

**Concordia University  
Department of Economics**

**ECON 203 – INTRODUCTION TO MACROECONOMICS**

**Winter 2013**

**COMMON FINAL EXAMINATION VERSION 1 AND ANSWERS**

**FAMILY NAME:** \_\_\_\_\_ **GIVEN NAME(S):** \_\_\_\_\_

**STUDENT NUMBER:** \_\_\_\_\_

**Please read all instructions carefully.**

1. This is a three-hour exam (180 minutes). The questions are worth 150 marks altogether. It is a good strategy to spend one minute per mark for your answers (150 minutes) and spend the remaining time (30 minutes) to review your answers.
2. The exam consists of four parts:
  - (i) Part I: 25 multiple-choice questions (25 marks);
  - (ii) Part II: Conceptual questions, transformed into 25 multiple-choice questions, (25 marks);
  - (iii) Part III: Five long questions, transformed into 60 multiple-choice questions, (60 marks), and
  - (iv) Part IV: Multi-part policy questions, answer all parts (40 marks).
3. Write your name, student ID and answers to the multiple-choice questions (parts I, II and III) on the computer scan-sheet with a **PENCIL**. For Part IV, write all your answers on this exam with pen or pencil. Do not use additional booklets.
4. You are allowed to use a non-programmable calculator and a dictionary.
5. You are not allowed to tear any pages out of this exam.
6. **NOTE**: The last three pages in the exam (pages 22, 23, 24) are BLANK. Please use these blank pages as scrap papers.

**Grades:**

Parts I+II+III: \_\_\_\_\_

Part IV: \_\_\_\_\_

Total: \_\_\_\_\_

**Part I: Multiple Choice Questions (Total=25 marks).**

1. Suppose you have the following measure of nominal GDP by the income approach:  
 $PY = W + BI + CCA + TIN$   
 $PY = 400 + 100 + 250 + 250 = 1,000$   
Now an increase in the average wage rate in the economy increases employment income by 2 percent without any change in total employment or real GDP. As a result, the costs of production will \_\_\_\_\_ and if businesses raise prices to pass on these changed costs to buyers, prices will change by \_\_\_\_.
- A) Increase; 2%.
  - B) Increase; 4%.
  - C) Remain constant; 2%.
  - D) Remain constant; 4%.
  - E) None of the answers is correct.**
2. Suppose production and prices of pizzas and calzones in 1997 and 2013 are as follows:
- | Year | Quantity of pizzas | Price of pizzas | Quantity of calzones | Price of calzones |
|------|--------------------|-----------------|----------------------|-------------------|
| 1997 | 25                 | \$5             | 25                   | \$5               |
| 2013 | 100                | \$10            | 50                   | \$10              |
- Assume that 1997 is the base year. What are the values of real GDP for 1997 and 2013, respectively?
- A) \$250; \$750.**
  - B) \$250; \$1,500.
  - C) \$500; \$750.
  - D) \$500; \$1,500.
  - E) None of the answers is correct.
3. In the short run, using the income approach  $PY = W + BI + CCA + TIN$ , a rise in wage rates without an increase in labour productivity will:
- A) Leave both real and nominal GDP unchanged.
  - B) Reduce both nominal and real GDP.
  - C) Increase both real and nominal GDP.
  - D) Increase nominal GDP with no change in real GDP.**
  - E) Increase real GDP with no change in nominal GDP.
4. Which of the following is (are) CORRECT?
- A) Unanticipated deflation benefits borrowers.
  - B) Real interest rates are always equal to zero.
  - C) GDP is always higher than GNP.
  - D) The natural rate of unemployment can be different from the actual measured unemployment rate.**
  - E) Both A and B are correct.
5. In the  $Y=AE$  model, if  $Y>AE$ , then **unplanned** inventory would \_\_\_\_\_ and the price level would \_\_\_\_\_.
- A) Increase; increase.
  - B) Increase; decrease.
  - C) Increase; stay constant.**
  - D) Decrease; increase.
  - E) Decrease; stay constant.
6. The crucial difference between the  $Y=AE$  model and the AD/AS/LAS model is that the  $Y=AE$  assumes that price levels are \_\_\_\_\_. To represent the  $Y=AE$  model in the AD/AS/LAS model, the \_\_\_\_\_ curve is \_\_\_\_\_.
- A) Fixed; AS; vertical.
  - B) Fixed; AS; horizontal.**
  - C) Fixed; AD; vertical.
  - D) Fixed; AD; horizontal.
  - E) Flexible; AS; upward-sloping.
7. The potential output line or curve  $Y_p$  is \_\_\_\_\_.
- A) Vertical because it shows that price level changes will not affect the value of  $Y_p$ .**
  - B) Vertical because if  $Y_p$  growth exceeds actual  $Y$  growth, the natural unemployment rate will rise.
  - C) Upward-sloping because it shows that a higher price level will lead to a higher real output.
  - D) Upward-sloping because it shows that a higher price level will lead to a higher nominal output.
  - E) None of the answers is correct.

8. Based on the information presented below, the equation representing the consumption for the economy is \_\_\_\_ and the equilibrium level of GDP is \_\_\_\_\_. There is no government and this is a closed economy.

GDP (Y)	Consumption (C)	Saving (S)	Investment (I)
\$0	\$60	\$-60	\$100
100	120	-20	100
200	180	20	100
300	240	60	100
400	300	100	100
500	360	140	100

- A)  $C = 60 + 0.6Y$ ; \$400.  
 B)  $C = 60 + 0.4Y$ ; \$400.  
 C)  $C = 40 + 0.75Y$ ; \$450.  
 D)  $C = -60 + 0.8Y$ ; 500.  
 E) None of the answers is correct.
9. Other things remaining the same, if households suddenly decide to save more regardless of the level of income, then the consumption function will \_\_\_\_ and the goods market multiplier will \_\_\_\_\_.  
 A) Become steeper because the marginal propensity to consume (MPC) falls; fall.  
 B) Remain unchanged but the savings function will shift downward; fall.  
 C) Become flatter because the marginal propensity to save (MPS) rises; rise.  
 D) Make a parallel shift downward as autonomous consumption expenditure falls; fall.  
 E) Make a parallel shift downward as autonomous consumption expenditure falls; remain constant.
10. Which of the following best describes automatic built-in stabilizers in Canada?  
 A) Interest rates automatically fall as GDP falls.  
 B) Income tax collections automatically fall as GDP falls.  
 C) Autonomous government spending automatically rises as GDP falls.  
 D) The size of the autonomous goods market multiplier varies inversely with the level of GDP.  
 E) All of the answers are correct.
11. The government wants to spend more money on building low-income housing. If it wants the spending to have maximum effect on economic growth, which of the following saving equations would it prefer to see?  
 A)  $S = -80 + 0.8(Y-T)$ .  
 B)  $S = -90 + 0.7(Y-T)$ .  
 C)  $S = -140 + 0.6(Y-T)$ .  
 D)  $S = -60 + 0.5(Y-T)$ .  
 E)  $S = -30 + 0.4(Y-T)$ .
12. Suppose the government raises its revenue by a net tax of 25 percent on income,  $t = 0.25$ , the marginal propensity to consume out of disposable (after-tax) income is 0.8, and the government has an outstanding public debt of 800. In addition, the autonomous expenditure by the household and business sectors ( $C_0 + I_0$ ) is 270 and government expenditure is 450. What is the debt to GDP ratio?  
 A) 22.22%.  
 B) 33.33%.  
 C) 44.44%.  
 D) 55.55%.  
 E) None of the answers is correct.
13. Greece has recently introduced austerity plans into its economy in an effort to reign in its government debts by cutting government expenditure on education, health care and the hiring of public servants. Which of the following observation(s) will lessen the negative impact of these spending cuts on the Greece's GDP?  
 A) Their tax rate is very low.  
 B) Their marginal propensity to import is very low.  
 C) Their marginal propensity to consume is very low.  
 D) Their crowding-in or crowding-out effect is very weak.  
 E) All of the answers are correct.

