Department of Economics
University of Toronto

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SOLUTIONS

ECO 209Y – L0101
MACROECONOMIC THEORY

Term Test #2

LAST NAME _____

FIRST NAME _____

STUDENT NUMBER _____

INSTRUCTIONS:

1. The total time for this test is 2 hours.
2. Aids allowed: a simple calculator.
3. Use pen instead of pencil.

DO NOT WRITE IN THIS SPACE

Part I		_____/40
Part II	1.	_____/10
	2.	_____/10
	3.	_____/10
	4.	_____/10
TOTAL		_____/80

PART I (40 marks)

Instructions: Write your answers to the multiple choice questions on the table below. Only answers entered on the table will be graded. Each correct answer will count for 2 marks. **Note that a deduction of 0.5 marks will be made for each incorrect answer. DO NOT GUESS YOUR ANSWERS!**

1	2	3	4	5	6	7	8	9	10
A	C	E	A	E	B	A	C	A	B
11	12	13	14	15	16	17	18	19	20
D	D	E	B	D	C	E	C	C	D

Correct Answers: _____

Wrong Answers: _____

Blank Answers: _____

1. In a fixed-price IS-LM model, if we assume that money demand is totally interest insensitive, then

A) fiscal policy is ineffective.
B) the liquidity preference curves is horizontal.
C) the IS curve is horizontal.
D) interest rates cannot be lowered by fiscal or monetary policy.
E) monetary policy cannot change income.

2. If the money supply were an increasing function of the interest rate,

A) the IS curve would be steeper.
B) the IS curve would be flatter.
C) the LM curve would be flatter.
D) the LM curve would be steeper.
E) the slopes of the IS and LM curves would not be affected.

3. We can expect the IS curve to become steeper as

A) the supply of money decreases.
B) money demand becomes more interest sensitive.
C) investment becomes more sensitive to interest rate changes.
D) income sensitivity of imports decreases.
E) the marginal propensity to consume decreases.

Use this space for rough work.

4. Consider the fixed-price model of a closed economy. A decrease in autonomous investment will

A) lower the interest rate and decrease saving.
B) raise the interest rate and increase saving.
C) raise the interest rate and decrease saving.
D) lower the interest rate but leave saving unchanged.
E) do none of the above.

5. An increase in the money supply and a drop in consumer confidence will lead to

A) a decrease in output with an ambiguous effect on the interest rate.
B) an increase in output and a decrease in the interest rate.
C) a decrease in output and an increase in the interest rate.
D) an ambiguous effect on output and an increase in the interest rate.
E) an ambiguous effect on output and a decrease in the interest rate.

6. Consider the IS-LM model of a closed economy. If the government increases autonomous taxes and government purchases by equal amounts, which one of the following statements will be correct?

A) Income, the interest rate, consumption, and investment will remain unchanged.
B) Income and the interest rate will rise, whereas consumption and investment will fall.
C) Income and the interest rate fall, whereas consumption and investment rise.
D) Income, the interest rate, consumption, and investment all rise.
E) None of the above is true.

7. Consider the IS-LM model of a closed economy. If the government increased taxes to reduce the budget deficit, but the central bank held the money supply constant, then the two policies together would generally lead to _____ income and a _____ interest rate.

A) lower; lower.
B) lower; higher.
C) no change in; lower.
D) no change in; higher.
E) higher; lower.

Use this space for rough work

8. When a country slips into a recession, prudent governments stimulate the economy and create jobs. But what's the best way of doing so?

- **A)** Reducing the rate of interest to stimulate consumption and investment expenditure.
- **B)** Decreasing income taxes on the wealthy in order to stimulate investment.
- **C)** Increasing government expenditure on infrastructure.
- **D)** Increasing the salaries of government employees to stimulate their consumption expenditure.
- **E)** Increasing expenditure on new social programs in order to reduce the rate of unemployment.

9. Consider a closed economy with a fixed price-level and unemployment. The effect of a tax increase on real GDP will be neutralized if

- **A)** the central bank loosens monetary policy, which shifts the LM curve down to the right and lowers interest rates.
- **B)** the central bank tightens monetary policy, which shifts the IS curve to the left and raises interest rates.
- **C)** the central bank tightens monetary policy, which shifts the LM curve up to the left and raises interest rates.
- **D)** the central bank loosens monetary policy, which shifts the IS curve to the right and raises interest rates.
- **E)** the central bank loosens monetary policy, which shifts the LM curve down to the right and raises interest rates.

