Concordia University
Department of Economics

ECON 203 - INTRODUCTION TO MACROECONOMICS
Winter 2017

COMMON FINAL EXAMINATION - VERSION 1

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

STUDENT NUMBER: _____

Please, read all instructions carefully:

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

Grades:

Part I: _____

Part II:

Problem #1: _____

Problem #2: _____

Problem #3: _____

Problem #4: _____

Problem #5: _____

Total: _____

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

1. Suppose the luggage industry has a total output of $200 million and purchases of $125 million in nylon, leather, and zippers that go into the luggage produced. What is the value added of the luggage industry?

   (a) $325 million.
   (b) $125 million.
   (c) **$75 million.**
   (d) $200 million.

2. Which of the following is (are) INCORRECT?

   (a) To avoid double counting, we only measure the value of final goods and services produced.
   (b) **High GDP values imply a high degree of income inequality.**
   (c) GDP includes only new goods and services produced during a given time period.
   (d) All of the answers are incorrect.

3. If we include discouraged workers when calculating the unemployment rate, what will happen?

   (a) The labour force will remain constant.
   (b) **The employment rate will remain constant.**
   (c) The unemployment rate will fall.
   (d) All of the answers are correct.

4. Which of the following is (are) CORRECT about the natural rate of unemployment?

   (a) **It is equal to around 6-7% for Canada.**
   (b) It is dependent on economic cycles.
   (c) It is the cyclical unemployment rate in the economy.
   (d) All of the answers are correct.

5. Which of the following always correspond(s) to a fall in the short run output?

   (a) The AS shifts down.
   (b) The resulting price level falls.
   (c) The AD shifts up.
   (d) **None of the answers is correct.**

6. The aggregate supply function is derived from which of the following concepts?

   (a) The total product approach used in national accounts to measure GDP.
   (b) **The income approach used in national accounts to measure GDP.**
   (c) The expenditure approach used in national accounts to measure GDP.
   (d) None of the answers is correct.

7. What does capital consumption allowance correspond to?

(a) Fixed capital used up in the production process.

(b) The difference between gross and net investment.

(c) Depreciation expenses.

(d) **All of the answers are correct.**

8. Suppose the population of Mars is 6,430. Of all adult Martians, 4,750 were employed, 500 were unemployed, and 300 were not in the labor force. How many people are under the age of 15?

(a) 770.

(b) 550.

(c) 660.

(d) **880.**

9. For the year 2011, our population was approximately 34 million and real GDP was approximately $1,700,000 million. What was the approximate value of Canada's per capita real GDP?

(a) $500.

(b) $5000.

(c) **$50,000.**

(d) $500,000.

10. Why is GDP a deficient measure of social well-being?

(a) It does not include underground economic activities.

(b) It does not include crime rates or life expectancy.

(c) It does not include pollution effects.

(d) **All of the answers are correct.**

11. If the marginal propensity to consume is equal to 0.75 and the marginal propensity to import is equal to 0.15, what can we conclude?

(a) A change in national income does not change induced expenditures.

(b) Expenditures are high when our income is very low.

(c) **A rise in national income will cause a rise in aggregate expenditure.**

(d) All of the answers are correct.

12. Investment expenditure is:

(a) expenditure by business on currently produced buildings, equipment and inventories.

(b) more volatile relative to real income than consumption expenditures by households.

(c) a component of autonomous aggregate expenditure.

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

13. The multiplier is a number that predicts the size of:

(a) the change in the slope of the aggregate expenditure (AE) function caused by a change in the consumption expenditure.

(b) the increase in household expenditure caused by an increase in disposable income.

(c) **the increase in equilibrium real GDP caused by an increase in autonomous expenditure.**

(d) the fall in equilibrium real GDP caused by a fall in household saving.

14. Which of the following statements is CORRECT?

(a) tax revenues, government spending and the budget balance all vary inversely with GDP.

(b) **government spending is independent of GDP, but tax revenues and the budget balance vary directly with GDP.**

(c) tax revenues, government spending and the budget balance all vary positively with GDP.

