Concordia University
Department of Economics

ECON 203 – INTRODUCTION TO MACROECONOMICS

Fall 2014

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. This exam consists of four parts:
   (i) Part I: 15 multiple-choice questions (30 marks);
   (ii) Part II: Conceptual questions, transformed into 15 multiple-choice questions, (30 marks);
   (iii) Part III: Five algebraic questions, transformed into 25 multiple-choice questions, (50 marks), and
   (iv) Part IV: Multipart 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 paper dictionary.

5. You are not allowed to tear any pages out of this exam.

Grades:

Parts I+II+III: _____

Part IV: _____

Total: _____

Part I: Multiple Choice Questions (Total=30 marks).

1. A bakery sells its monthly output for $26,000. It pays $12,000 in wages to its workers, $4,000 in rent and $4,000 to its suppliers for materials, such as flour, sugar and oil. Its profit is $6,000. What is the bakery's value added?
   A) $6,000.
   B) $10,000.
   C) $20,000.
   D) $22,000.
   E) None of the answers is correct.

2. In 2013, Pluto's real gross domestic product (GDP) was $250 million. Plutonians earned $30 million on Mars and Martians earned $55 million on Pluto. What was Pluto's gross national product (GNP)?
   A) $15 million.
   B) $225 million.
   C) $275 million.
   D) $305 million.
   E) None of the answers is correct.

3. Which of the following is CORRECT?
   A) Unanticipated inflation benefits lenders.
   B) The higher the inflation rate, the higher the real interest rate.
   C) The higher a lump-sum tax, the smaller is the goods market multiplier.
   D) The larger the marginal propensity to consume, the larger the automatic stabilizer.
   E) The consumer price index is likely to overstate the actual increase in the cost of living.

4. Nominal wages are currently $10 per hour and the consumer price index (CPI) is 105. Unions want a new nominal wage for next year so that its members can continue to afford the same goods and services that they can buy now. If the union accepts a nominal wage of $12 per hour, it believes next year's CPI will be at most…
   A) 126.
   B) 130.
   C) 133.
   D) 138.
   E) 142.

5. The potential output curve is…
   A) Vertical because production costs are assumed to be constant.
   B) Vertical because it shows that price level changes will not affect the value of potential output, Yp.
   C) Upward-sloping because it shows that a higher price level will lead to higher real output.
   D) Upward-sloping because it shows that a higher price level will lead to higher nominal output.
   E) Both A and B are correct.

6. Which of the following is CORRECT about Yp?
   A) The natural rate of unemployment must be equal to zero.
   B) The actual rate of unemployment is higher than the natural rate of unemployment.
   C) The inflation rate must be equal to zero.
   D) There is no improvement in technology.
   E) Capital consumption allowance must be equal to zero.

7. Which of the following could explain the US running sizeable trade deficits (NX<0) between 1998 and 2008?
   A) Its tax cut for high-income earners.
   B) Its high private investment expenditure is due to high investment confidence.
   C) Its increase in fiscal spending on military programs.
   D) Its low private savings rates.
   E) All of the answers are correct.

8. The Greek government has cut expenditures on education, health care and the public sector pay in an effort to reign in its public debts. Which of the following will lessen the negative impact of these spending cuts on its GDP?
A) Their marginal propensity to import is very low.
B) Their income tax system is a lump sum system.
C) Their crowding-in effect is very strong.
D) Their marginal propensity to consume is very high.
E) Both B and C are correct.

9. The reason that the direction of discretionary fiscal policy cannot be examined simply by examining the changes in actual budget deficits or surpluses is that those changes may reflect changes in…
A) The general price level.
B) Tax revenues as a result of changes in actual GDP.
C) Tax revenues as a result of changes in exports.
D) Tax revenues as a result of changes in potential GDP.
E) All of the answers are correct.

10. Which of the following is NOT a function of money?
A) A store of value.
B) A unit of account.
C) A standard of deferred payments.
D) A means of investment to earn interest income.
E) A means of payment as a medium of exchange.