14. If the public's currency ratio (cr) is 20% and the banks' desired reserve ratio (rr) is 5%, then an increase in high-powered monetary base (H) of \$100 will result in an increase in deposits by \_\_\_\_ and \_\_\_\_.
- A) \$480; no change in public cash holdings.  
**B) \$384; an increase in the public's cash holdings by \$96.**  
 C) \$325; an increase in the public's cash holdings by \$65.  
 D) \$300 and an increase in the public's cash holdings by \$60.  
 E) None of the answers is correct.
15. The banking system finds that its desired reserve ratio is 8% (or 0.08), and it is \$100 million short of reserves. If it is unable to obtain any additional reserves, it must decrease its money supply by
- A) \$100 million.  
 B) \$1,000 million.  
**C) \$1,250 million.**  
 D) \$1,600 million.  
 E) None of the answers is correct.
16. Consider a one-year bond with a principal or face value of \$100 and a coupon value of \$5. Which of the following statements is (are) CORRECT?
- A) If the interest rate is 10%, the present value of this bond is \$98.5.  
**B) If the interest rate is 12%, the present value of this bond is \$93.75.**  
 C) If the interest rate is 20%, the present value of this bond is \$82.75.  
 D) If the interest rate is 25%, the present value of this bond is \$80.77.  
 E) All of the answers are correct.
17. If funds in the overnight loans market are trading above the overnight rate target, then the Bank of Canada will \_\_\_\_ to \_\_\_\_ and \_\_\_\_ the overnight market rate.
- A) Conduct an SPRA; decrease the monetary base; push down  
 B) Conduct an SPRA; increase the monetary base; push up  
 C) Conduct an SRA; increase the monetary base; push up  
 D) Conduct an SRA; decrease the monetary base; push down  
**E) None of the answers is correct.**
18. Assume that the following data characterize a hypothetical economy: money supply = \$200 billion; quantity of money demanded for transactions = \$150 billion; quantity of money demanded as an asset = \$25 billion at 14 percent interest, increasing by \$5 billion for each 2-percentage point fall in the interest rate. The equilibrium interest rate is equal to \_\_\_\_.
- A) 2%.  
 B) 3%.  
**C) 4%.**  
 D) 4.5%.  
 E) 5.5%.
19. The demand for money is given as  $M_d = 1,910 - 110i$ , where  $M_d$  is the quantity of money demanded (in billions of dollars) and  $i$  is the interest rate in percentage points. For example, if  $i = 2\%$ , leave  $i = 2$ . The supply of money is set at \$700 billion. Suppose that all demand deposits are held in commercial banks, and that all commercial banks have a fractional reserve ratio equal to 50%. The initial equilibrium interest rate is equal to \_\_\_\_, and if the Bank of Canada wants the interest rate to be 9%, it should \_\_\_\_ bonds in the amount of \_\_\_\_ billion of dollars.
- A) 3%; buy; \$700  
 B) 5%; sell; \$700  
**C) 11%; buy; \$110**  
 D) 11%; sell; \$700  
 E) 11%; buy; \$220
20. Interest parity occurs when:
- A) The expected rate of change in the exchange rate equals the difference in interest rates between countries.**  
 B) The actual future exchange rate has to be exactly equal to the expected future exchange rate.  
 C) The differences between nominal interest rates among countries are offset by differences in national inflation rates.  
 D) The nominal interest rates of two or more countries are equal.  
 E) Both A and B are correct.

21. Under a flexible exchange rate system, a reduction in US interest rates relative to Canadian interest rates would:
- Increase the Canadian current account balance.
  - Decrease the Canadian capital account balance.
  - Decrease the Canadian current account balance.
  - Lead to an overall balance of payment deficit.
  - Both A and B are correct.
22. Suppose a worsening EU debt crisis causes financial traders to flock to buy US\$. Under a fixed exchange rate system with the US\$, the Bank of Canada would have to \_\_\_. As a result, the Canadian dollar would \_\_\_\_, and our exports to the EU would \_\_\_.
- Sell C\$; appreciate; rise.
  - Buy C\$; depreciate; fall.
  - Sell US\$ reserves; appreciate; fall.
  - Buy US\$ reserves; depreciate; rise.
  - None of the answers is correct.
23. Under flexible exchange rates, a fiscal contraction that pushes interest rates \_\_\_\_ will crowd \_\_\_\_ net exports through \_\_\_\_\_. To minimize this effect, the central bank of this country could \_\_\_\_ money supply.
- Up; out; an appreciation of the domestic currency; decrease
  - Up; out; an appreciation of the domestic currency; increase
  - Up; in; a depreciation of the domestic currency; decrease
  - Down; in; a depreciation of the domestic currency; increase
  - Down; in; a depreciation of the domestic currency; decrease
24. If capital stock increases at the same rate as labour supply, then according to the concept of \_\_\_\_\_, per capita output will \_\_\_\_\_.
- Diminishing marginal product; fall
  - Diminishing marginal product; stay constant
  - Diminishing marginal product; grow at the rate of the labour supply increase
  - Constant returns to scale; stay constant
  - Constant returns to scale; rise
25. Suppose technology were constant while labour force grew at a rate of 3.3 percent a year, capital stock grew at 1.8 percent per year, and the share of labour income in national income was 60 percent, how fast would potential GDP grow?
- 1.35%.
  - 2.45%.
  - 2.7%.
  - 3.55%.
  - 5.1%.

## **Part II: Conceptual Questions (Previously True-False questions) (Total=25 marks).**

**For questions 26-30, refer to Concept #1:**

### **Concept #1: Goods Market, Economic fluctuations and Long Run Growth:**

26. The  $Y=AE$  model assumes that the prices of goods and services are \_\_\_\_\_ and that input prices (such as wages) are \_\_\_\_\_. As a result, it is a \_\_\_\_\_ model.
- Fixed; fixed; demand-driven
  - Flexible; fixed; demand-driven
  - Fixed; flexible; demand-driven
  - Flexible; fixed; supply-driven
  - Fixed; fixed; supply-driven
27. A rise in investment confidence is shown by
- An upward shift in the AE curve.
  - A downward shift in the 45-degree line.
  - A steeper AE curve without any shifts.
  - A flatter AE curve without any shifts.
  - A flatter AE curve and also an upward shift.

