$$

$$T = -50 + 0.25Y$$

Republicans propose a \$3 billion cut in Government Spending and \$1 billion cut in Taxes to reduce the U.S. deficit.

- a) What is the change in Y (Income) if Government Spending falls by 3b ($\Delta G = -3b$). (1 mark)
- b) What is the change in Net Taxes if Government Spending falls by 3b ($\Delta G = -3b$). (1 mark)
- c) What is the change in Y (Income) if Fixed Taxes fall by 1b ($\Delta FT = -1b$). (1 mark)
- d) What is the change in Net Taxes due to the change in Y (Income) caused by the fall in Fixed Taxes of 1b ($\Delta FT = -1b$). (1 mark)
- e) Will the cut in Government Spending reduce the deficit in this case *ceteris paribus*? Explain briefly. (1 mark)
- f) Will the cut in Fixed Taxes reduce the deficit in this case, *ceteris paribus*? Explain briefly. (1 mark)
- g) Explain what happens to the government budget surplus (+)/deficit (-) during recessions. (1 mark)

5. GDP/Money equilibrium: Diagram (7 marks)

- a) Draw diagrams to show an initial equilibrium interest rate, investment, and real GDP for the Canadian economy. (There is no need for specific numbers) (1 mark)
- b) Assuming that the Bank of Canada intends to change monetary policy in September, show on your diagram the effect of the most likely policy on the equilibrium interest rate, investment, and GDP. (3 marks)
- c) Why doesn't President Obama lower the interest rate in the United States to stimulate the economy? (1 mark)
- d) Briefly explain the quantity theory of money using the Fisher equation for money demand. (2 marks)

6. Aggregate Demand/Supply: Diagrams (7 marks)

Suppose that the Canadian economy is in a significant recession. Show the short-run and long-run effects of an increase in government spending on Aggregate Expenditure, equilibrium real GDP, and the equilibrium Price level by using Aggregate Expenditure/GDP and Aggregate Demand/Supply diagrams. The following subsections help you do this.

- a) Draw an Aggregate Expenditure/Income diagram and Aggregate Demand/Supply diagram to show the initial equilibrium Price (P_0) and real GDP (Y_0) if the economy is presently at short-run equilibrium in a recession. Be sure to draw both the Long-run (LRAS) and Short-run Aggregate Supply (SRAS) curves. Use the subscript '0' for all curves and equilibria. **(3 marks)**
- b) Now show in your AE/Y diagram and on your AD/AS diagram the new short-run equilibrium Price (P_S) and GDP (Y_S) that results from the increase in government spending that would partially eliminate the recession if there were no change in prices. Make sure that the AE/Y diagram equilibrium accords with the AD/AS equilibrium Y_S . Use the subscript 's' for all resultant curves and equilibria. **(2 marks)**
- c) Now show the long-run equilibrium Price and real GDP. Use the subscript '1' for all changed curves and equilibria. **(2 marks)**

7. Aggregate Demand/Supply: Equations (7 marks)

An economy has the following Aggregate Expenditure (AE) and Short-run Aggregate Supply (SRAS) equations where P is the Price level and Y is real GDP/Income. The economy is presently at long-run equilibrium. Show your work!

$$AE = 3,200 + 0.6Y - 16P$$

$$SRAS: Y = 1,280 + 20P$$

- a) What is the Aggregate Demand function for this economy? **(1 mark)**
- b) Calculate the short-run equilibrium price level and real GDP. **(2 marks)**
- c) Calculate the short-run equilibrium price level and real GDP that results from an increase in Government Spending of 60 (Change in $G = +60$). **(2 marks)**
- d) What is the Spending multiplier given the price effect? **(1 mark)**
- e) Calculate the long-run equilibrium price level and real GDP that results from an increase in Government Spending of 60 (Change in $G = +60$). **(1 mark)**

PART II: EXPLANATIONS (8 marks). Briefly explain each of the following 8 questions.

