

Concordia University
Department of Economics

ECON 203 - INTRODUCTION TO MACROECONOMICS
Fall 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. Three main indicators of macroeconomic activity and performance are:
 - (a) Investment, taxes and interest rates
 - (b) **Output, price and employment**
 - (c) Investment, inflation and unemployment
 - (d) Trade deficits, interest rates and employment
2. In order to claim economic growth, a country must have sustained increases in -----.
 - (a) nominal GDP
 - (b) national income
 - (c) **real GDP**
 - (d) inflation
3. For this question and the next one, suppose that the labour force consists of 200 adults, of which 166 are employed. Find the unemployment rate.
 - (a) 15%
 - (b) **17%**
 - (c) 16.5%
 - (d) 14%
4. Now suppose 14 of the unemployed workers are so discouraged that they have given up looking for work. They decide to go back to school full-time. Find the new unemployment rate.
 - (a) 11.75%
 - (b) **10.75%**
 - (c) 10%
 - (d) 15.75%
5. If a Mexican firm opens a production facility in Canada, the profits from this production facility received by the Mexican owners of the firm in exchange for the factors of production they supply will be included in the
 - (a) gross domestic product of Mexico
 - (b) **gross national product of Mexico**
 - (c) gross national product of Canada
 - (d) exports from Canada and imports to Mexico
6. The goods market multiplier can be used to predict:

- (a) the increase in wage rates caused by an increase in employment
 - (b) the fall in induced expenditure caused by a rise in the GDP deflator
 - (c) **the fall in equilibrium real GDP caused by a fall in consumer confidence**
 - (d) the increase in potential output caused by an increase in autonomous expenditure
7. If induced spending increases from 300 to 315 when national income increases from 500 to 525, then the slope of the AE function is:
- (a) 0.9
 - (b) **0.6**
 - (c) 0.7
 - (d) 0.8
8. Suppose the goods market multiplier is 2. Planned aggregate expenditure (AE) decreases by 80 due to a fall in investment confidence (I_0). What will happen to aggregate demand?
- (a) **It will decrease by 160**
 - (b) It will shift to the right by 80
 - (c) It will decrease by 80
 - (d) It will increase by 160
9. In an open economy, equilibrium GDP is defined:
- (a) At the level where imports are equal to zero
 - (b) At the level where savings are equal to investment plus government spending
 - (c) Actual unemployment rate is equal to the natural unemployment rate
 - (d) **Planned expenditure by households and business is equal to the value of output**
10. Other things equal, the multiplier effect of a change in government spending is:
- (a) The same as the multiplier effect of a change in tax rates
 - (b) **The same as the multiplier effect of a change in autonomous investment**
 - (c) Less than that associated with a change in autonomous investment
 - (d) Greater than that associated with a change in autonomous investment
11. Suppose $X - IM =$ net exports; $T - G =$ government budget surplus or deficit; and $S - I =$ private savings - private investment. What relationship exists among these indicators?
- (a) $(X - IM) + (T - G) + (S - I) = 0$
 - (b) $(T - G) + (X - IM) = (S - I)$
 - (c) **$(X - IM) = (T - G) + (S - I)$**
 - (d) $(T - G) = (X - IM) + (S - I)$

12. In a blog on The Economist website, correspondent Matt Yglesias makes the following statement: “[we] need to note that rising oil prices represent both demand shocks and supply shocks to the economy.” Explain how:
- (a) **An increase in oil prices causes transportation and production costs to increase and aggregate supply to decrease**
 - (b) An increase in oil prices causes transportation and production costs to decrease and aggregate supply to increase
 - (c) An increase in oil prices causes transportation and production costs to increase and aggregate supply to increase
 - (d) An increase in oil prices causes transportation and production costs to increase and aggregate demand to increase
13. 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 imports 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.
14. If aggregate demand exceeds potential output:
- (a) **an economy’s resources are over-utilized**
 - (b) an economy’s resources are under-utilized
 - (c) an economy’s resources are fully employed
 - (d) the pattern of resource use cannot be determined without knowing short-run aggregate supply
15. In a closed economy with no government: (i) the marginal propensity to consume is 0.5, (ii) autonomous consumption \$60 billion and (iii) the level of autonomous investment is \$40 billion. What is the equilibrium level of income?
- (a) \$250 billion
 - (b) \$300 billion
 - (c) **\$200 billion**
 - (d) \$100 billion
16. A higher net tax rate _____ the multiplier, and _____ the output effect of autonomous aggregate expenditures shocks.
- (a) Reduces; stimulates