11. Suppose the money supply is $100 billion, the quantity of money demanded for transactions is $60 billion, and quantity of money demanded as an asset is $10 billion at 11 percent interest, increasing by $10 billion for each 2-percentage point fall in the interest rate. What is the equilibrium interest rate?
A) 1 percent.
B) 2 percent.
C) 3 percent.
D) 4 percent.
E) None of the answers is correct.

12. Suppose the home interest rate is 6 percent, the foreign interest rate is 8 percent and the current spot exchange rate is e_t=1.20 (i.e., from home's perspective, the price of a unit of the foreign currency is 1.20 units of the home currency). According to interest rate parity, the expected future nominal exchange rate, e_{t+1}, is ____ and the home currency is expected to _____ against the foreign currency.
A) 1.10; appreciate
B) 1.13; appreciate
C) **1.18; appreciate**
D) 1.22; depreciate
E) 1.30; depreciate

13. Which of the following statements is CORRECT?
A) Canada currently has a fixed exchange rate system.
B) An increase in Canada's money supply will lead to an appreciation in the Canadian dollar.
C) An increase in Canadian interest rates will lead to a net capital inflow and an appreciation of its dollar.
D) If the US increases its domestic money supply, the Canadian dollar will depreciate relative to the US dollar.
E) The Bank of Canada targets an inflation rate of zero percent.

14. If the capital stock and labour supply increase at the same rate, then according to the concept of ____, per capita output will ____.
A) Diminishing marginal product; fall.
B) Diminishing marginal product; stay constant.
C) Constant returns to scale; stay constant.
D) Constant returns to scale; grow at the rate of the capital stock increase plus the rate of labour supply increase.
E) None of the answers is correct.

15. Consider an economy with a production function $Y = AN^{2/3}K^{1/3}$, where Y is real GDP, A is technology, N is labour supply and K is capital supply. If Y grows at 5 percent and both K and N grow at 3 percent, then the growth rate of total factor productivity will be…
A) 1 percent.
B) 2 percent.
C) 5 percent.
D) 8 percent.
E) None of the answers is correct.

Part II: Conceptual Questions (Total=30 marks).

Questions 16–18 refer to Economic Fluctuations and Policy Responses

16. Canada's fiscal balance for 2014 has been revised from the previously forecasted –$12 billion to –$3 billion. As a result, the government will lower income tax rates for families in 2015. Canada's AE curve will ____ in 2015.
A) Shift up with the same slope.
B) Not shift up but will become flatter.
C) Not shift up but will become steeper.
D) Shift down with the same slope.
E) Shift down but will become flatter.

17. Continue with the previous question: On impact, Y will be ___ than AE, meaning inventory changes will be ____.
A) Smaller; positive.
B) Smaller; negative.
C) Larger; positive.
D) Larger; negative.
E) Larger; zero.

18. Continue with the previous question: If the Bank of Canada wants to keep its targeted inflation rate, it should _____ bonds to ____ the interest rate. The money supply will ____.
A) Buy; increase; increase
B) Buy; decrease; decrease
C) Sell; increase; increase
D) Sell; decrease; decrease
E) Sell; increase; decrease

Questions 19–21 refer to the Marginal Propensity to Save

19. Which of the following is (are) CORRECT about the marginal propensity to save (MPS)?
A) Both savings levels and the MPS can be negative at very low levels of Y.
B) The MPS is equal to zero at the intersection of the AE curve and the 45-degree line.
C) If the MPS is low, short run Y is likely to experience small fluctuations.
D) If the MPS is low, this country is likely to run a capital account surplus.
E) Only B and C are correct.

20. Which of the following is CORRECT about the marginal propensity to save (MPS)?
A) If the MPS is low, crowding-out effects are likely to be high.
B) If the MPS is low, monetary policy is more effective in affecting GDP.
C) If the MPS is low, this country is likely to run a balance of payments surplus.
D) If the MPS is low, capital stock accumulation is likely to be high.
E) None of the answers is correct.