1. Why hasn't the Bank of Canada increased interest rates this summer, besides not wanting to dampen the economy by slowing Investment? **(1 mark)**
2. What is the 'free rider problem'? **(1 mark)**
3. Why is there no monetary policy under fixed exchange rates? **(1 mark)**
4. Why is long-run supply perfectly elastic at full employment GDP? **(1 mark)**
5. Why does the balance of payments always balance? **(1 mark)**
6. What does the July employment survey in the U.S. tell us about U.S. growth? **(1 mark)**
7. What does the July employment survey in Canada tell us about Canadian growth? **(1 mark)**
8. How do Canadian bank reserves differ from U.S. bank reserves? **(1 mark)**

PART IV [50%]

PART IV To be answered by students from Professor Ho's section (L5201)

Answer ALL five questions in this part.

1. (7 marks) Suppose there are only two firms in an industry, Firm 1 ($F1$) and Firm 2 ($F2$). If they collude to behave like a monopoly (charge a high-price and split the market equally), they both earn \$200 profits each. If one firm honours the collusive agreement and charges a high-price while the other firm cheats and charges a low-price, the firm that charges a high-price earns \$250 profits and the cheater earns \$125 profits. If they compete by charging a low-price, they both earn \$175 profits each.
 - (a) Construct the payoff matrix to indicate the profits for each firm following different pricing strategies. (2 marks)
 - (b) Is there a dominant strategy that would make collusion a stable solution? (4 marks)
 - (c) Is your answer in part (b) good or bad for the firms and consumers? Briefly explain. (1 mark)

2. (11 marks) Suppose a firm's ATC curve and MC curve are both declining when they intersect the market demand curve from below.
 - (a) Use one properly-labelled diagram to plot the results from all other parts in this question. (2 marks)
 - (b) Briefly explain why it would be more cost efficient to have only this firm to serve the market rather than two firms with identical cost structure. (1 mark)
 - (c) Explain the market outcomes in terms of price, quantity, profits, and consumer surplus in this market structure. (1 mark)
 - (d) Explain if this market structure results in productive efficiency and/or allocative efficiency. (2 marks)
 - (e) Explain how government regulation restores allocative efficiency. (1 mark)
 - (f) Are there any backup policies in case the one in part (d) is not sustainable? Explain how these backup policies work and their advantages and disadvantages. (4 marks)

3. (8 marks) Use one properly-labelled diagram to answer all four parts in this question.
 - (a) Show how the total population can be divided into five different groups according to age and labour market characteristics. (1 mark)
 - (b) Define labour force and unemployment rate according to the groups defined in the diagram. (2 marks)
 - (c) Explain why unemployment rate may not accurately reflect the employment conditions in the labour market even when the data collected are perfectly accurate. (3 marks)
 - (d) Explain why life is harsh when employment rate and unemployment rate add up to 100%. (2 marks)

4. (a) Use two properly-labelled diagrams to help you explain money neutrality in the long run, but not in the short run. **(6 marks)**
- (b) Given the fact the money is not neutral in the short run, use another two properly-labelled diagrams to help you explain why some economists still dispute the effectiveness of monetary policy. **(6 marks)**
5. **(12 marks)** Suppose there are only two countries, *A* and *B*, using the same currency and two goods, *X* and *Y*, in the world. The cost of producing one unit of *X* is \$25 in *A* and \$4 in *B*. The cost of producing one unit of *Y* is \$5 in *A* and \$2 in *B*. Assume these costs are fixed.
- (a) Organize the information into a matrix showing the costs of producing *X* and *Y* in *A* and *B*, explain how to determine which country has absolute advantage in producing each of these goods. **(1 mark)**
- (b) Use the information in part (a) to compute the opportunity costs and put your results in a matrix to determine which country has comparative advantage in producing each of these goods and explain your recommendation on specialization of production for each country. **(2 marks)**
- (c) Assume *A* has resources that worth \$4,000 and *B* has resources that worth \$1,000 in which *A* produces ($X = 80, Y = 400$) and *B* produces ($X = 125, Y = 250$) when there is no trade. According to the recommendations in part (b), compute the gains in total world output due to specialization and gains in consumption in each country due to trade if both countries trade half of their specialized output. Determine the equilibrium terms of trade. **(5 marks)**
- (d) Plot the results from part (b) and part (c) in a properly-labelled diagram for each country. **(2 marks)**
- (e) Explain how to determine the feasible range for the terms of trade between these countries. **(2 marks)**