28. The higher the MPS, the \_\_\_\_ is the MPC, and the \_\_\_\_ is the goods market multiplier.  
 A) Higher; smaller  
 B) Higher; larger  
 C) Lower; smaller  
 D) Lower; larger  
 E) The goods market multiplier is not related to the size of the MPS.
29. The higher the MPS, the \_\_\_\_ is the AE curve, and the \_\_\_\_ is the fluctuation in the short run GDP.  
 A) Flatter; smaller  
 B) Flatter; larger  
 C) Steeper; smaller  
 D) Steeper; larger  
 E) The fluctuation in short run GDP is not related to the size of the MPS.
30. In the long run, the higher the MPS, the \_\_\_\_ is the growth rate in potential  $Y_p$  because \_\_\_\_ is affected.  
 A) Lower; capital accumulation  
 B) Higher; capital accumulation  
 C) Lower; labour supply  
 D) Higher; Solow's growth residual  
 E) The growth rate in potential  $Y_p$  is not related to the size of the MPS.

**For questions 31-35, refer to Concept #2:**

**Concept #2: Money Market, Interest Rates and Bond Prices**

31. If the public decides to hold more cash as a percentage of their deposit balances, the money market multiplier will be \_\_\_\_, and for a given monetary base, the money supply is \_\_\_\_.  
 A) Larger; larger  
 B) Larger; smaller  
 C) Smaller; larger  
 D) Smaller; smaller  
 E) Smaller; constant
32. A central bank can control which component(s) of the money market?  
 A) Desired reserve ratio.  
 B) Currency or cash drain ratio.  
 C) Monetary base.  
 D) Only A and B.  
 E) A, B and C can be controlled.
33. An excess demand for money will cause bond prices to \_\_\_\_, interest rates to \_\_\_\_, and investment expenditure to \_\_\_\_.  
 A) Fall; fall; fall  
 B) Fall; fall; rise  
 C) Fall; rise; fall  
 D) Rise; fall; fall  
 E) Rise; fall; rise
34. Which of the following statement(s) is (are) CORRECT?  
 A) When the interest rate rises, it has no effect on investment expenditure if this person has all the money needed to start his project.  
 B) When the interest rate rises, it becomes more expensive to borrow, and fewer investment projects are undertaken.  
 C) In macroeconomics, investment expenditure refers to people putting money into bonds, stocks and mutual funds. Hence, when the interest rate rises, people invest more.  
 D) Only A and B are correct.  
 E) A, B and C are correct.

35. Suppose the Bank of Canada conducts its monetary policies by following the equation  $M = M_0 - \gamma(Y - Y_p)$ , where  $\gamma$  is a positive parameter, we can deduce that:
- A) M is equal to  $M_0$ , if Y is less than  $Y_p$ .
  - B) M is less than  $M_0$ , if Y is equal to  $Y_p$ .
  - C) M is greater  $M_0$ , if Y is greater than  $Y_p$ .
  - D) M is less than  $M_0$ , if Y is less than  $Y_p$ .
  - E) M is greater than  $M_0$ , if Y is less to  $Y_p$ .**

**For questions 36-40, refer to Concept #3:**

**Concept #3: Exchange Rate Systems and the Canadian Economy**

36. Western Canada (such as Alberta) exports fuel products to the world. Assume that fuel products have a large effect on aggregate demand but a small effect on aggregate supply. If the world demand for fuel products rises because of rapid economic growth in countries such as China and India, this implies that the Canadian dollar will \_\_\_\_\_ and the inflation rate in Western Canada will \_\_\_\_\_.
- A) Appreciate; fall
  - B) Appreciate; rise**
  - C) Depreciate; fall
  - D) Depreciate; rise
  - E) Depreciate; stay constant
37. Central Canada (such as Ontario and Quebec) exports manufactured goods and the fact that about 75% of our goods are exported to the U.S., we can conclude that the Western Canadian economy is indirectly \_\_\_\_\_ the Central/Eastern Canadian economy. The inflation rate in Central Canada will \_\_\_\_\_.
- A) Helping; fall
  - B) Helping; rise
  - C) Hurting; fall**
  - D) Hurting; rise
  - E) Hurting; stay constant
38. If the Bank of Canada were to minimize GDP fluctuations in Western Canada, it should \_\_\_\_\_ its target overnight interest rate. This change in the overnight interest rate will \_\_\_\_\_ the exports of Central Canada to the U.S. because the Canadian dollar is likely to \_\_\_\_\_.
- A) Cut; increase; depreciate
  - B) Cut; decrease; appreciate
  - C) Raise; increase; depreciate
  - D) Raise; decrease; appreciate**
  - E) None of the answers is correct
39. If the Bank of Canada were to minimize GDP fluctuations in Central Canada, it should \_\_\_\_\_ its target overnight interest rate. This change in the overnight interest rate will \_\_\_\_\_ the exports of Western Canada to the world because the Canadian dollar is likely to \_\_\_\_\_.
- A) Cut; increase; depreciate**
  - B) Cut; decrease; appreciate
  - C) Raise; increase; depreciate
  - D) Raise; decrease; appreciate
  - E) None of the answers is correct
40. If Canada had a fixed exchange rate system by fixing the conversion rate between the Canadian dollar and the U.S. dollar, the above fluctuations in the value of the Canadian dollar could have been avoided. However, a fixed exchange rate also has its costs. Which of the following describe(s) a fixed exchange rate system?
- A) The Bank of Canada may have to import inflation from the U.S.**
  - B) If financial traders in the world persistently sell off U.S. dollars, the Bank of Canada may run out of U.S. reserves and may be forced to give up our fixed exchange rate system.
  - C) With a fixed exchange rate system, fiscal policies are less effective than monetary policies.
  - D) With a fixed exchange rate system, the Purchasing Power Parity theory will always hold.
  - E) All of the answers are correct.

**For questions 41-45, refer to Concept #4:**

**Concept #4: Leakages, Injections, and Trade Imbalances**

41. Which of the following is (are) leakages from an economy?  
A) Consumption expenditures.  
B) Government expenditures.  
C) Investment expenditures.  
**D) Imports.**  
E) A, B and C are correct.
42. Which of the following is (are) injections into an economy?  
**A) Consumption.**  
B) Taxes.  
C) Private Savings.  
D) Imports.  
E) B, C and D are correct.
43. Which of the following describes NX in an open economy with government? Note that  $S_p$ =private savings,  $I$ =investment expenditure,  $T$ =tax revenue and  $G$ =government expenditure.  
A)  $NX = (S_p + I) - (T + G)$ .  
B)  $NX = (S_p - T) + (I - G)$ .  
**C)  $NX = (S_p - I) + (T - G)$ .**  
D)  $NX = (S_p - G) + (I - T)$ .  
E) None of the answers is correct.
44. Canada has been running a trade deficit in 2009 and part of 2010. In order to narrow this trade deficit, the Canadian government should:  
A) Cut taxes and private savings.  
B) Cut taxes and raise private savings.  
**C) Raise taxes and cut government expenditure.**  
D) Raise investment expenditure and government expenditure.  
E) Raise investment expenditure and cut taxes.
45. Canada has been running a trade deficit in 2009 and part of 2010. In this time period, Canada's capital account was likely to be \_\_\_\_\_, implying that there were net capital \_\_\_\_\_ Canada. Our balance of payments were \_\_\_\_\_.  
**A) Positive; inflow into; equal to zero**  
B) Positive; outflow from; positive  
C) Negative; inflow into; equal to zero  
D) Negative; outflow from; negative  
E) Negative; outflow from; equal to zero

**For questions 46-50, refer to Concept #5:**

**Concept #5: Budget Balance, Structural Budget Balance, and Fiscal Policies**

46. For a given decrease in autonomous expenditure, economies with lower income tax rate  $t$  will:  
A) Experience smaller business cycle fluctuations in real GDP and employment.  
B) Experience smaller business cycle fluctuations in real GDP but not employment.  
**C) Experience larger business cycle fluctuations in real GDP and employment.**  
D) Experience larger business cycle fluctuations in real GDP but not in employment.  
E) Experience larger business cycle fluctuations in real GDP and employment only if the government runs a balanced budget.
47. Between 2005 and 2006, if Canada's structural primary budget balance changed from -\$10 billion to -\$12 billion, then which of the following is (are) CORRECT?  
A) The Canadian dollar must have appreciated.  
B) The interest payments on public debt must have increased.  
C) The economy was in a temporary recession.  
**D) The government had conducted expansionary fiscal policies.**  
E) Only B and C are correct.