21. In the short run, the lower the MPS, the ___ is the AE curve and the ___ is the short run Y. In the long run, the lower the MPS, the ____ is the growth rate in potential GDP.
A) Steeper; higher; lower
B) Steeper; higher; higher
C) Steeper; lower; lower
D) Steeper; lower; higher
E) Flatter; higher; lower

Questions 22–24 refer to the Balance of Payments

22. International financial markets like Indonesia's new democratically-elected president and are pouring money (US$) into its financial markets. For simplicity, let Indonesia's CA=KA=0 prior to this new inflow of money. How will this affect Indonesia?
A) Its currency, the rupiah, is likely to appreciate.
B) Its capital account is likely to become negative.
C) Its current account is likely to become positive.
D) Its inflation rate is likely to fall.
E) Both B and C are correct.

23. Continue with the previous question: If the Bank of Indonesia (BOI) wants to maintain its fixed exchange rate, it will have to ___ US$ and _____.
A) Sell; it will run out of US$ reserves.
B) Sell; the domestic money supply will fall.
C) Buy; it will run out of US$ reserves.
D) Buy; the domestic money supply will rise.
E) Buy; its real exchange rate will depreciate.

24. Continue with the previous question: If BOI interventions continue for a long time, Indonesia's real exchange rate will _____, which is _____ to their economy.
A) Appreciate; damaging.
B) Appreciate; beneficial.
C) Depreciate; damaging.
D) Depreciate; beneficial.
E) Stay constant; beneficial.

Questions 25–27 refer to Crowding Out and the Multiplier

25. Which of the following equations implies that a change in government expenditure will give rise to the largest crowding-out effects?
A) Md = 200 – 0.4*i* + 0.75Y.
B) Md = 550 – 0.25*i* + 0.2Y.
C) Md = 550 – 0.25*i* + 0.4Y.
D) Md = 900 – 0.02*i* + 0.2Y.
E) Md = 1,200 – 0.25*i* + 0.2Y.

26. Continue with the previous question: Crowding-out effects will _____ the size of the spending multiplier and _____ the size of the money multiplier.
A) Increase; increase.
B) Decrease; increase.
C) Increase; decrease.
D) Decrease; decrease.
E) None of the answers is correct.

27. Continue with the previous question: Which of the following is (are) CORRECT about crowding-out effects?
A) Such effects are not present under a fixed exchange rate system.
B) Such effects are not present under a flexible exchange rate system.
C) Such effects are small if the marginal propensity to import is high.
D) Such effects can be minimized by conducting fiscal policies.
E) None of the answers is correct.

Questions 28–30 refer to Real Exchange Rates and Arbitrage

28. To shrink the large trade deficits with China that it has run over the past decade. the US would like to see its dollar ____ against the Chinese currency and its inflation rate to be ____ the Chinese inflation rate.
A) Appreciate; higher than.
B) Appreciate; lower than.
C) Depreciate; higher than.
D) Depreciate; lower than.
E) Depreciate; the same as.

29. In London, one US dollar can buy 0.5 British pounds, or US$1 = £0.5. In Tokyo, US$1 = 40 Pesos and in Toronto, £1 = 100 Pesos. If financial traders can buy and sell currencies freely to make profits, what should be the equilibrium conversion rate in the Toronto market?
A) £1 = 75 Pesos.
B) £1 = 80 Pesos.
C) £1 = 90 Pesos.
D) £1 = 105 Pesos.
E) £1 = 115 Pesos.

30. Suppose you have US$100 and you begin your trading day in London and continue trading in Toronto then Tokyo. How much is your profit at the end of the day?
A) US$15.
B) US$20.
C) US$25.
D) US$30.
E) US$35.

Part III: Analytical Questions (Total=50 marks).

Questions 31–35 refer to the Taylor Rule:

The Taylor rule states that a central bank can monitor inflation and GDP by following the equation: $i = i_0 + (\pi - \pi^*) + (Y - Y_p)$. To start, suppose $\pi^* = 2\%$, $\pi = \pi^*$, $Y = Y_p$ and $i_0 = 7\%$.