- (b) Increases; stimulates
 - (c) Increases; dampens
 - (d) **Reduces; dampens**
17. A decrease in government expenditure will ____ the AE curve and ____the AD curve.
- (a) Shift up; shift up
 - (b) Shift down; shift up
 - (c) **Shift down; shift down**
 - (d) Shift up; shift down
18. What does fiscal policy refer to?
- (a) Using interest rates and exchange rates to balance the fiscal budget
 - (b) **Using government spending and taxes to stabilize domestic output and employment**
 - (c) Using interest rates and exchange rates to increase equality in the distribution of income
 - (d) Using government spending and taxes to increase equality in the distribution of income
19. How is the reserve ratio in the banking system defined?
- (a) **Cash and central bank deposits held by banks relative to their deposit liabilities**
 - (b) Cash balances held by banks relative to their equity
 - (c) Cash balances held by banks relative to their liabilities
 - (d) Cash and central bank deposits held by banks relative to their outstanding loans
20. What is the role of a commercial bank?
- (a) To maximize profits for its shareholders
 - (b) To take customers' deposits and make loans
 - (c) To create money through the banking system
 - (d) **All of the answers are correct**
21. What does the size of the money market multiplier depend on?
- (a) **The reserve ratio**
 - (b) Interest rates
 - (c) The marginal propensity to consume
 - (d) All of the answers are correct
22. In Canada, the money supply (M1B) consists of which of the following components?
- (a) **Coins, paper currency, and chequing deposits**

- (b) Coin, paper currency, gold reserves, and time deposits
 - (c) Coins, paper currency, and notice deposits
 - (d) Coins, paper currency, chequing deposits, and notice deposits
23. Which of the following is NOT a function of the Bank of Canada?
- (a) Provider of monetary base
 - (b) **Earns profits for the federal government of Canada**
 - (c) A lender of last resort
 - (d) Issues legal tender
24. Which of the following will affect money demand?
- (a) Income
 - (b) Interest rates
 - (c) The CPI
 - (d) **All of the answers are correct**
25. Why do households and businesses often hold some of their wealth as money?
- (a) Because of precautionary motive
 - (b) Because of speculative motive
 - (c) Because of transaction motive
 - (d) **All of the answers are correct**
26. When does the opportunity cost of holding money rise?
- (a) When income falls
 - (b) **When interest rates rise**
 - (c) When bond prices rise
 - (d) All of the answers are correct
27. If the real interest rate is negative, then the -----
- (a) Nominal interest rate is equal to the inflation rate
 - (b) Nominal interest rate is positive
 - (c) Nominal interest rate is also negative
 - (d) **Nominal interest rate is lower than the inflation rate**
28. For a given fluctuation in autonomous expenditure, economies with lower rates of induced expenditures will:
- (a) **Experience smaller business cycle fluctuations in real GDP and employment**
 - (b) Experience no business cycle fluctuations in real GDP and employment

- (c) Experience some business cycle fluctuations but the size of the fluctuations is independent of the slope of the AE curve
 - (d) Experience larger business cycle fluctuations in real GDP and employment
29. Which of the following is an example of discretionary fiscal policy?
- (a) More people receive employment insurance during economic recession
 - (b) **Income tax rates are cut during economic recession**
 - (c) Interest rates are cut during economic boom
 - (d) Income tax revenues rise during economic boom
30. Which of the following statements is (are) CORRECT?
- (a) The higher the cash withdrawals by customers, the lower is the deposit creation
 - (b) The Bank of Canada cannot fully control the reserve ratio and the currency ratio
 - (c) The higher the reserve ratio, the lower is the deposit creation
 - (d) **All of the answers are correct**
31. If the Bank of Canada sells \$10 million worth of government securities in the open market, and if the reserve ratio is 0.25, what is the resulting change in the money supply?
- (a) **A decrease of \$40 million**
 - (b) A decrease of \$2.5 million
 - (c) An increase of \$2.5 million
 - (d) An increase of \$40 million
32. When the demand for overnight loans temporarily increases, the Bank of Canada can use which of the following tools to maintain the overnight interest rate?
- (a) Use sale and repurchase agreement (SRA)
 - (b) Sell government securities
 - (c) **Use special purchase and resale agreement (SPRA)**
 - (d) All of the answers are correct
33. Why is the Bank of Canada unable to control both the overnight interest rate (ONR) and the money supply simultaneously?
- (a) If it sets a particular ONR, it has to let money demand determine the size of the money supply
 - (b) If it sets a particular money supply, it has to let money demand determine the size of the ONR
 - (c) If it desires a high ONR, the corresponding money supply has to fall
 - (d) **All of the answers are correct**
34. The speed at which an economy adjusts to eliminate an output gap depends on:

- (a) The size of the lump-sum tax
 - (b) **The flexibility of wage rates and output prices in the economy**
 - (c) The price of bonds
 - (d) Whether the structural primary budget balance is in deficit or surplus
35. The Bank of Canada has been cutting its target overnight interest rates since late 2008 due to the recent financial crisis. The lowest effective value of the target overnight interest rate is equal to ----.
- (a) 0.5%
 - (b) 0%
 - (c) **0.25%**
 - (d) 0.75%
36. Why is deflation or disinflation an economic problem?
- (a) It affects income distribution, such as retired workers
 - (b) It affects the value of wealth that people hold
 - (c) It discourages firms from producing output
 - (d) **All of the answers are correct**
37. Suppose the inflation rate π rises and the central bank raises the nominal interest rate. This result will be shown by a(n) ----- the AE curve and a(n) ---- the AD π curve.
- (a) Upward shift in; upward movement along
 - (b) Downward movement along; upward shift in
 - (c) Upward shift in; upward shift in
 - (d) **Downward shift in; upward movement along**
38. Which of the following is (are) CORRECT?
- (a) **Unanticipated inflation benefits borrowers**
 - (b) The NAIRU for Canada is zero
 - (c) Real interest rates are always positive
 - (d) All of the answers are correct
39. Which of the following is (are) reason(s) for a country to give up its fixed exchange rate?
- (a) It could be importing inflation from the country it has pegged its currency against
 - (b) The peg may lead to an overvaluation of its currency and limits GDP growth
 - (c) It could be importing recession from the country it has pegged its currency against
 - (d) **All of the answers are correct**
40. What does the real exchange rate measure?

- (a) The price level in one country relative to another country
 - (b) **The price of foreign goods in domestic currency relative to the price of domestic goods**
 - (c) The price of a unit of foreign currency in domestic currency
 - (d) The import habit of consumers
41. When Donald Trump imposes tariffs on foreign goods, the US dollar will, *ceteris paribus*:
- (a) **appreciate**
 - (b) depreciate
 - (c) not be affected
 - (d) none of the above
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 interest rate
 - (b) The appreciation of the Canadian dollar
 - (c) A higher Canadian inflation rate
 - (d) **The depreciation of the Canadian dollar**
43. Suppose the price of a basket of U.S. goods sells for US\$100, while an identical basket sells for C\$110. The current nominal exchange rate is e is C\$1.2=US\$1. The Purchasing Power Parity theory predicts that there will be an increase in demand for _____, an increase in supply of _____, and eventually the C\$ will _____.
- (a) U.S. goods; C\$; depreciate
 - (b) Canadian goods; C\$; depreciate
 - (c) U.S. goods; US\$; appreciate
 - (d) **Canadian goods; US\$; appreciate**
44. The higher the degree of capital mobility, the _____.
- (a) **The more volatile is a flexible exchange rate**
 - (b) Easier it is to maintain a fixed exchange rate
 - (c) The more stable are GDP growth rates
 - (d) All of the answers are correct
45. The crowding-out effect refers to the fact that an increase in government expenditure will drive the interest rates _____, which will crowd out _____.
- (a) **Up; investment**
 - (b) Down; investment
 - (c) Down; net exports

- (d) Up; taxes
46. If the production function is given by $Y/N = (K/N)$, then doubling K/N will
- (a) Increase Y/N by less than double
 - (b) **Double Y/N**
 - (c) Increase Y/N by more than double
 - (d) Cannot be determined
47. Suppose the inputs of labour and capital each increase by 8% and output also increases by 8%. The production function exhibits_____ returns to scale technology.
- (a) Zero
 - (b) **Constant**
 - (c) Increasing
 - (d) Decreasing
48. The zero-growth proposal advocates for
- (a) Zero addition to capital stock and population
 - (b) **Zero growth of GDP, because higher GDP imposes additional environmental costs**
 - (c) Zero pollution emission to maintain sustainable growth
 - (d) All of the answers are correct
49. Suppose for the economy of Pluto, its average annual growth rates from 1995 to 2005 for potential GDP was 6.31% per year, labour force was 3% per year and capital stock was 2.4% per year. Also assume that the share of labour income in national income is always $2/3$. What is the contribution of the labour force to the potential GDP growth?
- (a) 1%
 - (b) **2%**
 - (c) 3%
 - (d) 4%
50. Continue with the previous question: What is the growth in productivity as measured by the Solow growth residual?
- (a) **3.51%**
 - (b) 2.85%
 - (c) 2.42%
 - (d) 3.16%

