Concordia University, Department of Economics
ECON 203 Section C, Winter 2013
MIDTERM EXAMINATION, version 2

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Student ID: _____ **February 28, 2013**
Mark: _____/100 marks **Time Limit: 75 minutes**

Part I. Multiple Choice Questions. Circle the best answers (30 marks).

1. When the economy is experiencing a recessionary gap
   a. the actual unemployment rate is below the natural rate of unemployment.
   b. the actual unemployment rate is above the natural rate of unemployment.
   c. the actual unemployment rate cannot be compared to the natural rate of unemployment.
   d. None of the above.

2. Growth in GDP underestimated the growth in national well-being because
   a. As a country gets richer, literacy level and health services tend to improve.
   b. Investment such as stock purchase is not included in GDP.
   c. As a country gets richer, job quality and leisure time tend to increase.
   d. Both (a) and (c) are correct.

3. If nominal GDP grows by 7%, while the GDP deflator increases from 110 to 115.5 and population grows by 5% per capita real GDP:
   a. rises by 2%.
   b. is unchanged.
   c. falls by 2%.
   d. falls by 3%.

4. Other things equal, an improvement in productivity will:
   a. tend to increase the equilibrium price level.
   b. shift the aggregate supply curve to the left.
   c. shift the aggregate supply curve to the right.
   d. shift the aggregate demand curve to the left.

5. With a GDP deflator of 240 and real GDP of $1.8 billion, nominal GDP must be:
   a. $4.32 billion.
   b. $5.26 billion.
   c. $0.64 billion.
   d. $3.91 billion.

6. A rise in the amount of desired consumption or investment expenditure associated with each level of national income shifts the AE curve
   a. down and shifts the AD curve to the right.
   b. up and shifts the AD curve to the right.
   c. down but no movement of the AD curve.
   d. up and shifts the AD curve to the left.

7. If Y < AE, then inventory would
   a. Increase and Y would increase.
   b. Increase and Y would drop.
   c. Decrease and Y would increase.
   d. Decrease and Y would drop.

8. The deficit in the government's budget balance will increase when
   a. The government decreases the net taxes.
   b. The government increases its spending.
   c. The economy enters a recession.
   d. All of the above.

9. If the income rises from $40,000 to $60,000 and the net tax revenue for the government increase from $8,000 to $10,000, then
   a. t = 0.1 and T_0 = 4,000.
   b. t = 0.2 and T_0 = 0.
   c. t = 0.1 and T_0 = 0.
   d. t = 0.2 and T_0 = 4,000.

10. In the Canadian economy the unemployment rate increased by 1.5% between years 2008 and 2009. Using Okun's law this implies that
   a. the actual GDP increased by 1.5% less than the potential GDP.
   b. the actual GDP increased by 3% less than the potential GDP.
   c. the actual GDP increased by 0.75% more than the potential GDP.
   d. the actual GDP increased by 1.5% more than the potential GDP.

Part II: Algebraic questions. Answer all questions (Total=50 marks)

1. GDP measurement, Real GDP, Nominal GDP and GDP deflator

Consider the following table:

Item	Amount	Item	Amount
Government purchases	320	Consumption expenditure	400
Wages paid to labor	???	Interest and rent income	50
Subsidies	20	Import payments	60
Indirect taxes	60	Depreciation	40
Export earnings	100	Net Investment expenditure	200
Profits	280	Farm and non-farm unincorporated business income	70

a. Use the aggregate expenditure approach to find the value of GDP.

Y=AE=C+I+G+NX=400+(200+40)+320+(100-60)=1000.

b. Given the GDP value you have found in (a), use the income approach to find the value of wages paid to labor.