31. The initial value of *i* is ____.
A) 7 percent.
B) 8 percent.
C) 9 percent,
D) 10 percent.
E) 11 percent.

32. Now suppose a drop in investment confidence leads to $(Y - Y_p) = -3\%$. Putting aside inflation rates for now, the central bank should set a new *i* of ____. If $\pi = \pi^* - 0.5\Delta i$, the new inflation rate will be equal to ____.
A) 4 percent, 2.5 percent.
B) 5 percent, 3.5 percent.
C) 6 percent, 4.5 percent.
D) 7 percent, 5.5 percent.
E) None of the answers is correct.

33. Suppose the central bank knew that π would change. To balance between its inflation and GDP targets, what interest rate should the central bank set, knowing that $\pi = \pi^* - 0.5\Delta i$? *[Hint: Solve the new i as an unknown.]*
A) 2 percent.
B) 3 percent.
C) 4 percent.
D) 5 percent.
E) None of the answers is correct.

34. Consider your answer in #32: If the central bank does not intervene, how will the economy adjust to its new equilibrium in the long run?
A) The AD curve will shift to the right.
B) The AS curve will shift to the right.
C) The AD curve will shift to the left.
D) The AS curve will shift to the left.
E) The LAS curve will shift to the left.

35. Continue with the previous question: Which of the following is (are) CORRECT when the economy returns to the long run equilibrium without any policy interventions?
A) The new $\pi=\pi^*$ will be lower than 2 percent.
B) The new Yp will be lower than the initial Yp.
C) Production costs, such as wages, will rise.
D) The natural rate of unemployment will rise.
E) All of the answers are correct.

Questions 36–40 refer to Fiscal Policies:

A simplified economy is specified as below, with all values in billions of C$:

Consumption expenditure:	C = 75 + 0.9(Y-T)	(Net) Tax rate *t*:	0.3
Investment expenditure:	I = 370	Exports:	55
Government expenditure:	G = 750	Imports:	0.13Y

36. What is equilibrium Y?
A) 2,000.
B) 2,500.
C) 3,000.
D) 3,500.
E) None of the answers is correct.

37. The spending multiplier is equal to ___ and the budget balance (BB) is equal to _____.
A) 1.25, 120.
B) 2.00, 0.
C) 4.16, 0.
D) 4.35, 0.
E) 6.25, 0.

38. Suppose lower oil prices increase investment spending from 370 to 870 due to stronger investment confidence. What is the new equilibrium Y and what is the new BB?
A) 2,350, 150.
B) 2,750, 200.
C) 3,250, 250.
D) 3,500, 300.
E) None of the answers is correct.

39. Suppose the government wants to push back Y to the level in #36, but with I = 870. What is the new value of government expenditure required and what is the new BB?
A) 250, 500.
B) 250, 600.
C) 570, 325.
D) 570, 435.
E) None of the answers is correct.

40. Continue with the previous question: Suppose the government does not want the BB to change so it asks the central bank to conduct monetary policy instead. To maximize its effectiveness, the central bank should _____ its target overnight interest rates and let its currency_____.
A) Increase; appreciate.
B) Increase; depreciate.
C) Decrease; appreciate.
D) Decrease; depreciate.
E) Decrease; at a constant value.

Questions 41–45 refer to Real Exchange Rates and Purchasing Power Parity:

Suppose that in 2003, the price levels in the United States and Australia were 100. By 2007, the price level in the United States has increased to 220, while the price level in Australia has risen to 160. Suppose the nominal exchange rate between the two countries in 2003 was US$1 = A$1.8. Round all numerical answers to two decimal places, if applicable.

41. Calculate the 2003 real exchange rate, from Australia's perspective.
A) 0.85.
B) 1.35.
C) 1.80.
D) 2.10.
E) 2.25.

42. Calculate the new nominal exchange rate in 2007 if the real exchange rate had remained constant at the 2003 level (from Australia's perspective).
A) 0.70.
B) 1.31.
C) 1.67.
D) 1.95.
E) 2.25.