(d) tax revenues vary directly with GDP, but government spending and the budget balance are independent of GDP.

15. In an economy that is open to international trade:

(a) a decrease in exports has no effect on the AE function, but an increase in the marginal propensity to import raises the slope of the AE function.

(b) an increase in exports shifts the AE function up, but an increase in the marginal propensity to import has no effect on the AE function.

(c) **an increase in exports shifts the AE function up, but an increase in the marginal propensity to import reduces the slope of the AE function.**

(d) an increase in exports is offset by an equal increase in imports with no effect on the AE function.

16. A positive relationship between total tax revenue and real GDP

(a) **Reduces the effect of a change in autonomous spending on GDP.**

(b) Makes it harder to maintain full employment in a recession.

(c) Automatically produces budget surpluses during a recession.

(d) Makes a recession deeper if investment confidence falls.

17. The United Kingdom introduced austerity plans into its economy in an effort to reign in its public debt by cutting government expenditure. Which of the following observations will lessen the negative impact of these spending cuts on the United Kingdom's GDP?

(a) Their marginal propensity to import is very low.

(b) **The slope of AE is very low.**

(c) Their income tax system is a lump sum or constant tax system.

(d) All of the answers are correct.

18. The government's actual budget surplus or deficit is determined by:

(a) the equilibrium level of national income determined by autonomous expenditures and the multiplier.

(b) the net tax rate set by the government.

(c) the level of government spending set by the government.

(d) **the net tax rate, the level of government expenditure and the equilibrium level of national income.**

19. In order to claim economic growth, a country must have sustained increases in _____.

(a) nominal GDP.

(b) national income.

(c) **real GDP.**

(d) inflation.

20. When GDP grows at a slower pace than Y_p, what will be the relationship between the actual and natural rates of unemployment?

(a) **The actual rate will be higher than the natural rate.**

(b) The actual rate will be the same as the natural rate.

(c) The natural rate will be higher than the actual rate.

(d) The actual rate will be unrelated to the natural rate.

21. Which of the following is a function of money?

(a) medium of exchange.

(b) standard of deferred payment.

(c) unit of account.

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

22. The money supply consists of:

(a) **currency in circulation plus deposits.**

(b) currency in circulation plus reserves.

(c) monetary base plus cash held by banks.

(d) none of the above.

23. Commercial banks create money by:

(a) printing them.

(b) **keeping a fraction of deposits as reserves and lending the rest.**

(c) they do not, only the central bank can create money.

(d) none of the above.

24. The money multiplier is bigger if:

(a) **banks' reserve ratio is smaller.**

(b) banks' reserve ratio is bigger.

(c) the deposit multiplier is smaller.

(d) the deposit multiplier is zero.

25. If everyone tries to withdraw their money from the banks as cash:

(a) there will be more than enough cash for everyone.

(b) there will be just enough cash for everyone.

(c) **there will not be enough cash for everyone.**

(d) cannot be determined.

26. Suppose that you hold your money balances in cash (the most liquid asset) rather than hold some other less liquid assets (such as bonds). Assume that the general price level is fixed. The opportunity cost of holding cash is:

    (a) Zero.

    (b) The consumption that you give up by holding your money rather than spending it.

    (c) **The foregone interest income that you could have earned if you have held your financial assets in bonds.**

    (d) Loss of purchasing power due to inflation.

27. An increase in interest rates will lead to:

    (a) higher bond prices.

    (b) **lower bond prices.**

    (c) unchanged bond prices.

    (d) excess supply of money.

28. An increase in the reserve ratio leads to:

    (a) **an increase in interest rates.**

    (b) a decrease in interest rates.

    (c) an increase in money demand.

    (d) a drop in money demand.

29. A reduction in the Canadian interest rates will:

    (a) **depreciate the Canadian dollar.**

    (b) appreciate the Canadian dollar.

    (c) increase the attractiveness of Canadian bonds.

    (d) reduce the attractiveness of foreign bonds.

30. An increase in the money supply will:

    (a) increase interest rates, lower consumption and investment, depreciate the currency and decrease output.

    (b) lower interest rates, increase consumption and investment, appreciate the currency and increase output.