48. The direction of discretionary fiscal policy cannot be examined by the simple look at the changes in the BB equation. This is because:
- A) Those changes may reflect the changes in the general price level.
  - B) Those changes may reflect the changes in the tax revenues as a result of a change in the money market multiplier.
  - C) Those changes may reflect changes in the tax revenues as a result of a change in potential GDP.
  - D) Those changes may reflect changes in the tax revenues as a result of a change in actual GDP.**
  - E) All of the answers are correct.
49. Assume that the tax rate  $t$  is 0.25,  $Y_p$  is \$8,000 and  $G$  is \$1,500. Which of the following statements is (are) CORRECT?
- A) The SBB is \$100.
  - B) With negative GDP gap of 25%, the budget balance is -\$250.
  - C) With positive GDP gap, the SBB will be smaller than \$100.
  - D) When  $Y$  is \$6,000,  $BB=0$ .**
  - E) B and C are correct.
50. In 2009 to 2010, Canada went through a recession. If neither the government nor the central bank intervened in the economy, what will happen in the long run?
- A) Input prices, such as wages, will fall, and the AS curve shifts to the right.**
  - B) Input prices, such as wages, will rise, and the AS curve shifts to the left.
  - C) Input prices, such as wages, will fall, and the AD curve shifts to the right.
  - D) Input prices, such as wages, will rise, and the AD curve shifts to the left.
  - E) Goods and services prices will fall, and the AD curve will shift back to its original pre-recession position.

### **Part III: Analytical Questions (Total=60 marks).**

**For questions 51-62, refer to the following (Taylor Rule):**

The Taylor rule states that a central bank can monitor inflation and GDP by following the equation given by  $i = i_0 + (\pi - \pi^*) + (Y - Y_p)$ . In reality, the Bank of Canada does seem to follow this rule, and set a targeted inflation rate  $\pi^*$ . For this question, suppose  $\pi^* = 2\%$ . Suppose the current inflation  $\pi = \pi^*$ ,  $Y = Y_p$  and  $i_0 = 10\%$ .

51. The value of  $i$  is \_\_\_\_.
- A) 8%
  - B) 9%
  - C) 10%**
  - D) 11%
  - E) 12%
52. Now suppose a drop in investment confidence leads to  $Y - Y_p = -3\%$ . Let us put aside inflation rates for now. The economy has a \_\_\_\_ gap, which is represented by \_\_\_\_ shift in the AD curve.
- A) Recessionary; a leftward**
  - B) Recessionary; a rightward
  - C) Inflationary; a leftward
  - D) Inflationary; a rightward
  - E) Recessionary; no shift
53. According to Taylor rule, and putting aside inflation rates for now, the BOC should set the new  $i$  to become \_\_\_\_.
- A) 3%
  - B) 4%
  - C) 5%
  - D) 6%
  - E) 7%**
54. When the interest rate  $i$  drops, the AE curve will \_\_\_\_.
- A) Shift upward**
  - B) Shift downward
  - C) Not shift but become flatter
  - D) Not shift but become steeper
  - E) Shift to the right and become flatter

55. When interest rates  $i$  drops, the AD curve will \_\_\_\_\_. With an upward-sloping AS curve, prices will \_\_\_\_\_.
- A) Shift to the left; rise
  - B) Shift to the left; fall
  - C) Shift to the left; stay constant
  - D) Shift to the right; rise**
  - E) Shift to the right; fall
56. Suppose  $\pi = \pi^* - 0.5\Delta i$ . What is the new  $\pi$ ?
- A) 3%.
  - B) 3.5%.**
  - C) 4%.
  - D) 4.5%.
  - E) 5%.
57. Suppose the Bank knew that the  $\pi$  would change. In order to balance between inflation and GDP targets, it has to set a new interest rate weighing both of these effects. What is the new  $i$  that the Bank should set, knowing that  $\pi = \pi^* - 0.5\Delta i$ ? [Hint: Solve the new  $i$  as an unknown.]
- A) 8%.**
  - B) 8.5%.
  - C) 9%.
  - D) 9.5%.
  - E) None of the answers is correct.
58. Given your answer in the previous question, what is the corresponding inflation rate?
- A) 2%.
  - B) 2.5%.
  - C) 3%.**
  - D) 3.5%.
  - E) None of the answers is correct.
59. Suppose the equation changes from  $\pi = \pi^* - 0.5\Delta i$  to  $\pi = \pi^* - \Delta i$ . The inflation rate  $\pi$  is \_\_\_\_\_ sensitive to interest rate changes, and as a result, the new interest rate that the Bank has to set should be \_\_\_\_\_ the value we have found in #57.
- A) More; higher than**
  - B) More; lower than
  - C) Less; higher than
  - D) Less; lower than
  - E) Less; equal to
60. Compare your answers from #51 and #57: According to the Interest Rate Parity equation, we expect a future \_\_\_\_ in the Canadian dollar and our future net exports to \_\_\_\_\_.
- A) Depreciation; rise
  - B) Depreciation; fall
  - C) Appreciation; rise
  - D) Appreciation; fall**
  - E) Appreciation; remain constant
61. Compare your answers from #51 and #57: Given the change in the interest rate, the value of our current account should \_\_\_\_\_ and the value of our capital account should \_\_\_\_\_.
- A) Rise; fall**
  - B) Rise; rise
  - C) Fall; fall
  - D) Fall; rise
  - E) Remain constant; fall
62. If our capital account has a \_\_\_\_\_ value, we are a \_\_\_\_\_ to the rest of the world. Our balance of payment value will be \_\_\_\_\_.
- A) Negative; borrower; negative
  - B) Negative; lender; positive
  - C) Positive; borrower; zero**
  - D) Positive; lender; zero
  - E) Positive; borrower; positive

**For questions 63 to 74, refer to the following (Contrasting Fiscal and Monetary Policies):**

A simplified economy is specified as below.