10. In an open economy with flexible exchange rates, an increase in the interest rate that prevails in the rest of the world will cause the

- **A)** domestic interest rate to rise, the level of output to fall and the exchange rate to rise.
- **B)** domestic interest rate, the level of output, and the exchange rate all to rise.
- **C)** domestic interest rate to rise, the level of output to rise and the exchange rate to fall.
- **D)** domestic interest rate to fall, the level of output to rise, and the exchange rate to fall.
- **E)** domestic interest rate to fall, the level of output to rise, and the exchange rate to rise.

Use this space for rough work

11. Consider the fixed-price model of an open economy with imperfect capital mobility. If Canada is on a system of fixed exchange rates and the U.S. central bank increases the U.S. money supply,

- **A)** the Canadian dollar will increase in value.
- **B)** the Canadian rate of interest will increase.
- **C)** the Bank of Canada will have to sell US dollars.
- **D)** Canada's equilibrium income will increase.
- **E)** there will be no effect on the Canadian economy whatsoever.

12. Consider the fixed-price model of an open economy with flexible exchange rates and imperfect capital mobility. Which one of the following statements is correct in this model?

- **A)** Expansionary monetary policy will appreciate the domestic currency.
- **B)** Expansionary fiscal policy will be ineffective with respect to income.
- **C)** Expansionary monetary policy will be ineffective with respect to income.
- **D)** Both expansionary monetary policy and expansionary fiscal policy will cause output to increase.
- **E)** None of the above is correct.

13. Consider the fixed-price model of an open economy with perfect capital mobility and flexible exchange rates. If the international rate of interest decreases by 3 percentage points and the exchange rate is expected to depreciate by 2 percent, in the new equilibrium the domestic rate of interest will

- **A)** increase by approximately 5 percentage points.
- **B)** increase by approximately 1 percentage point.
- **C)** decrease by approximately 1 percentage point.
- **D)** increase by approximately 3 percentage points .
- **E)** decrease by approximately 5 percentage points.

Use this space for rough work

14. Consider a fixed-price model of an open economy with flexible exchange rates. If the government wishes to increase equilibrium income without affecting the value of the domestic currency, the government should

- **A)** increase its expenditure and cut the money supply.
- **B)** raise its expenditure and raise the money supply.
- **C)** leave its expenditure unchanged while increasing the money supply.
- **D)** lower its expenditure and cut the money supply.
- **E)** lower its expenditure and raise the money supply.

15. Consider an open economy with fixed-price level, imperfect capital mobility, and flexible exchange rates. Which of the following would be the most likely outcomes following the implementation of expansionary fiscal policy?

- **A)** Lower income, deterioration of the capital account, and improvement of the current account.
- **B)** No change in income, improvement of the capital account, and deterioration of the current account.
- **C)** Lower income, improvement of the capital account, and deterioration of the current account.
- **D)** Higher income, improvement of the capital account, and deterioration of the current account.
- **E)** No change in income, no change in the capital account, and no change in the current account.

16. Consider an open economy with fixed-price level, perfect capital mobility, and flexible exchange rates. Contractionary fiscal policy will

- **A)** cause an appreciation of the domestic currency.
- **B)** shift first the LM-curve and then the IS-curve to the left.
- **C)** not change the overall level of output.
- **D)** cause a decrease in net exports.
- **E)** lower the level of output but leave the interest rate unchanged.

17. Assume that an international crisis breaks out and, as a result, foreign investors choose to purchase more government bonds of a large, safe country. Then, according to the basic open-economy model, this country's interest rate

- **A)** will fall and net exports will rise.
- **B)** will rise and net exports will fall.
- **C)** and net exports will both rise.
- **D)** will remain unchanged but net exports will fall.
- **E)** and net exports will both fall.

Use this space for rough work

18. Consider a small open economy with a fixed price-level, flexible exchange rates, and perfect capital mobility. Given an increase in autonomous exports, which one of the following statements would be true?

- **A)** The domestic currency would appreciate, the balance in the current account would improve, the rate of interest would rise, and income would increase.
- **B)** The domestic currency would appreciate, the balance in the current account would deteriorate, the rate of interest would rise, and income would increase.
- **C)** The domestic currency would appreciate while the balance in the current account, the rate of interest, and income would all remain unchanged.
- **D)** The domestic currency would depreciate, the balance in the current account would improve, the rate of interest would rise, and income would increase.
- **E)** The domestic currency would depreciate, the balance in the current account would improve, the rate of interest would fall, and income would increase.