    (c) increase interest rates, lower consumption and investment, appreciate the currency and decrease output.

    (d) **lower interest rates, increase consumption and investment, depreciate the currency and increase output.**

31. Following a cut in taxes, 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; decrease; increase.

(d) **Sell; increase; decrease.**

32. The US Federal Reserve (the Fed) has been scaling back its quantitative easing by cutting down the amount of bonds it purchases from the money markets. This means that US interest rates are going to _____ in the near future. Therefore, the Feds must believe that _____.

(a) Rise; the US inflation rate has been falling.

(b) Fall; the US inflation rate has been negative.

(c) **Rise; the US economy has been strengthening.**

(d) Fall; the US economy has been weakening.

33. Which of the following statements is (are) CORRECT in regards to the target overnight rates set by the Bank of Canada (BOC) ?

(a) **The Bank rate is always higher than the target overnight rate.**

(b) The lowest possible target overnight interest rate that the BOC can set is zero.

(c) The operating band is always plus-minus one-half of one percentage point from the target overnight rate.

(d) Canadian laws dictate that when the BOC cuts or raises the target overnight rate, the commercial banks have to do the same with their mortgage and deposit rates.

34. If funds in the overnight loans market are trading above the overnight target rate, then the Bank of Canada will _____ to _____ and _____ the overnight interest rate.

(a) Conduct a SPRA; decrease the monetary base; lower.

(b) **Conduct a SPRA; increase the monetary base; lower.**

(c) Conduct a SRA; increase the monetary base; lower.

(d) Conduct a SRA; decrease the monetary base; lower.

35. If there are excess funds in the overnight market and are trading below the overnight target rate, then the Bank of Canada will _____ to _____ and _____ the overnight interest rate.

(a) Conduct a SPRA; decrease the monetary base; raise.

(b) Conduct a SPRA; increase the monetary base; raise.

(c) **Conduct a SRA; decrease the monetary base; raise.**

(d) Conduct a SRA; increase the monetary base; raise.

36. A newspaper headline reads: "*The Bank of Canada Reduces the Target Overnight Rate for a Second Time This Year.*" This headline indicates that the Bank of Canada is most likely trying to:

(a) **Stimulate the economy.**

(b) Decrease the money supply.

(c) Keep the bank rate constant.

(d) Reduce inflationary pressures in the economy.

37. Suppose the Bank of Canada conducts its monetary policies by following the equation $i = i_0 + \gamma(\pi - \pi*)$, where i stands for interest rate, π stands for inflation rate, and γ is a positive parameter. Then, we can deduce that:

(a) i is equal to i_0, if π is less than $\pi*$.

(b) i is less than i_0, if π is greater than $\pi*$.

(c) i is greater than i_0, if π is equal to $\pi*$.

(d) **i is greater than i_0, if π is greater than $\pi*$.**

38. Suppose that an excess demand for money exists in the economy. Investors respond by _____ bonds. As the money market moves toward an equilibrium interest rate, we can expect bond prices to _____ and interest rate to _____ .

(a) Selling; rise; fall.

(b) Buying; fall; fall.

(c) **Selling; fall; rise.**

(d) Buying; rise; rise.

39. Which of the following statements is (are) CORRECT in regards to the target inflation rate set by the Bank of Canada (BOC)?

(a) The target range of inflation rate in Canada is 1% - 3%.

(b) The inflation rate is measured with the changes in total CPI.

(c) The inflation target for full employment is 2%.

(d) **All answers are correct.**

40. If Canada were to adopt a fixed exchange rate between the Canadian and U.S. dollars, then

(a) Canadian inflation rates would be higher than U.S. inflation rates.

(b) **Canadian monetary policy would mirror U.S. monetary policy.**

(c) Canadian fiscal policy as a demand management tool would be weakened.

(d) All of the answers are correct.

41. If the Canadian dollar is pegged against the U.S. dollar, and the Euro depreciates against the U.S. dollar, what will happen to Canada?

(a) **Our Canadian dollar appreciates against the Euro.**

(b) Our Canadian dollar depreciates against the Euro.