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. Use the data below to answer the following questions:

Year	Real GDP (B\$)	Consumer Price Index	Labour Force ('000)	Employment ('000)
2015	1,112	105	12,400	11,200
2016	1,252	114	13,850	12,650

(a) What were the annual rate of growth in real GDP and the inflation rate in Canada in 2016 comparing with 2015? (6 marks)

Economic growth rate=(1252-1112)/1112 *100=12.6%

Inflation rate= (114-105)/105*100=8.57%

(b) Calculate the rates of unemployment for 2015 and 2016. (6 marks)

2015: (12,400-11,200)/12,400*100=9.67%

2016: (13,850-12,650)/13,850 *100=8.66%

(c) Suppose 1,200 part-time workers looking for full time jobs are going back to school, full time. Calculate the new unemployment rate for 2016. (7 marks)

Part-time workers are considered employed. When they go to school full time, they drop from the labour force; the number of unemployed is the same in the economy, only the labour force and the number of employed workers decrease by 1,200. 2016: (13,850-1,200-12,650+1,200)/(13,850-1,200) *100=9.48%

(d) Following a recession, high unemployment rates may persistent even when output increases in an economy. Explain why. (6 marks)

Producers may still be pessimistic about the future of the economy and delay hiring new workers; instead, they overuse the existing resources.

2. Suppose the government raises its revenue by a net tax of 20 percent on income, $t = 0.2$, the marginal propensity to consume out of disposable income is 0.75, the marginal propensity to import is 0.04, and the government has an outstanding public debt of 1,100. In addition, the autonomous expenditure in households, business and foreign sectors ($C_0 + I_0 + X_0 - IM_0$) is 380 and government expenditure is 380.

(a) What is the equilibrium output and public debt ratio? (5 marks)

63.684% where $Y=1,727.27$ and public debt is 1,100.

(b) Now, suppose the government increases its expenditures by 90 to provide additional funding for national defense. What is the size of the outstanding public debt after the increase in government expenditure, assuming the economy has reached its new equilibrium national income in one year? (5 marks)

1,149.09 is the new public debt, since G went up by \$90 and tax revenues went up by \$40.91, i.e. the deficit and debt went up by \$49.09.

- (c) What is the public debt ratio after the increase in government expenditure and equilibrium income? (5 marks)

59.48%, as Y increases by 204.545 when G increases by 90

“More than half of businesses in a new survey say they plan to invest, in the next 12 months. Most firms that aren’t planning on a big investment would like to, but cite constraints in working capital, access to credit and caution over an uncertain global economy.” (“What “dead money”? Businesses boosting capital investment”, The Globe and Mail, Oct 2012)

- (d) Define the term “investment”. (5 marks)

Investment is the new machinery and equipment companies purchase to boost productivity.

- (e) Refer to the excerpt above to explain how an increase in investment changes the employment and inflation in the economy. Illustrate the changes using the AD-AS model. (5 marks)

AD shifts up, both Y and P increase.

3. The current balance sheet for The Bank of Bee is given by the following:

Assets	Liabilities
Reserves \$100	Deposits \$2,000
Loans \$1,900	

- (a) Based on The Bank of Bee’s current balance sheet determine the Bank’s desired reserve ratio. (4 marks)

r.r. = \$100/ \$2,000 = 0.05

- (b) Joe Masters sells a government bond and deposits \$100 in his chequing account at The Bank of Bee.

- i. Right after Joe’s deposit and before any actions occur, The Bank of Bee will have what amount of excess reserves? (3 marks)

Excess reserves = \$95

- ii. After the deposit, if The Bank of Bee is a profit maximizing firm, what amount of loans will it make? (3 marks)

New loans = \$95, the amount of excess reserves.

- (c) Let all the banks in the banking system have the same desired reserve ratio as The Bank of Bee.