19. In the basic model of a small open economy with a flexible exchange rate, if consumer confidence falls and consumers decide to save more, then the value of the domestic currency

- **A)** rises and net exports fall.
- **B)** and net exports both rise.
- **C)** falls and net exports rise.
- **D)** and net exports both fall.
- **E)** is not affected and neither is net exports.

20. Consider a model of an open economy with fixed prices, flexible exchange rates, and perfect capital mobility. Given an increase in autonomous exports, which one of the following statements is true with respect to its impact on the Canadian economy?

- **A)** The Canadian dollar will appreciate and the rate of interest will rise, and therefore imports will increase and investment will fall.
- **B)** The Canadian dollar will depreciate and imports will fall, thus increasing both net exports and the level of output.
- **C)** The Canadian dollar will depreciate and the rate of interest will rise, and therefore both imports and investment will fall.
- **D)** The Canadian dollar will appreciate and imports will rise, leaving net exports and the level of output unchanged.
- **E)** None of the above are true.

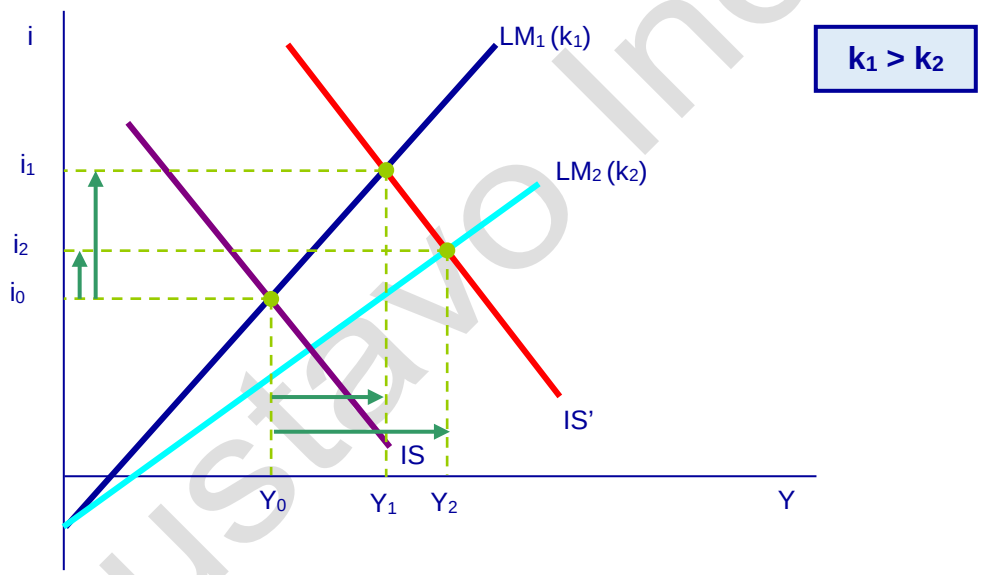
Use this space for rough work

PART II (40 marks)

Instructions: Answer the following questions in the space provided. Each question is worth 10 marks.

1. Critically evaluate the following statement: *"A decrease in the income sensitivity of the demand for real balances will enhance the effectiveness of fiscal policy."* (Show your answer with the help of a diagram and explain the economics. Consider the IS-LM model of a closed economy.)

Fiscal policy will have a greater impact on the level of equilibrium income the larger the fiscal policy multiplier is. Given $\beta_{FP} = 1 / [1 - c(1 - t) + bk / h]$, the fiscal policy multiplier rises when the income sensitivity of the demand for real balances (k) falls, and thus the effectiveness of fiscal policy increases. The economic explanation is as follows. The smaller the income sensitivity of the demand for real balances, the smaller the increase in the demand for money as a result of any given increase in income and, therefore, the smaller the increase of the rate of interest and the smaller the subsequent crowding out effect (i.e., the reduction in investment). Of course, the smaller the crowding out effect, the greater the impact of fiscal policy on equilibrium income. The following diagram also shows this result.



The expression for the *LM* curve is given by $i = -(M/P)/h + (k/h)Y$ and, therefore, the smaller k the flatter the *LM* curve. Suppose that the initial equilibrium is at (Y_0, i_0) and that the value of the income sensitivity of the demand for real balances is k_1 (and thus the *LM* curve is LM_1). Suppose now that *G* increases.