(c) Our Canadian dollar depreciates against the U.S. dollar.

(d) None of the answers is correct.

42. If exchange rates were flexible, a decrease in exports due to a weaker U.S. GDP can be partially offset by

(a) A higher Canadian inflation rate.

(b) A higher Canadian interest rate.

(c) **The depreciation of the Canadian dollar.**

(d) The appreciation of the Canadian dollar.

43. Under_____exchange rates, a fiscal contraction that pushes interest rates_____will crowd_____net exports through_____of the domestic currency.

(a) **Flexible; down; in; a depreciation.**

(b) Flexible; down; in; an appreciation.

(c) Flexible; up; out; an appreciation.

(d) Flexible; up; out; a depreciation.

44. Suppose it costs C$1.7 to buy one US$, and the price level or index in the US is 125. The price level or index in Canada is 119. The real exchange rate from Canada's perspective is:

(a) 1.30.

(b) 1.23.

(c) **1.79.**

(d) 1.10.

45. Which of the following choices is INCORRECT?

(a) If KA$<$0, then this country is a lender.

(b) If CA is +11, KA is -7, then this central bank has accumulated more foreign exchange reserves.

(c) **If KA is -7 and CA is +11, then this country's currency will depreciate under a flexible exchange rate regime.**

(d) If KA is +7, CA is -11, then this central bank has sold some of its foreign exchange reserves.

46. The production function shows the relationship between:

(a) the quantity of labour employed and the quantity of output produced.

(b) **the quantity of inputs employed and the quantity of output produced.**

(c) the quantity of land employed and the quantity of output produced.

(d) the quantity of capital employed and the quantity of output produced.

47. The Solow residual is:

(a) the difference between the growth of real GDP and the effects of growth in labour inputs.

(b) the difference between the growth of real GDP and the effects of growth in caital inputs.

(c) **the difference between the growth of real GDP and the effects of growth in capital and labour inputs.**

(d) goods and services left over after households have met their consumption plans.

48. If the labour income is 2/3 of national income, the basic growth accounting equation is:

(a) ΔY/Y = ΔA/A + ΔL/L + ΔK/K.

(b) ΔY/Y = A + (2/3 x ΔL/L) + ΔK/K.

(c) ΔY/Y = ΔA/A + ΔL/L + (2/3 x ΔK/K).

(d) **ΔY/Y = ΔA/A + (2/3 x ΔL/L) + (1/3 x ΔK/K).**

49. If the production function per labour is $Y/L = A(K/L)^{1/2}$, then tripling K/L will:

(a) **increase Y/L by less than triple.**

(b) triple Y/L.

(c) increase Y/L by more than triple.

(d) will not increase Y/L.

50. If capital stock increases at the same rate as labour, and all else is equal, then per capita output will_____and total output will_____.

(a) Stay constant; stay constant.

(b) Rise; rise.

(c) Rise; stay constant.

(d) **Stay constant; rise.**

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

1. James is a junior economist and he works in a well-known Epicurean firm. His colleagues consider GDP as a perfect representation of the country standard of living. James does not agree with them. He wants to give them the limitations of nominal and real GDP.

   (a) Give a definition of nominal and real GDP. (10 marks)

   Nominal GDP: GDP being the monetary value of all the finished goods and services produced within a country's borders in a specific time period

   Real GDP: the value of economic output adjusted for price changes (i.e., inflation or deflation).

   (b) List some of the limitations of this indicator to represent standard of living. (10 marks)

   - **Pollution & other externalities caused by production and consumption.**
   - **Unreported income & output.**
   - **Non-marketed goods & services.**
   - **Composition of output affects standard of living (military production vs health care).**
   - **Income distribution.**

   (c) What could James suggest as alternatives/other indicators to measure standard of living? (5 marks)

   Use other indicators like HDI, GNP.