Wages + Profits + Interest and rent income + Farm and non-farm unincorporated business income + Depreciation + Indirect taxes – Subsidies = 1000→
Wages + 280 + 50 + 70 + 40 + 60 – 20 = 1000 → Wages = 520

The table below reports the nominal GDP and the GDP deflator in the fictional economy of Utopia for three consecutive years (base year is 2010):

	2009	2010	2011	2012
nominal GDP	**240**	250	270	300
real GDP	244	**250**	260	**288**
GDP deflator	98.36	**100**	**103.85**	104.17

c. What is the formula for the GDP deflator?

$$GDP\ deflator = \frac{nominal\ GDP}{real\ GDP} \times 100$$

d. Complete the missing values in the table above. Show your work. (*round your numbers to the second decimal place)*

$$\textbf{2009:}\quad 98.36 = \frac{n.GDP}{244} \times 100 \Rightarrow n.GDP = \frac{98.36 \times 244}{100} = 240$$

$$\textbf{2010: since it's the base year we get}\quad GDP\ defl. = 100 \quad and \quad r.GDP = n.GDP = 250$$

$$\textbf{2011:}\quad GDP\ deflator = \frac{270}{260} \times 100 = 103.85$$

$$\textbf{2012:}\quad 104.17 = \frac{300}{r.GDP} \times 100 \Rightarrow r.GDP = \frac{300}{104.17} \times 100 = 288$$

e. Using the information from the table calculate the yearly inflation rates. (*round your numbers to the second decimal place)*

$$inflation_{2010} = \frac{100 - 98.36}{98.36} \times 100 = 1.67\%$$

$$inflation_{2011} = \frac{103.85 - 100}{100} \times 100 = 3.85\%$$

$$inflation_{2012} = \frac{104.17 - 103.85}{103.85} \times 100 = 0.31\%$$

2. <u>Aggregate expenditure and fiscal policy</u>

Consider the following information for the economy of Euphoria:

C = 120 + 0.90(Y – T)	**I = 180**	**X = 100**
T = 100+0.1Y	**G = 200**	**Z = 0.21Y**

a. What is the equilibrium national income?

The consumption function out of income is

$$C = 120 + 0.90(Y - 100 - 0.1Y) \Rightarrow C = 30 + 0.81Y$$

The AE function is

$$AE = C + I + G + X - Z \Rightarrow$$

$$AE = 30 + 0.81Y + 180 + 200 + 100 - 0.21Y \Rightarrow$$

$$AE = 510 + 0.6Y$$

In equilibrium

$$Y = AE \Rightarrow Y = 510 + 0.6Y \Rightarrow 0.4Y = 510 \Rightarrow Y^* = 1275$$

b. What are the equilibrium values of taxes, budget balance, and consumption?

When Y = $1275 we get

$$T = 100 + 0.1(1275) \Rightarrow T = \$227.5$$

and

$$C = 30 + 0.81(1275) \Rightarrow C = \$1,062.75$$

and

$$BB = T - G \Rightarrow BB = 227.5 - 200 = \$27.5\ (budget\ surplus)$$

c. What is the formula for finding the multiplier? What is the value of the multiplier in this case?

$$multiplier = \frac{1}{1 - slope\ of\ AE} = \frac{1}{1 - 0.6} = 2.5$$

Currently the potential GDP of Euphoria is $\mathbf{Y_P = 1{,}500}$. To stimulate the economy the government needs to follow expansionary fiscal policy.

d. Find the change in the government spending necessary to bring the economy back to the potential GDP.

Since Y=1275 < Y_P =1500 the economy needs additional Y_P – Y =1500 – 1275 = 225 = ΔY. Using the multiplier we get

$$\Delta Y = Multiplier \times \Delta G \Rightarrow 225 = 2.5 \times \Delta G \Rightarrow \Delta G = 90$$

Therefore, given that initially G was 200, the new government spending is

$$G_{NEW} = 200 + 90 = 290$$

e. Before imposing the policy suggested in (d) the public debt was $800. Find the **Public Debt-to-GDP** ratios before and after the change in the government's fiscal policy.