I. Goods market, all values of C, I, G and NX are in billions of C\$:

Consumption expenditure:	$C = 150 + 0.8(Y-T)$	Lump-sum constant taxes:	$T = 300$
Investment expenditure:	$I = 1,100 - 460i$	Exports:	70
Government expenditure:	$G = 300$	Imports:	10

II. Money market, all  $M^d$  values are in billions of C\$: Define interest rate  $i$  as 0.1, not 10.

Interest rate:  $i = 0.1$  (which is 10%)      Money demand:  $M^d = 840 - 1,800i$

63. What is the equilibrium  $Y$ ?  
A) 5,850.  
B) 6,620.  
C) 6,750.  
D) 7,000.  
E) 8,310.
64. What is the equilibrium money supply?  
A) 550.  
B) 610.  
C) 660.  
D) 700.  
E) 725.
65. What is the equilibrium consumption expenditure?  
A) 5,206.  
B) 5,774.  
C) 6,213.  
D) 6,450.  
E) 7,250.
66. What is the equilibrium investment expenditure?  
A) 975.  
B) 1,025.  
C) 1,054.  
D) 1,228.  
E) 2,190.
67. What is the value of the goods market multiplier?  
A) 2.5.  
B) 4.  
C) 5.  
D) 6.67.  
E) 8.
68. Suppose  $G$  rises to 410 because of increased expenditure on health services. What is the equilibrium  $Y$ ?  
A) 7,170.  
B) 7,950.  
C) 8,410.  
D) 9,310.  
E) 9,825.
69. As  $G$  rises from 300 to 410, round 1 dictates that  $\Delta G = \Delta Y = 110$ , or 110 units of health services will be created. Suppose these health services workers spend their new income on clothing following the consumption expenditure equation given above. This round 2 effect implies that \_\_\_\_ clothing will be produced.  
A) 66.  
B) 82.5.  
C) 88.  
D) 93.5.  
E) 105.

70. Continue from #69: Suppose the clothing workers spend their income on buying food. Round 3 effect implies that \_\_\_\_ units of food will be produced.  
 A) 39.6.  
 B) 49.5.  
 C) 52.8  
 D) 84.  
**E) None of the answers is correct.**
- 71: Continue from #69 and #70: If we continue with these rounds, we expect the total increase in Y to be equal to \_\_\_\_.  
 A) 110.  
 B) 330.  
 C) 440.  
**D) 550.**  
 E) None of the answers is correct.
72. In this model, we know that crowding-out effects \_\_\_\_\_ exist because of the \_\_\_\_ equation.  
 A) Do; money demand  
**B) Do not; money demand**  
 C) Do; consumption  
 D) Do not; consumption  
 E) Do; tax equation
73. Now consider monetary policies only. Suppose the BOC wants to cut interest rate  $i$  to 0.05 or 5%, with G still at 300. What is the new value of investment expenditure?  
**A) 1,077.**  
 B) 1,760.  
 C) 1,892.  
 D) 2,348.  
 E) 2,760.
74. Given the new, lower interest rate, what is the equilibrium Y?  
 A) 6,000.  
 B) 6,230.  
**C) 6,735.**  
 D) 7,255.  
 E) 8,650.

**For questions 75 to 86, refer to the following (Real Exchange Rates and PPP):**

Suppose that in 2002, the price levels in the United States and Australia were 100. By 2006, the price level in the United States has increased to 150, while the price level in Australia has risen to 230. Suppose the nominal exchange rate between two countries in 2002 was  $\$1\text{USD} = \$1.2\text{AUD}$ .

75. What is the inflation rate of the United States between 2002 and 2006?  
 A) 20%.  
 B) 30%.  
 C) 40%.  
**D) 50%.**  
 E) 60%.
76. What is the inflation rate of Australia between 2002 and 2006?  
 A) 50%.  
 B) 80%.  
**C) 130%.**  
 D) 150%.  
 E) 180%.

77. What is the 2002 real exchange rate, from the perspective of Australia?  
 A) 0.85.  
 B) 0.95.  
 C) 1.10.  
 D) 1.15.  
**E) 1.20.**
78. What must be the new nominal exchange rate in 2006 if the real exchange rate had remained constant at the 2002 level (from the perspective of Australia)?  
**A) 1.84.**  
 B) 1.925.  
 C) 2.0.  
 D) 2.175.  
 E) 2.28.
79. Suppose Australia had a fixed exchange rate system against the US dollar. The initial nominal exchange rate in 2002 was fixed. Australia would have experienced a real exchange rate \_\_\_\_ because its real exchange rate would be equal to \_\_\_\_.  
 A) Appreciation; 1.9  
 B) Appreciation; 1.25.  
**C) Appreciation; 0.78.**  
 D) Depreciation; 2.35.  
 E) Depreciation; 2.58.
80. Continue with #79: Given the new real exchange rate change you have found in #79, Australia's net exports are likely to \_\_\_\_, and Australia's \_\_\_\_ curve would have shifted.  
 A) Rise; AS  
 B) Rise; AD  
 C) Rise; LAS  
 D) Fall; AS  
**E) Fall; AD**
81. Because the Australian dollar is \_\_\_\_, Australia is likely to be under \_\_\_\_\_.  
 A) Undervalued; a recessionary gap  
 B) Undervalued; an inflationary gap  
**C) Overvalued; a recessionary gap**  
 D) Overvalued; an inflationary gap  
 E) Correctly valued; full employment.
82. From 2002 to 2006, what actions must the Bank of Australia have taken in order to maintain the fixed exchange rate?  
 A) Bought US\$ reserves only.  
 B) Bought US\$ reserves and sold Australian dollar.  
 C) Sold US\$ reserves only.  
**D) Sold US\$ reserves and bought Australian dollar.**  
 E) No Bank of Australia intervention was required.
83. The Bank of Australia may eventually have to abandon its fixed exchange rate system because  
**A) It may run out of US\$ reserves to sell.**  
 B) It may experience even higher inflation in Australia.  
 C) It may experience an even larger inflationary gap in Australia.  
 D) B and C are correct.  
 E) A, B and C are correct.
84. According to the Purchasing Power Parity, what is the nominal exchange rate in 2006?  
 A) 1.22.  
 B) 1.45.  
**C) 1.53.**  
 D) 1.62.  
 E) 1.76.

85. According to the Purchasing Power Parity, what is the real exchange rate in 2006?  
 A) 0.75.  
 B) 0.85.  
 C) 1.00.  
 D) 1.15.  
 E) Cannot be determined with given information.
86. Purchasing Power Parity requires which of the following condition(s) to hold?  
 A) No transportation costs.  
 B) No trade impediments such as import taxes or import quantity restrictions.  
 C) All goods and services are tradeable.  
 D) All goods and services are of similar quality.  
 E) All of the answers are correct.

**For questions 87 to 98, refer to the following (Inflation, Interest Rates and Money Market):**

**I. Inflation and Interest Rates**

Consider the year-to-year inflation rates in Atlantis for the following years. All the data have been measured at the end of each year.

Year	Inflation Rate	CPI	Nominal Wage	Real Wage
2000	---	100	\$ 15.00	\$15.00
2001	5%		\$ 16.00	
2002	10%		\$ 17.00	

87. What is the CPI for the year 2001?  
 A) 103.  
 B) 104.  
 C) 105.  
 D) 106.  
 E) 107.
88. What is the CPI for the year 2002?  
 A) 105.  
 B) 107.5.  
 C) 115.  
 D) 115.5.  
 E) None of the answers is correct.
89. What is the real wage for the year 2001?  
 A) 13.64.  
 B) 13.91.  
 C) 15.24.  
 D) 16.80.  
 E) 18.40.
90. What is the real wage for the year 2002?  
 A) 14.72.  
 B) 14.78.  
 C) 16.19.  
 D) 17.85.  
 E) 19.64.
91. Consider the years 2000 and 2001: Given the nominal wages in 2000 and 2001, what must be the value of the CPI in 2001 so that the real wage in 2001 remains at \$15?  
 A) 102.25.  
 B) 106.67.  
 C) 157.50.  
 D) 168.  
 E) 184.