43. If Australia had fixed its nominal exchange rate against the US dollar at the 2003 level, Australia would have experienced a real exchange rate ____ because its real exchange rate would be ____.
A) Appreciation; 1.45
B) Appreciation; 1.55
C) Appreciation; 1.60
D) Depreciation; 2.33
E) Depreciation; 2.48

44. Continue with the previous question: Because the Australian dollar is _____, Australia likely has _____.
A) Undervalued; an inflationary gap
B) Undervalued; a recessionary gap
C) Overvalued; an inflationary gap
D) Overvalued; a recessarionary gap
E) Correctly valued; full employment

45. Continue with the previous question: Australia likely has a current account _____and a net ____ of capital.
A) Deficit; inflow
B) Deficit; outflow
C) Surplus; inflow
D) Surplus; outflow
E) Balance; inflow

Questions 46–47 refer to the GDP:

In 1981, total output in a single-good economy was 23,946 cars, each priced at $23,128. In 1985, 14,828 cars were purchased at a price per car of $7,534. Assume that 1981 is the base year.

46. What is the value of the GDP deflator in 1985?
A) 22.34.
B) 32.58.
C) 43.70.
D) 102.35
E) 115.20.

47. What is the real GDP growth rate between 1981 and 1985?
A) 8.55 percent.
B) 12.35 percent.
C) -17.50 percent.
D) -38.08 percent.
E) -79.83 percent.

Questions 48–50 refer to the Labour Market:

Suppose an economy has a working-age population of 24,700 in 2013. Its labour force is equal to 15,000 and employment is equal to 13,800.

48. What is the participation rate in 2013?
A) 48.92 percent.
B) 50.25 percent.
C) 55.67 percent.
D) 58.88 percent.
E) 60.73 percent.

49. What is the employment rate in 2013?
A) 51.08 percent.
B) 55.87 percent.
C) 58.88 percent.
D) 60.33 percent.
E) 62.22 percent.

50. What is the unemployment rate in 2013?
A) 8 percent.
B) 9 percent
C) 10 percent.
D) 11 percent.
E) None of the answers is correct.

Questions 51–52 refer to the Money Supply:

Suppose the banks have a 12 percent reserve ratio and the public has a 9 percent currency ratio.

51. What is the money market multiplier?
A) 4.76.
B) 5.19.
C) 8.76.
D) 9.08.
E) 12.44.

52. What is the change in the money supply with a new $1,100 cash deposit?
A) $4,762.
B) $5,710.
C) $8,333.
D) $9,083.
E) $10,078.

Questions 53–55 refer to Open Market Operations:

The demand for money is given as Md = 2,000 - 100*i*, where Md 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 reserve ratio equal to 40 percent.

53. What is the equilibrium interest rate?
A) 9 percent.
B) 10 percent.
C) 11 percent.
D) 12 percent.
E) 13 percent.

54. What amount of bonds (in $) should the Bank of Canada sell or buy if it wants the interest rate to be 18 percent?
A) It should sell $200 billion.
B) It should buy $200 billion.
C) It should sell $350 billion.
D) It should buy $350 billion.
E) None of the answers is correct.

55. Continue with the previous question: Which of the following is (are) CORRECT?
A) The price of bonds will fall.
B) The money supply will rise.
C) The currency of this country will depreciate.
D) The money multiplier will rise.
E) Only A, B and C are correct.

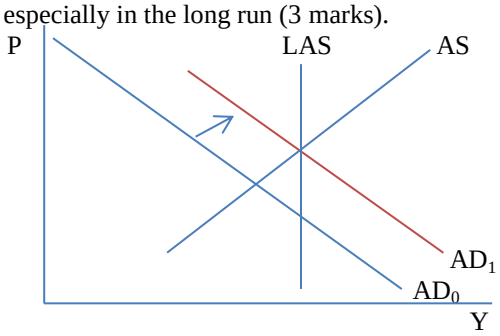
Part IV: Answer the following question. ANSWER ALL PARTS (Total = 40 marks).