2. Let the Canadian economy be described below. You are an economist in the Department of Finance, Ottawa.

   $C = 80 + 0.7Y_d$ (Yd is disposable income)

   $I = 310$ (Investment spending)

   $G = 120$ (Government purchases)

   $NT = 0.1Y$ (Net taxes)

   $X = 90$ (Exports are constant)

   $IM = 0.13Y$ (Imports depend positively on domestic Y)

   (a) Calculate the equilibrium Y. (5 marks)

   AE=C+I+G+NX=80+0.7(1-0.1)*Y+310+120+90-0.13Y=600+0.5Y. At equilibrium, AE=Y, so 600+0.5Y=Y, Y=1200.

   (b) Find the government budget balance BB, given the Y in (a). (5 marks)

   BB=NT-G=0.1*1200-120=0.

   "*The central bank acknowledged this week that a burst of inflation in January was directly attributable to new carbon pricing policies in Alberta and Ontario. [...] Carbon taxes could result in a loss of Canadian competitiveness.*" (The Globe and Mail, March 2017)

   (c) Suppose, the new carbon pricing policies raise tax revenues to 0.15Y. Also, domestic oil exports drop from 90 to 20, due to the loss of Canadian competitiveness. Find the new level of GDP. (5 marks)

   AE=C+I+G+NX=80+0.7(1-0.15)*Y+310+120+20-0.13Y=530+0.465Y. At equilibrium, AE=Y, so 530+0.465Y=Y, Y=990 or 990.65.

(d) The impact on the economy of the new carbon taxes can be mitigated by using the tax revenue to increase government spending. Find the new G necessary to reach the initial level of Y, given that the level of exports remains at X=20. (5 marks)

The gap is 1200-990=210 (or 209.35). The increase in G necessary to close the gap is 112 from 209.35/1.87, where 1.87 is the multiplier 1/(1-0.7*0.85+0.13).

(e) Find the new BB with the government spending in (d) at the initial level of output. (5 marks)

BB=NT-G=0.15*1200-(120+112) =-52.

3. Suppose that Person A deposits $180 (cash) at Bank A. Complete the following questions. Round your answers to two decimal places, if applicable.

(a) Suppose Bank A realizes that, on average, its customers only withdraw a portion of their deposits, and so it can lend out some money to other customers. Bank A now chooses the reserve ratio to be 20% or 0.2. Bank A lends out the remaining amount of money as loans to Person B. Record this transaction on the balance sheet below: (5 marks)

Assets	Liabilities
Reserves $36.00	**Deposits $180.00**
Loans $144.00	

(b) Person B borrows this money as loans and pays to Person C. Suppose Person C deposits this amount with Bank B. Bank B, similar to Bank A, also chooses a reserve ratio of 0.2 and issues the remaining cash as loans to Person D. Record this transaction on the balance sheet below: (5 marks)

Assets	Liabilities
Reserves $28.80	**Deposits $144.00**
Loans $115.20	

(c) Person D borrows this money as loans from Bank B and pays to Person E. Suppose Person E deposits this amount with Bank C. Bank C also chooses a reserve ratio of 0.2 and issues the remaining cash as loans to Person F. Record this transaction on the balance sheet below: (5 marks)

Assets	Liabilities
Reserves $23.04	**Deposits $115.20**
Loans $92.16	

(d) What is the money multiplier given that cash or currency ratio is zero? (2 marks)

The money multiplier is Reserves/Deposits = 1/rr = 1/0.2 = 5.

(e) Eventually the new money supply and the amount of money (or loans) created will be: (3 marks)

The New money supply =Initial deposit * Money multiplier = $180 * 5 = $900. Amount of money (or loans) created = Initial loan * Money multiplier = $144 * 5 = $720.

(f) Suppose commercial banks believe that in an economic recession the likelihood of collecting loans decreases. Discuss intuitively how this would affect the money supply, interest rate and real GDP. (5 marks)

Commercial banks can mitigate default risk by charging a higher interest rate to borrowers who are more likely not to pay back the loans, by reducing the amount of credit extended either to all or to certain borrowers, or to diversify the borrower pool. These actions would contract the money supply and increase interest rates. Investment I(i), consumption C(i) and NX(i) will decrease. Through the multiplier effect, GDP will decrease.