92. Suppose you borrowed \$100 from a commercial bank in the beginning of 2002 and have to pay back \$108 in the end of 2002. What is the real interest rate on your loan?
- A) 2%.
  - B) 5%.
  - C) -7.5%.
  - D) -2%.**
  - E) None of the answers is correct.

Part II: Money Market

Assume the desired reserve ratio is 10% for a specific Canadian bank, and the cash drain ratio = 0.

Assets		Liabilities	
Reserves	\$ 5,000	Deposits	\$100,000
Loans	\$95,000		

93. What is the amount of excess reserves?
- A) \$5,000.
  - B) \$10,000.
  - C) -\$5,000.**
  - D) -\$10,000.
  - E) \$90,000.
94. By what amount should this bank change its loans?
- A) Expand by \$50,000.
  - B) Expand by \$100,000.
  - C) Contract by \$5,000.**
  - D) Contract by \$10,000.
  - E) Expand by \$900,000.
95. Assume that all other banks in Canada have the same practice as this bank, what will be the eventual change in the money supply in the entire banking system?
- A) Expand by \$50,000.
  - B) Expand by \$500,000.
  - C) Contract by \$50,000.**
  - D) Contract by \$100,000.
  - E) Expand by \$9,000, 000.
96. If the cash drain ratio were positive rather than equal to zero, how would your answer in #95 change?
- A) Expand by more than \$50,000.
  - B) Expand by more than \$500,000.
  - C) Contract by less than \$50,000.**
  - D) Expand by less than \$9,000, 000.
  - E) None of the answers is correct.
97. In the absence of the Bank of Canada intervention, the money supply in Canada will \_\_\_ and interest rates will \_\_\_.
- A) Increase; increase
  - B) Increase; decrease
  - C) Decrease; increase**
  - D) Decrease; decrease
  - E) Stay constant; increase.
98. If the BOC were to prevent this interest rate change from happening, what should it do?
- A) Conduct an SRA.
  - B) Sell bonds in the open market.
  - C) Introduce a required reserve ratio of 5%.
  - D) Decrease the monetary base.
  - E) None of the answers is correct.**

**For questions 99 to 110, refer to the following (Okun's Law, Budget Balance and Exchange Rate Systems):**

The table below gives information for the potential output  $Y_p$  and real output  $Y$  values for a fictitious country.

Year	Potential $Y_p$ (\$ million)	Growth in $Y_p$ (%)	Real $Y$ (\$ million)	Growth in $Y$ (%)	Unemployment Rate (%)
2005	1,160	-----	1,160	-----	9.63
2006	1,171.6		1,212.2		
2007	1,133.52		1,227.35		
2008	1,161.86		1,224.28		

99. What is the growth in  $Y_p$  (%) for the year 2005-2006?

- A) 1%.
- B) 1.5%.
- C) 2%.
- D) 2.5%.
- E) 3%.

100. What is the growth in  $Y_p$  (%) for the year 2006-2007?

- A) 2.4%.
- B) -2.4%.
- C) 3.25%.
- D) -3.25%.
- E) 3.36%.

101. What is the growth in  $Y_p$  (%) for the year 2007-2008?

- A) 2.44%.
- B) 2.5%.
- C) 2.68%.
- D) 3.25%.
- E) 3.36%.

102. What is the growth in  $Y$  (%) for the year 2005-2006?

- A) 3.45%.
- B) 4.31%.
- C) 4.5%.
- D) 5.22%.
- E) 5.75%.

103. What is the growth in  $Y$  (%) for the year 2006-2007?

- A) 1%.
- B) 1.25%.
- C) 1.5%.
- D) 1.75%.
- E) 2%.

104. What is the growth in  $Y$  (%) for the year 2007-2008?

- A) -4.08%.
- B) -3.22%.
- C) -2.58%.
- D) -1.45%.
- E) -0.25%.

105. What is the unemployment rate for the year 2006?

- A) 6.55%.
- B) 7.88%.
- C) 8.11%.
- D) 8.35%.
- E) 9.23%.

106. What is the unemployment rate for the year 2007?  
 A) 5.63%.  
 B) 6.38%.  
 C) 7.21%.  
 D) 8.22%.  
 E) 9.78%.
107. What is the unemployment rate for the year 2008?  
 A) 5%.  
 B) 5.5%.  
 C) 6%.  
 D) 6.5%.  
 E) 7%.
108. Suppose the economy is currently under an inflationary gap due to consumer optimism. For simplicity, suppose  $BB=SBB=0$  before this economic boom.  $BB$  will be \_\_\_\_ (in absolute term) than  $SBB$  under this economic boom, prior to any policy interventions. This is because \_\_\_\_.  
 A) Larger;  $BB$  considers  $Y$ , and  $Y > Y_p$ .  
 B) Larger;  $SBB$  considers  $Y$ , and  $Y > Y_p$ .  
 C) Larger;  $SBB$  considers  $Y_p$ , and  $Y < Y_p$ .  
 D) Smaller;  $SBB$  considers  $Y_p$ , and  $Y > Y_p$ .  
 E) Smaller;  $BB$  considers  $Y$ , and  $Y > Y_p$ .
109. Continue with #108: In the long run, input prices such as wages will \_\_\_\_ in order to close this output gap. This will be represented by a \_\_\_\_ shift in the \_\_\_\_ curve.  
 A) Fall; rightward; AD  
 B) Fall; rightward; AS  
 C) Rise; leftward; AD  
 D) Rise; leftward; AS  
 E) Remain constant; rightward; LAS
110. Suppose this economy operates under a flexible exchange rate system. The central bank of this country can narrow this inflationary gap by \_\_\_\_ the target overnight interest rates. As a result, the currency of this country will \_\_\_\_ and its net capital inflow will \_\_\_\_.  
 A) Decreasing; depreciate; worsen  
 B) Decreasing; depreciate; improve  
 C) Increasing; appreciate; improve  
 D) Increasing; appreciate; worsen  
 E) Increasing; depreciate; improve

**Part IV: Answer the following question. ANSWER ALL PARTS (Total = 40 marks).**

In 2008, the credit crunch in the U.S. and E.U. banking systems has driven the world into a global recession. The credit crunch, or liquidity crisis, refers to the commercial banks lending massive amounts of money to their customers who subsequently were unable to repay their loans. As a result, the commercial banks were short of money. In this multiple-part question, we want to explore what has been happening in Canada since then. Assume that  $Y=Y_p$  in 2008, immediately before this banking crisis.

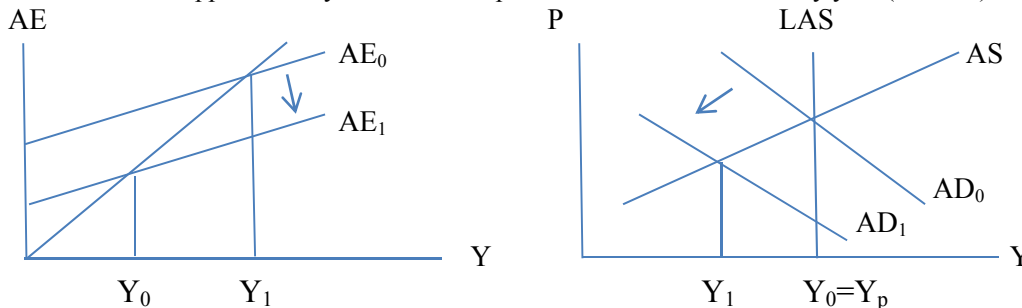
**Article 1: The 2008-2010 recession**

The Daily, Statistics Canada, January 13 2011, <http://www.statcan.gc.ca/daily-quotidien/110113/dq110113b-eng.htm>

The most striking feature of the 2008-2009 recession in Canada was the speed and severity of the contraction in our exports. Export earnings plunged 30% in less than six months, and ultimately fell nearly 40% before export growth resumed. In 2010, overall demand has recovered from its recession losses. The economy had stabilized in response to policy measures in Canada and abroad.