In 2008, a "liquidity crisis" in the US and EU banking systems drove the world into a global recession. The liquidity crisis refers to commercial banks lending massive amounts of money to their customers who subsequently were unable to repay their loans.

> ***Article 1: U.S. Economy Grew at 4.6% Rate in Second Quarter***
> Sept. 26, 2014, http://online.wsj.com/articles/u-s-economy-grew-at-4-6-rate-in-second-quarter-1411734858
>
> The U.S. economy is regaining traction as the year winds down, boosted by an accelerating business sector and a modest pickup among consumers. But the recovery remains remarkably uneven, with businesses showing buoyancy while consumers limp along. After-tax corporate profits climbed at the fastest pace in two years. Businesses stepped up investment, including on construction of facilities. Consumers are stepping up spending (because of a stronger consumer confidence), but only modestly.
>
> The Federal Reserve believes stronger growth is ahead as it winds down a bond-buying program next month. Meanwhile, a soft global economy continues to weigh on the U.S. as sagging growth in Europe and Asia restrains American exports.

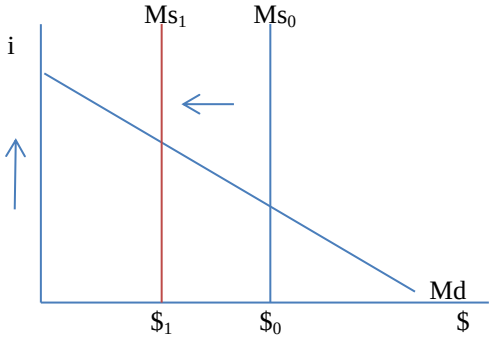
(i) Article 1:

(a) Use the AD/AS/LAS diagram to illustrate the effects on the US economy in 2014. Use Y<Yp in 2013 as the benchmark. **Explain briefly** whether investment-driven growth is more desirable or less desirable than consumption-driven growth, especially in the long run (3 marks).



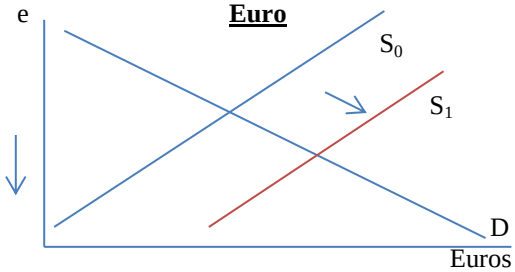
Ans: AD rises because I and C rise → economy moves from recession back to full-employment → investment-driven growth is better because it adds to capital accumulation and raises Yp, whereas increase in C is mainly for current enjoyment.

(b) The US Federal Reserve (Fed) will be stopping its bond-buying program soon. Use the money market diagram to illustrate how this would affect interest rates. **Explain briefly** how bond prices will be affected (3 marks).



Ans: As the Fed stops or reverses its bond-buying program, this decreases money supply. With lower money supply, interest rate rises. As the supply of bonds increases, the price of bonds will fall.

(c) Because of slow growth in Europe, US export growth will also be sluggish. Will the Fed's monetary policy in part (b) increase or decrease US exports? Define the exchange rate from the US' perspective. Use the foreign exchange market to illustrate your answers and also **explain briefly** (4 marks).



Ans: As US interest rates rise, US assets become more profitable, Europeans increase demand for US assets → they have to sell Euros to buy US$ → increase in the supply of Euros → Euros depreciate or the US$ appreciates → US exports are likely to fall.