As *G* increases, the *IS* curve shifts up to the right and a situation of excess demand arises in the goods market. As output starts to increase to eliminate the excess demand, the demand for money also starts to increase and the rate of interest rises. Note that the adjustment is always along the *LM* curve since the money market is always in equilibrium by assumption. Given k_1, a new equilibrium will be reached at income Y_1 and rate of interest i_1.

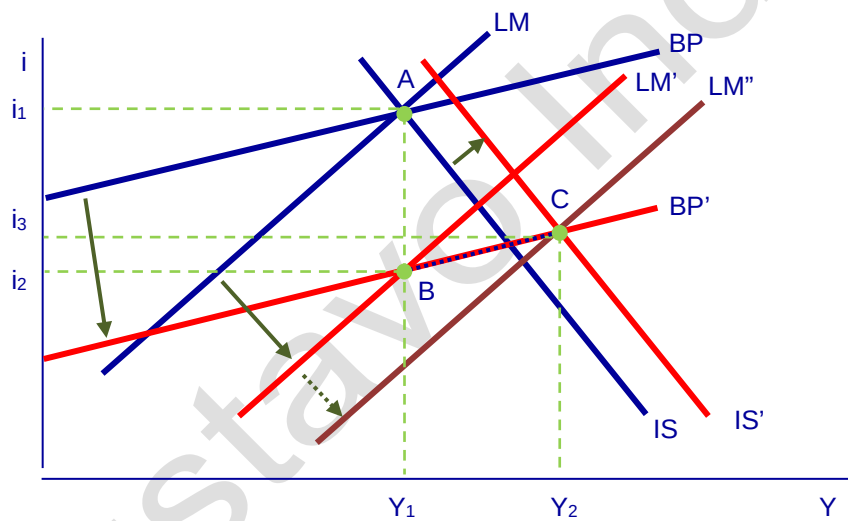
If k falls to k_2, the *LM* curve becomes flatter (i.e., the LM_2 curve). The fall in k will, in itself, have an expansionary effect on the economy, but it will also enhance the impact of expansionary fiscal policy. Indeed, as shown in the diagram, the increase in *G* will cause *Y* to increase to Y_2 in this case. This greater increase in *Y* is due to the smaller increase in the rate of interest (to i_2) and thus to the smaller crowding out effect (i.e., the decrease in investment).

The statement is, therefore, true.

2. Critically evaluate the following statement: *"A devaluation of the domestic currency will cause the level of income to increase, the rate of interest to fall, the balance in the current account to improve, and the balance in the capital account to deteriorate."* (Show your answer with the help of a diagram and explain the economics. Consider an open economy characterized by a fixed-price level, fixed exchange rates and imperfect capital mobility. Assume that there is a recessionary gap at the initial equilibrium.)

Suppose that the economy is initially in equilibrium at point *A* (see diagram below). The devaluation of the domestic currency increases the international competitiveness of domestic goods, and thus *NX* increases. The increase in *NX* causes *AE* to increase and the *IS* curve shifts to the right to *IS'*. A situation of excess demand (i.e., *AE* > *Y*) emerges in the goods market.

At the initial equilibrium, the devaluation of the currency causes the balance in the current account to improve while leaving the balance in the capital account unchanged. Therefore, at point *A* there is now a surplus in the external sector (i.e., *BP* > 0 and thus the supply of foreign currency is greater than its demand). For the external sector to be in equilibrium at Y_1, the rate of interest must be lower (i.e., the balance in the capital account must deteriorate by the same amount as the balance in the current account improved). Therefore, *BP* would be zero at Y_1 when the rate of interest is i_2 — this means that the *BP* curve has shifted down and goes through point *B*.