Before the policy: Public debt = 800 – 27.5 = 772.5 and PD/GDP = 772.5/1275 = 60.59%

After the policy: To find the new public debt we need to take into account the new budget balance after the change in government spending. That is, the new BB is

$$BB_{NEW} = T_{NEW} - G_{NEW} \Rightarrow$$

$$BB_{NEW} = 100 + 0.1(1500) - 300 = -50$$

Therefore,

$$PD_{NEW} = 800 + 50 = 850$$

and

$$\left(\frac{PD}{GDP}\right)_{NEW} = \frac{850}{1500} = 56.67\%$$

Part III: True or False. (Total=10 marks)

Explain if the statements below are true or false. No explanation will get zero marks.

"An increase in the budget deficit is an indicator that the government is following expansionary fiscal policy."

FALSE. An increase in the BB deficit CAN be due to an expansionary fiscal policy (higher G or lower t) BUT it can also be a result of a recession in the economy (lower Y that results in lower T). The fiscal stance of the government can be identified by checking the change in the structural budget balance (SBB). If SBB goes up it's a contractionary policy while if SBB goes down (the SBB deficit increases) it's an expansionary policy.

"At the point where the aggregate expenditure line crosses the 45 degree line, planned saving is equal to zero."

FALSE. At the point where the aggregate expenditure line crosses the 45 degree line the AE equals Y. That is,

$$Y = AE \Rightarrow Y = C + I + G + X - Z$$

Since Y also represents income and people can (i) pay taxes, (ii) consume, and (iii) save, we have

$$Y = T + C + S$$

Therefore, in equilibrium

$$C + I + G + X - Z = T + C + S \Rightarrow S = I + G + X - Z - T$$

Part IV: Comment on current events. (Total=10 marks)

Carefully read the following news excerpt and answer the questions below:

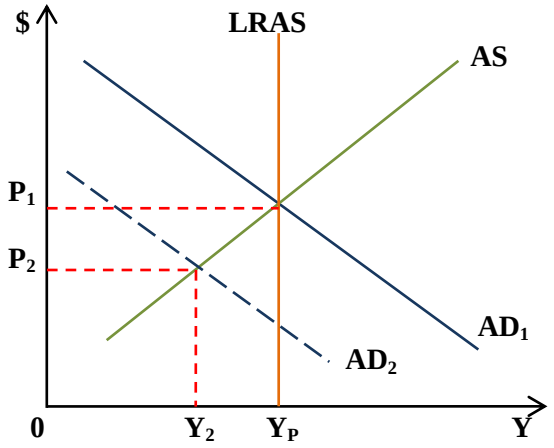
By Gordon Isfeld, Financial Post October 25, 2012

"Canada's corporate leaders turn gloomy amid global uncertainty."

OTTAWA — Canadian corporate leaders are pulling back on their business plans because of weak global economic growth and uncertain demand, according to a Bank of Canada survey. In its autumn Business Outlook Survey, the central bank said Monday that companies "have tempered their expectations for business activity."

"Firms are generally more circumspect about near-term investment decisions and are focusing on minimizing costs," the bank said, adding that companies expect little change in the pace of sales growth over the next 12 months. "The balance of opinion on investment remains positive but has declined, as many firms report shifting their focus toward more intensive use of existing capital over the near term." Hiring plans are "also less widespread" than indicated in the bank's previous survey.

a. Currently the Canadian economy is at its long-run equilibrium. Draw an AD/AS/LAS graph depicting this characteristic.



When the Canadian economy is in its long-run equilibrium, the AD and AS intersect right ON the Y_P line, so that actual GDP equals potential GDP, i.e., Y_P, while the price level is set at P_1.

b. How will the Canadian market be affected by the decision of corporate leaders to slow down investment expenditure? Show the change in your graph of part (a) and explain what will happen to Canadian GDP, price level, and unemployment rate.

Canadian investment will decrease. As a result, Canada's AD will decrease as well. In the graph above, this is depicted by a shift of the AD curve to the left (from AD_1 to AD_2). The result of this change is that the actual GDP will decrease below the potential level of output (recessionary gap) and the price level will decrease as well. The new position of the Canadian economy is at an actual GDP of Y_2 and a price level of P_2. The unemployment level will rise.