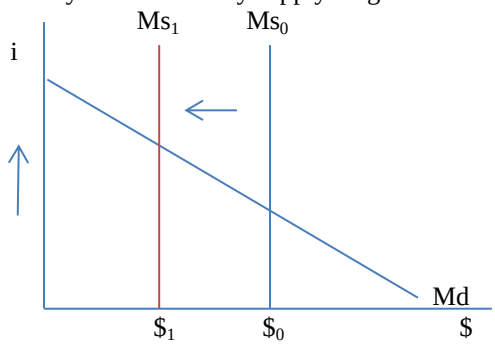
Article 2: A lower loonie has helped manufacturers, and hurt almost everyone else
October 28, 2014, http://business.financialpost.com/2014/10/28/canadian-dollar-devaluation

It's been close to two years since the Canadian dollar (the loonie) began to depreciate, eventually taking it from parity with the U.S. dollar to near 88 cents (or US$1=C$1.14). Exports have risen 9% over the past year. More notably, Canada's manufacturing industry grew faster than any industry in Canada outside of Alberta's oil sands.

While exports rose as the loonie fell, domestic spending slowed to offset these gains. The biggest reversal was in business investment, which fell over the past year after prices for capital goods jumped 3.6%. Capital goods are import-intensive, and therefore are very sensitive to the exchange rate.

(ii) Article 2:

(a) If the Bank of Canada (BOC) wants to encourage businesses to import more capital goods, what should it do? Use the money demand/money supply diagram to illustrate and **explain briefly** (3 marks).



Ans: The BOC should sell bonds, which decreases money supply. With lower money supply, interest rate rises → Cdn assets more profitable, increase in demand for C$, so C$ will appreciate → imported machines will be cheaper.

(b) Continue with part (a): How should the BOC defend this new interest rate? Define SPRA and SRA. **Explain briefly** which tool is the BOC more likely to use (3 marks).

Ans: SPRA=special purchase and resale agreement → the BOC will buy assets from commercial banks in the overnight market → put cash into the hands of the banks, increase liquidity overnight, keep interest rates low.

SRA = sale and repurchase agreement → the BOC will sell to commercial banks some of its assets, take cash away from banks overnight, decrease liquidity, with a promise to buy the assets back → keeps overnight interest rates high.

→ BOC likely would have to use SRA to keep the new higher interest rate high.

(c) Continue with part (a): **Explain briefly** how the BOC's new target overnight rate will affect Canada's current account and capital account in the short run and its Yp in the long run (4 marks).

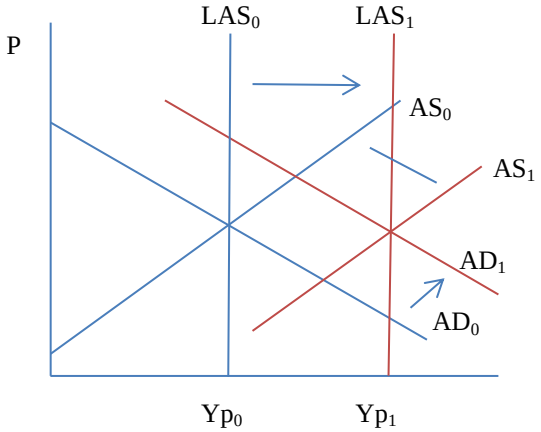
Ans: With lower money supply, higher interest rates, attracts capital inflows → $\Delta KA>0$ → as the C$ appreciates due to higher interest rates, our exports fall and imports rise → $\Delta CA<0$ → likely to decrease short run Y due to lower NX, but likely to increase Yp due to higher inflow of capital, which can contribute to capital accumulation in the long run.

Article 3: Public investments in infrastructure do the most good at times like the present
Oct 4th 2014, http://www.economist.com/news/finance-and-economics/21621801-public-investments-infrastructure-do-most-good-times

Public infrastructure is one of the few forms of government spending that both liberals and conservatives support. Ports, power lines and schools are essential to the smooth running of the economy. On average, an unexpected increase in public investment equal to 1% of GDP boosted GDP by 1.5% four years later. The extra spending did not result in unsustainable debts; quite the opposite. The debt-to-GDP ratio fell by 0.9 percentage points in the first year and four percentage points after four years.