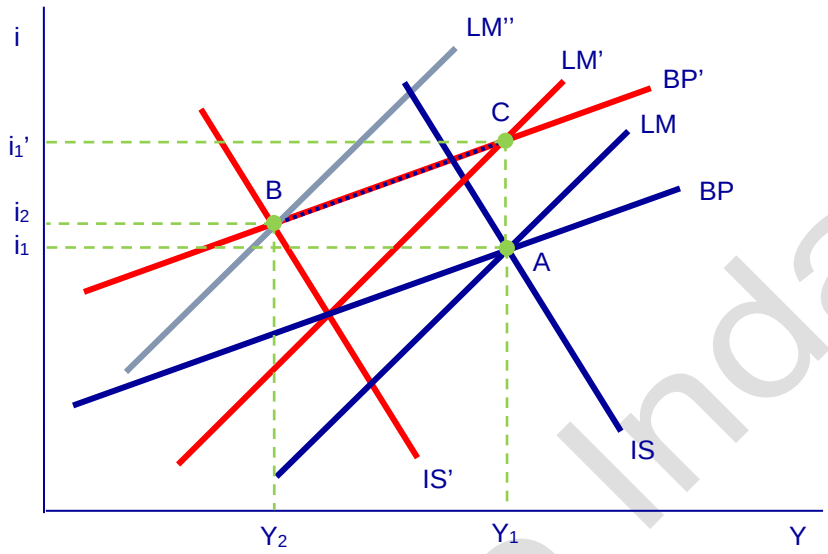


The economy is still at point *A* (on the *LM* curve). However, since there is a surplus in the external sector and the central bank wants to keep the exchange rate at the new fixed level, the central bank will buy foreign currency. As a result, the domestic supply of money increases and the *LM* curve shifts to the right to *LM'*. Now the economy is at point *B* — both the money market and the external sector are in equilibrium but there is an excess demand in the goods market. Note that the fall in the interest rate to i_2 causes the balance in the capital account to deteriorate by the same absolute amount as the previous improvement in the current account due to the devaluation.

Now *Y* starts to increase to eliminate the excess demand in the goods market and the domestic rate of interest starts to rise (because of the increase in demand for real balances). The increase in the rate of interest improves the balance in the capital account and creates a surplus in the external sector, which the central bank eliminates by buying foreign currency. Therefore, the money supply increases and the *LM'* curve shifts further to the right. This process continues as long as there is an excess demand in the goods market, i.e., until the *LM'* curves shifts all the way to *LM''*. Note that the money market is always in equilibrium (by assumption) and that the intervention of the central bank in the exchange market helps maintaining equilibrium in the external sector at all times as well. Therefore, during the process of adjustment, the economy is always at a point of intersection of the (shifting) *LM* curve and the (static) *BP*' curve, i.e., the adjustment path is graphically represented by a movement up along the *BP*' curve.

The statement is therefore true: as equilibrium moves from point *A* to point *C*, the level of income rises to Y_2, the rate of interest falls to i_3, the balance in the current account improves (due to the devaluation), and the balance in the capital account deteriorates (due to the fall in *i*).

3. Comment on the following statement: *"An increase in consumers' preference for vacationing abroad will lead to an increase in domestic income, an increase in the domestic interest rate, an improvement in the capital account, and a deterioration in the current account."* Show your answer with the help of a diagram and explain the economics. Consider the fixed-price model of an open economy with fixed exchange rates and imperfect capital mobility.