4. The Taylor rule states that a central bank can monitor price stability (low inflation) and output stability (GDP being close to the potential output Yp) by an equation that links the interest rate with these two objectives. For Canada, suppose this has been estimated to be as follows: $i = i_0 + 1.2(\pi - \pi*) - 0.3(UR - UR_n)$, where the unemployment rate UR difference from its natural level substitutes for the output gap.

   Suppose the inflation target is $\pi* = 2\%$, the natural rate of unemployment is $UR_n = 7\%$, and the equilibrium rate of interest that is compatible with these two is $i_0 = 8\%$. Also, suppose that the level of inflation π changes with the changes in interest rate according to the following formula: $\pi = \pi* - \Delta i$. Round your answers to 2 decimal places, if needed.

   (a) Assume that we start with $\pi = \pi*$ and $UR = UR_n$. What is the value of i? (5 marks)
   $i = i_0 + 1.2(\pi - \pi*) - 0.3(UR - UR_n) = 8 + 1.2(2 - 2) – 0.3(7 - 7) = 8\%$**.**

   (b) Now suppose a drop in investment confidence leads to an increase in Unemployment Rate to 8%. Let us put aside inflation rates for now. According to Taylor rule, what interest rate should the Bank of Canada now set? (5 marks)
   $i = i_0 + 1.2(\pi - \pi*) – 0.3(UR - UR_n) = 8 – 0.3(8 - 7) = 7.7\%$**.**

   (c) Replace the expression for π shown above (that links π to the change in interest rate π = π* - Δi.) into the Taylor rule and solve for the new interest rate that will now combine the anticipated increase in inflation as well as the increase in the unemployment rate. What is the new interest rate that the BOC should set? (5 marks)
   $i = i_0 + 1.2(\pi - \pi*) – 0.3(UR - UR_n) = i_0 + 1.2[(\pi* - \Delta i) – \pi*)] – 0.3(UR - UR_n)$
   $i = i_0 + 1.2[\pi* - \Delta i – \pi*] – 0.3(UR - UR_n) = i_0 + 1.2[\pi* - (i – i_0) – \pi*] – 0.3(UR - UR_n)$
   $i = i_0 – 1.2[i – i_0] – 0.3(UR - UR_n) = 8 – 1.2[i – 8] – 0.3(8 – 7) = 8 – 1.2i + 9.6 – 0.3$
   $i = 8 – 1.2i + 9.6 – 0.3 \rightarrow 2.2i = 17.3 \rightarrow i = 7.86.$

   (d) Following from the previous question: What is the new π value? (5 marks)
   From $\pi = \pi* - \Delta i = \pi* - (i – i_0) = 2 – (7.86 – 8) = 2.14\%$**.**

   (e) Compare your new interest rate with $i_0 = 8\%$: For this change in the interest rate, the Bank of Canada has to _____ bonds through open market operations and the Canadian dollar is likely to _____ as a result. (5 marks)
   Buy; depreciate.

5. Suppose that, in 2001, the price levels in CONCORLAND (Home) and the ECONLAND (Foreign) were 100. By 2015, the price level in CONCORLAND has increased to 220, while the price level in the ECONLAND rose to 175. Suppose the exchange rate between two countries was ECONLAND $1 = CONCORLAND $1 in 2001.

   (a) Find the inflation rates of the two countries. (6 marks)
   CONCORLAND's inflation rate is 120% (went from 100 to 220), and the ECONLAND inflation rate was 75%.

   (b) What was the 2001 real exchange rate? (6 marks)
   Real exchange rate was E = e*PECONLAND/PCONCORLAND, so E = 1.

   (c) What must the new nominal exchange rate have been in 2015 if the real exchange rate is 1.3? (6 marks)
   We want E = 1.3, so 1.3 = e(175/220), so e = 1.6342857.

   (d) In reality, CONCORLAND has a fixed exchange rate system against the ECONLAND. The initial nominal exchange rate is fixed. As a result, did CONCORLAND's real exchange rate appreciate or depreciate? (7 marks)
   The actual E = 1(175/220) = 0.796. This means CONCORLAND has a real exchange rate appreciation (0.796 <1.3).