(i) Article 1: Canada's recession, policy interventions and recovery

(a) Use the  $Y=AE$  and  $AD/AS/LAS$  models to demonstrate and explain how the recession in the U.S. had affected our exports. Notice that approximately 75% of our exports are sold to the U.S. every year (2 marks).

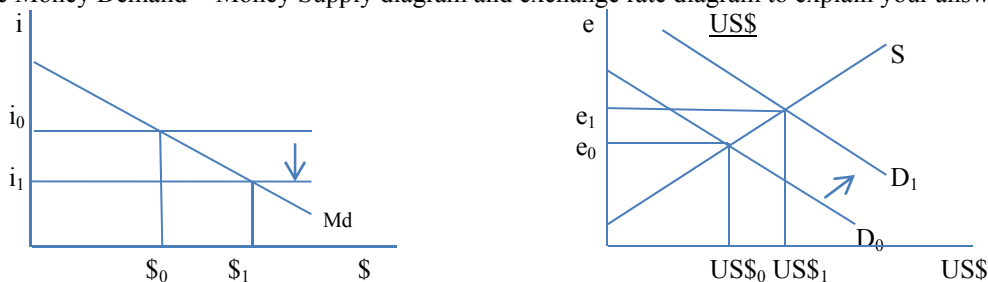


**Ans: Low income and demand in the US will negatively affect Canadian exports. The AE and AD functions shift down, as foreign demand for Canadian output decreases.**

(b) If you wish to minimize Canada's recession, would you prefer to see a high or low value for our marginal propensity to import (MPZ)? Write down the goods market multiplier and explain (2 marks).

**Ans: The multiplier is  $\frac{1}{1-MPC(1-t)+MPZ}$ . A small multiplier would lessen the negative effect of the decrease in export to the US. A high value for MPZ would decrease the multiplier. Intuitively, for every \$1 drop in our GDP we immediately import a whole lot less. As a result, the multiplying negative effect on Canada is smaller. A bigger portion of the drop in our GDP is due to our drop in imports, rather than Canadian C+I+G.**

(c) Monetary Policy Response: How should the Bank of Canada change the target overnight interest rate (ONR) in response to (a)? Explain how it can maintain this new ONR and how this new ONR will affect the value of the Canadian dollar. Use the Money Demand = Money Supply diagram and exchange rate diagram to explain your answers (4 marks).



**Ans: BOC should decrease ONR. To maintain this lower ONR, BOC may have to intervene in the overnight money market to keep  $i$  from rising. The BOC can conduct SPRA, special purchase and resale agreements, by buying assets from commercial banks for one night, inject them with money, and then sell them back the assets the following day. This temporary increase in  $M_s$ , which may last for a while, can keep ONR (borrowing costs) low.**

**The decrease in domestic interest rates will on impact make Canadian financial assets less profitable than US assets. The assets pay interests. This will lead to an increase in demand for US\$ to buy US assets, which will lead to an appreciation of the US\$. Equivalently, this is a depreciation in the C\$, or  $e$  rises.**

(d) Fiscal Policy Response: The Canadian government also intervened in order to minimize (a). It increased government expenditure and cut taxes. Explain how this would affect the budget balance (BB) and structural budget balance (SBB) of Canada. For simplicity, assume that BB and SBB were both equal to zero prior to this 2008 recession. Would BB or SBB see a larger change in value? Explain (2 marks).

**Ans:  $BB=t*Y - G$ ,  $SBB=t*Y_p - G$ . For the same fall in  $t$  and rise in  $G$ , because  $Y$  is less than  $Y_p$ , we know that BB will experience a larger change. As a result, the government may temporarily fall into a steep short run deficit.**

**Article 2: ECB's Liquidity Injection Spurs Markets**

Catherine Boyle, Feb 29, 2012, [http://www.cnbc.com/id/46568791/ECBrsquos\\_ForecastBeating\\_Liquidity\\_Injection\\_Spurs\\_Markets](http://www.cnbc.com/id/46568791/ECBrsquos_ForecastBeating_Liquidity_Injection_Spurs_Markets)

The second round of the European Central Bank's (ECB) mass release of loans into the European banking system was an addition of 444.5 billion euros – much larger than the 210 billion euros added in December 2011. This time, 800 banks around Europe took up the loans, up from 523 in December 2011.

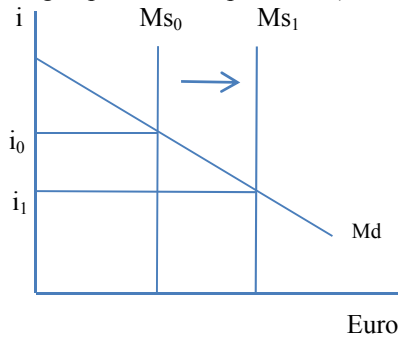
The euro fell (depreciated) slightly against the dollar after the ECB announcement.

Analysts welcomed the news but urged caution on its long-term effects.

The cheap long-term loans have helped stock markets around the world rally in 2012.

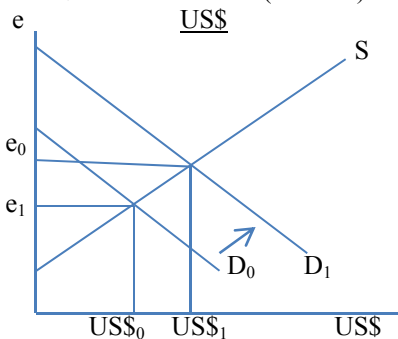
(ii) Article 2: E.U.'s monetary policy response and results.

(a) Use the money demand = money supply diagram to explain how the ECB can inject such money into the banking system through open market operations (2 marks).



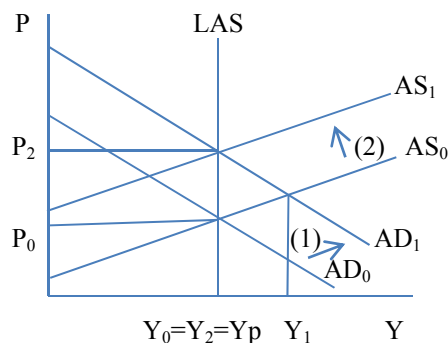
**Ans: The ECB can inject money into the financial market by buying bonds and assets of the banks and in return pump the banks with cash. This will push down interests.**

(b) Use the foreign exchange market to explain why the Euro depreciated against the U.S. dollar. Let e be defined as the price of 1US\$ in terms of Euro (2 marks).



**Ans: With lower interest rates offered by ECB and relatively greater returns offered by the US, financial investors will prefer US bonds and will sell euros to buy \$US. The demand for \$US increases which appreciates the \$US and depreciates the euro.**

(c) Use the AD/AS/LAS model to explain why analysts urged caution on the long-term effectiveness of this monetary policy on E.U.'s GDP (2 marks).