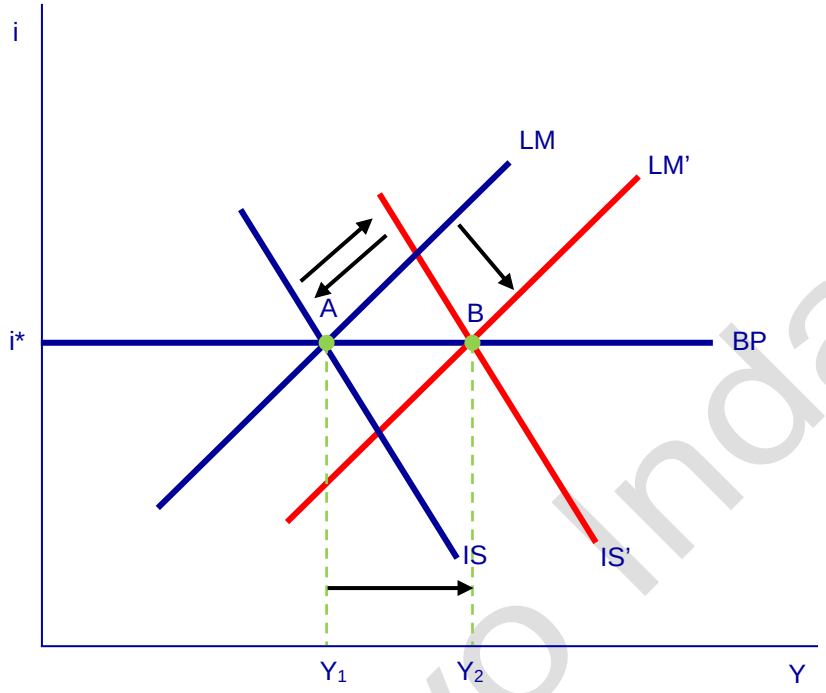


The goods market, the money market, and the external sector are initially in equilibrium at Y_1 and i_1 (point *A* in the diagram). An increase in preference for vacationing abroad increases imports (i.e., it decreases *NX*) at each level of *Y*, and thus the *IS* shifts to *IS*'. The decrease in *NX* deteriorates the balance in the current account, and thus now *BP* = 0 at higher levels of the rate of interest—i.e., the *BP* curve shifts up to *BP*'. The decrease in *NX* creates a situation of excess supply in the goods market since *AE* < *Y* now. In addition, the increase in imports causes the balance in the current account to deteriorate and creates an excess demand for foreign currency in the exchange market.

Under a fixed exchange rate system, the central bank sells foreign currency to eliminate the excess demand in the exchange market. As a result, the money supply decreases and the *LM* curve shifts up to *LM*'. The decrease in the money supply increases the rate of interest to i_1', which causes the balance in the capital account to improve—thus offsetting the previous deterioration in the current account. The economy is now at point *B*—there is equilibrium in the money market and the external sector, but an excess supply in the goods market. Firms will experience involuntary increases in inventories and will thus adjust production downwards. As output (*Y*) starts to decrease, the demand for money also starts to decrease and the domestic rate of interest starts to fall—thus deteriorating the balance in the capital account and making *BP* < 0. The central bank sells foreign currency to eliminate the excess demand in the exchange market and the money supply decreases and the *LM* curve keeps shifting up to the left. Also note that imports start to decrease as *Y* falls, thus contributing to reduce the excess demand for foreign currency in the exchange market.

This process continues as long as an excess supply remains in the goods market, i.e., until the economy moves to point *C*. At the end of the process, therefore, the decrease in the supply of money causes the *LM* curve to shift to *LM*'' and equilibrium income to decrease to Y_2 (and the rate of interest to fall to i_2). Note that the money market is always in equilibrium (by assumption) and that the intervention of the central bank in the exchange market contributes to maintaining equilibrium in the external sector at all times as well. Therefore, during the process of adjustment, the economy is always at a point of intersection of the (shifting) *LM* curve and the (static) *BP*' curve. Therefore, the adjustment path is graphically represented by a movement up along the *BP*' curve. At the end of the process, *Y* will decrease from Y_1 to Y_2, the rate of interest will rise from i_1 to i_2, the balance in the current account will deteriorate (due to the initial increase in autonomous *Q*), and the balance in the capital account will improve (due to the rise in *i*).

4. Comment on the following statement: *"Putting a tariff on imports will lead to a fall in exports under a fixed exchange rate but not under a flexible exchange rate."* (Show your answer with the help of graphs and **explain** the economics. Consider the IS-LM-BP model under the assumption of perfect capital mobility.)



A tariff on imports decreases imports and increases *NX* at each level of *Y* and thus the *IS* shifts to *IS'* as shown in the diagram. The increase in NX creates a situation of disequilibrium in the goods market since *AE* > *Y* now. Firms will observe that their inventories start to decrease and will adjust production upwards. As output (*Y*) starts to increase, the demand for money also starts to increase and the domestic rate of interest rises above the international rate. Given the assumption of perfect capital mobility, a massive inflow of capital will ensue.

Under a fixed exchange rate system, the excess supply of foreign currency resulting from the capital inflow is eliminated by the central bank buying foreign currency in the exchange market. As a result the money supply increases and the *LM* curve starts shifting to the right. This process continues as long as there is pressure for the rate of interest to remain above the international rate. At the end of the process, then, the *LM* curve shifts to *LM'* and equilibrium income increases to Y_2. In this case, therefore, exports do not change since the exchange rate remains unchanged.

Under a flexible exchange rate system, the inflow of capital causes an appreciation of the domestic currency, thus exports start to fall and imports start to increase. As *NX* decreases, the *IS* curve starts shifting back to the left. This process continues as long as there is pressure for the rate of interest to remain above the international rate. At the end of the process, then, the *IS'* curve shifts back to its initial position (*IS*) and equilibrium income remains unchanged. In this case, therefore, exports decrease by the same amount as imports (so *NX* doesn't change).

The statement is therefore false.

Use this space for rough work