(iii) Article 3:

(a) Use the AD/AS/LAS diagram to illustrate how an increase in government expenditure on infrastructure can increase both short run Y and long run Yp. **Explain briefly** how the economy progresses from the short run to the long run (4 marks).



Ans: As G increases, AD shifts up → this increase in spending on infrastructure will increase our ability to produce more real GDP in the short run and in the long run → AS and LAS shift right → Note that the net effect on the price level is ambiguous → depending on the relative magnitude of the shift in curves, the new price level can be higher, lower or constant.

(b) If the government wishes to maximize the increase in short run Y, would it prefer to have:
- An income tax system of $T = tY$ (where t is the tax rate) or a constant, lump sum tax $T = T_0$? **Explain briefly** (2 marks).
Ans: Constant, lump sum tax → because it does not affect the goods market multiplier; whereas a positive tax rate decreases the multiplier.

- A high or low marginal propensity to import (MPM)? **Explain briefly** (2 marks).
Ans: Low → so that for every $1 spent by the government, most of the additional consumption is spent of domestically produced products; or, the lower the MPM, the higher the goods market multiplier.

(c) **Explain briefly** why the debt-to-GDP ratio could fall despite an increase in government spending (2 marks).
Ans: Because if GDP rises a lot, debt/GDP can fall even though debt has also increased. It depends on how effective the increase in G, which contributes to debt, but also increases short run Y and long run Yp.

Article 4: Literacy in Canada
19 September 2012, Parliament of Canada, http://www.parl.gc.ca/Content/LOP/ResearchPublications/2012-46-e.htm

The Organisation for Economic Co-operation and Development (OECD) and Statistics Canada have identified five literacy levels:

Level 1: The individual is unable to read a drug label in order to correctly determine the appropriate dose.
Level 2: The individual has difficulty learning new occupational skills.
Level 3: The individual is able to meet the demands of everyday life and perform work-related tasks.
Levels 4 and 5: The individual is able to process and analyze complex information.

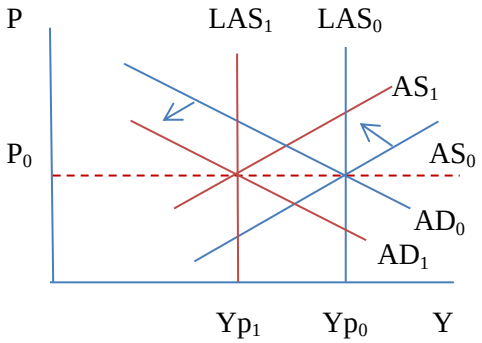
Among Canadians aged 16 and older, 48% or 12 million do not reach Level 3 literacy. In other words, 48% of Canadians are functionally illiterate.

(iv) Article 4:

(a) Write down the equation $\%\Delta Y_p$ (not per-capita) and **explain briefly** to which component this article refers (3 marks).
Ans: $\%\Delta Y_p = \%\Delta A + \%\Delta N + \%\Delta K$, and this high level of illiteracy will decrease A.

(b) Suppose the population in Canada increases over time. **Explain briefly** the concept of diminishing returns and how this increase in population will affect Canada's per-capita GDP in the future (3 marks).
Ans: Diminishing marginal returns occur when one factor increases and all other factors are held constant, the increase in output increases at a diminishing rate. In this case, as N rises, and with our K constant and A falling, our Yp rises by smaller and smaller amounts. Our per-capita GDP will fall in the future.

(c) Use the AD/AS/LAS diagram to show how this news would affect Canada's long run inflation rate. If the Bank of Canada were to keep its current targeted inflation rate, what should it do? **Explain briefly** (4 marks).



Ans: The lower level of literacy, and hence lower labour output, will shift AS to the left in the short run. Since level of illiteracy is permanent, eventually the LAS will also shift to the left. Without any changes in AD, the price level will be higher. This is due to the loss in labour output and increased production costs for firms. Canada will experience a higher price level or higher inflation rates. To prevent this from happening, the BOC will have to shift AD inward by raising interest rates or decreasing money supply.

The End… Have a Great Break!