- i. What will be the value of the banking system’s money multiplier? (4 marks)

money multiplier = 1/ 0.05 = 20

- ii. What will be the total change in deposits in the banking system resulting from Joe’s initial \$100 deposit? (3 marks)

total change in deposits= \$2,000

- iii. Suppose that a customer comes into The Bank of Bee and makes a \$10 withdrawal. All else constant, how will the money supply in the economy be affected after this withdrawal worked its way through the banking system? (4 marks)

Money supply falls by money multiplier x \$10 = 20 x \$10 = \$200

- iv. Suppose new technology makes it possible for banks to reduce their reserves from 5% to 4% of deposits. How will the changes in the money supply be affected by the new technology? (4 marks)

New reserve ratio = 0.04, new money multiplier = $1 / 0.04 = 25$, Changes in money supply = 25 x change in deposits

4. You are offered a bond that promises to make coupon payments of \$100 at the end of the first year and second year from the time of purchase, and to repay the principal of \$1000 at the end of the third year following the purchase. There is no perceived risk associated with the bond and the market rate of interest is 8%.

- (a) Determine the present value (PV) of the bond. (4 marks)

$$\text{Present Value (PV)} = \$100/(1.08) + \$100/(1.08)^2 + \$1000/(1.08)^3 = \$92.59 + \$85.73 + \$793.83 = \$972.15$$

- (b) Would you buy the bond if it was offered for \$990? _____ Explain. (4 marks)

The bond is only “worth” \$972.15. You should not pay more than \$972.15. You should be better off investing \$990 at the market interest rate (8 %) instead of paying the higher price for the bond. At \$990, the implied bond yield is less than the market rate of interest and we should expect the bond price to drop in the near future.

- (c) Would you buy the bond if it was offered for \$940? _____ Explain. (4 marks)

The bond is “worth” \$972.15. You should buy the bond for \$940 since you can make a profit by buying it for \$940 and selling it for \$972.15, the bond’s “worth” in terms of present value. At \$940, the implied bond yield is greater than the market rate of interest and we should expect the bond price to rise in the near future.

- (d) What is the implied bond yield if the price of the bond is equal to the value computed in part (a) above? (4 marks)

The implied yield, for a bond priced at \$972.15, is 8%, the market rate of interest.

- (e) Explain why bond yields and the market rate of interest tend to move together. (4 marks)

Market pressures move bond prices towards their PV when bond prices are not equal to their PV. The competitive market equilibrium price of bonds is equal to the bond’s PV. So, bond yields tend to equal the market rate of interest. Therefore, market rates of interest and bond yields tend to move together.

- (f) Suppose the money market is at equilibrium. Then, the demand for money falls, perhaps due to firms and consumers increased desires to hold more bonds. How is the money market affected? What do you expect to happen to investment expenditures? (5 marks)

A decrease in the demand for money will cause the curve to shift to the left, resulting in an excess supply of money. Firms and consumers will try to buy more bonds, causing the demand for bonds to rise, which in turn will drive bond prices up and the rate of interest down. The process continues

until the money market reaches equilibrium amount of money balances and interest rates. The falling rates of interest will lead to higher levels of desired investment expenditures.

5. Consider a country with a fixed exchange rate that has a current account surplus of \$20 billion, but a financial account deficit of \$18 billion.

(a) Is its balance of payments in deficit or surplus? Why? (5 marks)

The balance of payments is always zero, neither deficit nor surplus. Any deficit or surplus on current account that is not offset by a surplus or deficit on financial account results in a change in official reserve holdings, and a corresponding entry to balance the balance of payments account. The current account balance, the financial account balance and the change in official reserves sum to zero.

(b) What change in official exchange reserves would you see? Why? (5 marks)

Official reserves would increase by \$2 billion, the difference between the surplus on current account and the deficit on financial account.

(c) Is the central bank buying or selling foreign currency? Why? (5 marks)

The central bank would buy foreign currency to add to the official reserve account, since it needs to meet the demand for the domestic currency and prevents its appreciation.

(d) What effect does the central bank's foreign currency purchase or sale have on the monetary base? Explain why. (5 marks)

The monetary base increases. The central bank pays for the foreign currency it buys by issuing new central bank deposits, which are monetary base.

(e) Is this situation considered dangerous for the fixed exchange rate regime? Why? (5 marks)

No, since the balance of payments (excluding the FX reserves accounts) is positive, i.e. the country is adding, not losing, FX reserves, which are used to support the fixed exchange rate.