**Ans: The increase in money supply and decrease in interest rates will push AD upward. On impact, price levels will rise due to stronger economic growth. In the long run, however, workers also notice the rise in price level. They will ask for a proportional nominal wage increase. This in turn will shift AS to the left. In the end, when prices and wages are flexible, the net effect of monetary policy expansion is merely pushing up the price level, or inflation rate, without any changes in long run Y<sub>p</sub>.**

(d) Assume that bonds and stocks are substitutes, that is, people hold their wealth in the form of bonds or stocks. Explain why the stock markets rallied (stock prices increased) as a result of the ECB's intervention (4 marks).

**Ans: Because interest rates have dropped, assets that offer a fixed interest payment, such as fixed term deposits or different types of bonds, will become less profitable. Rather than buying and holding bonds that pay around 1% a year, people are more likely to take the risk and invest in stocks instead.**

**Article 3: Bank of Canada leans away from interest rate hike**

Jan 23, 2013, <http://www.cbc.ca/news/business/story/2013/01/23/business-canada-interest-rate.html>

The Bank of Canada (BOC) lowered its growth forecast for 2013 today, keeping its benchmark interest rate steady at one per cent for the 19th consecutive time.

Canada's economy can no longer count on household spending and the housing sector to propel it forward. The bank says Canadian household debt is stabilizing at around the record 165 per cent of annual disposable income.

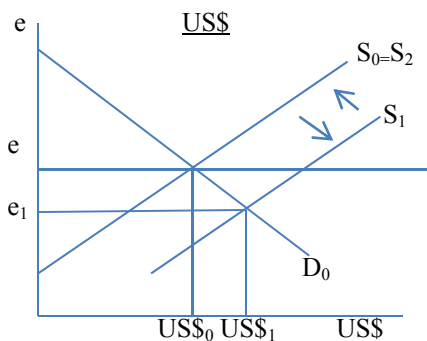
The bank ended its policy announcement by saying: "Some modest withdrawal of monetary policy stimulus will likely be required over time ... [but] the timing of any such withdrawal is less imminent than previously anticipated." In layman's terms, that's the bank's way of saying it is less likely to raise rates than it used to be.

(iii) Article 3:

- (a) Suppose the Canadian household debt were financed by borrowing from other countries. Explain how this would affect our current account, capital account, overall balance of payments, and the value of the Canadian dollar under a flexible exchange rate system (4 marks).

**Ans: Since our debt was financed by capital inflow from other countries, our capital account KA will be a large positive number. This implies that our current account CA is a large negative number of the same magnitude. Notice that  $KA > 0$  and  $CA < 0$  both mean that we are a borrowing country. Also,  $BP = CA + KA = 0$ , so BP is =0. When the foreign capital flows into Canada, more foreign currencies were converted into C\$, hence there was an increase in demand for C\$. C\$ would have appreciated at that time.**

- (b) Suppose Canada had a fixed exchange rate system instead, and our Canadian dollar were fixed against the U.S. dollar. The Canadian household debt was still financed by borrowing from other countries. Explain how the BOC would maintain our fixed exchange rate. Use the foreign exchange market diagram to support your answer (4 marks).



**Ans: With the inflow of foreign currencies, such as the US\$, into Canada to finance our borrowing, there was an increase in supply of US\$ from abroad. This on impact will create the pressure for the US\$ to depreciate. To stop this, the BOC has to buy or absorb the US\$ supplied. The BOC will accumulate more US\$ reserves.**

- (c) Suppose the BOC also wants to target our inflation rate to lie in between 1% and 3%. Explain why the BOC may not be able to maintain a fixed exchange rate and a targeted inflation rate simultaneously? Given (b), is the inflation rate in Canada likely to fall below 1% or rise above 3%? Explain (2 marks).

**Ans: When the BOC buys in US\$ it also sells C\$ to the people who supplied the US\$. This means an increase in supply of the C\$ in Canada. This will decrease the value of the C\$ in Canada, which means that the inflation rate in Canada will likely rise above 3%.**

**Article 4: University is still the surest path to prosperity**

The Globe and Mail, Published Monday, Sep. 03 2012, 2:00 AM EDT

While it is true that tuition has increased in recent years, so too has the value of a degree. The income premium of a university degree is large and growing. University graduates will on average earn \$1.3-million more during their careers than a high school graduate and \$1-million more than a college grad. And contrary to what you read in the papers, there are jobs for university graduates. Between July, 2008, and July, 2012, there were 700,000 new jobs for university graduates, compared with 320,000 for college grads and a net loss of 640,000 jobs for those without post-secondary education. In the next 20 years, six million Canadians are set to retire. Many of those jobs, as well as new jobs being created in an increasingly knowledge-driven world, will need to be filled by university graduates.

One of the greatest public policy achievements of the past three decades is expanded access to high-quality higher education. In 1980, only 10% of young people attended university – full-time enrolment has since increased so that this fall, 25% of young Canadians will be enrolled full-time.

(iv) Article 4:

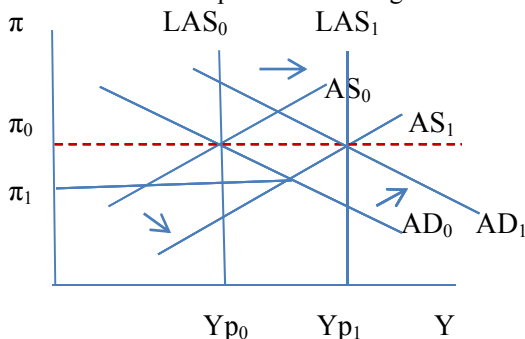
- (a) Write down the equation for total  $\% \Delta Y_p$  (not per-capita) and explain which component this article is referring to (3 marks).

**Ans: The growth equation is  $\frac{\Delta Y}{Y} = \frac{\Delta A}{A} + \alpha \frac{\Delta N}{N} + (1 - \alpha) \frac{\Delta K}{K}$ . The improvement in workers' skills and productivity through "high-quality higher education" is measured by the Solow residual,  $\frac{\Delta A}{A}$ . Greater labour productivity will lead to greater economic growth.**

- (b) Explain the concept of diminishing marginal returns and how the growth discussed in part (a) can prevent diminishing returns from occurring (3 marks).

**Ans: Diminishing marginal returns occur when the factors of production (N, K) are growing at different rates. An increase in the number of workers N will increase production, but if it is not matched by an increase in physical capital equipment K, the output will increase at lower and lower rates. If technological advancement, captured by a higher A, can compensate for the lower rate of growth in physical capital, both N and A+K can grow at the same rate, and therefore prevent diminishing returns from happening.**

- (c) Use the AD=AS=LAS diagram to show how this news would affect our long run inflation rate. If the Bank of Canada were to keep our current targeted inflation range of 1% to 3%, what should it do? Explain (4 marks).



**Ans: The rise in "A" will shift  $Y_p$  to the right in the long run. Graphically, this is represented by the rightward shifts in the short run AS and the long run AS curves. The price level or inflation rate will fall because the economy produces more output, and inflation is likely to fall below 1%. To keep the targeted range, the BOC would have to increase money supply, cut interest rates to stimulate AD. AD shifts up.**

The End...Have a Great Summer!

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