

STUDENT NAME: _____

STUDENT NO.: _____

SECTION NO.: _____

**THE UNIVERSITY OF WESTERN ONTARIO
LONDON CANADA**

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ECONOMICS 1022B-002/004

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FINAL EXAMINATION

INSTRUCTIONS:

1. The examination begins at **7:00 p.m.** and ends at **9:00 p.m.**
2. Check that your examination paper contains 18 pages.
3. Use a **BLACK PENCIL** to complete your Scantron Form.

Print your **NAME** and complete your **SIGNATURE** on both the Scantron and exam paper.

Enter your **STUDENT NUMBER** on both the Scantron and exam paper.

Enter your **SECTION NUMBER**, which is either 002 or 004 on both the Scantron and exam paper.

4. **Please hand in ALL MATERIALS, including the examination paper.**
5. You may use a regular calculator but you may not use a programmable or graphing calculator. Your cell phone may *not* be used as a calculator.
6. Your cell phone must be switched off and left in your bag at the front of the exam room.
7. You must remain in the examination room until you have finished the exam. No breaks outside of the examination room will be allowed.

NOTE: QUESTIONS ARE PRINTED ON BOTH SIDES OF EACH PAGE

- 1) To derive net domestic income at market prices from gross domestic product, we
 - A) subtract gross investment from GDP (income approach).
 - B) subtract depreciation from GDP (income approach).
 - C) add the statistical discrepancy to GDP (income approach).
 - D) add depreciation to GDP (income approach).
 - E) subtract the statistical discrepancy from GDP (income approach).

Use the table below to answer the following question.

Table 1

There are only two goods in this economy.

| | Price | | Quantity | |
|----------------|-----------|--------------|-----------|--------------|
| | Base Year | Current Year | Base Year | Current Year |
| | (dollars) | (dollars) | | |
| Bread | 1.00 | 2.10 | 70,000 | 75,000 |
| Computer Disks | 1.00 | 1.80 | 25,000 | 18,000 |

- 2) Refer to Table 1. Consider the data in this table. What is current real GDP in terms of base-year prices?
 - A) \$93,000.
 - B) \$95,000.
 - C) \$192,000.
 - D) \$189,900.
 - E) None of the above.

- 3) Since 1960, the Canadian labor force participation rate has _____ and the unemployment rate has _____.
 - A) trended lower; varied over the business cycle
 - B) trended higher; varied over the business cycle
 - C) varied over the business cycle; trended higher
 - D) trended higher; trended higher
 - E) trended higher; trended lower

- 4) The official unemployment rate might underestimate the underutilization of labour resources for all of the following reasons *except* _____.
 - A) it excludes people who are waiting to be called back to jobs from which they have been laid off
 - B) it excludes marginally attached workers
 - C) it excludes part-time workers who want full-time jobs
 - D) it excludes discouraged workers
 - E) the official unemployment rate excludes all of the above

Use the table below to answer the following question.

Table 2

Suppose a simple economy produces three goods only.
The price and output data for some selected years are shown below.

| | Price (dollars) | Price (dollars) | Quantity (number) | Quantity (number) |
|-----------|--------------------|--------------------|----------------------|----------------------|
| | 1998 | 2008 | 1998 | 2008 |
| Pop | 0.75 | 1.10 | 100 | 120 |
| Crackers | 1.25 | 2.10 | 300 | 280 |
| Cucumbers | 2.00 | 3.00 | 200 | 190 |

- 5) Refer to Table 2. The reference base period is 2008. The CPI in 1998 is
- A) 157. $Q_{1998} \times P_{\text{current}}$
 - B) 64. $(100 \times 0.75) + (300 \times 1.25) + (200 \times 2) = 850$
 - C) 129. $Q_{1998} \times P_{\text{base}}$
 - D) 100. $(100 \times 1.1) + (300 \times 2.1) + (200 \times 3) = 1340$
 - E) 152. $850/1340 = 0.634$
- 6) *Ceteris paribus*, an increase in population results in a
- A) higher level of labour employed and higher potential GDP per hour of labour.
 - B) lower level of labour employed and higher potential GDP per hour of labour.
 - C) higher level of labour employed and lower potential GDP per hour of labour.
 - D) constant level of labour employed and constant potential GDP per hour of labour.
 - E) lower level of labour employed and lower potential GDP per hour of labour.

Use the table below to answer the following question.

Table 3

| Year | Capital per hour of labour (seashells) | Labour productivity (seashells) |
|------|--|---------------------------------|
| 2007 | 600.0 | 400.0 |
| 2008 | 654.0 | 424.0 |
| 2009 | 719.4 | 466.4 |

- 7) Refer to Table 3. The table shows capital per hour of labour and labour productivity for the beach economy of Whitepool. Whitepool follows a one-third rule. In the year 2008, how many seashells respectively does the increase in capital per hour of labor contribute and how many seashells of growth does technological change contribute to the growth in labour productivity?
- A) 12 seashells; 12 seashells
 - B) 3 seashells; 3 seashells
 - C) 24 seashells; 0 seashells
 - D) 54 seashells; -30 seashells
 - E) none of the above

Refer to the figure below to answer the following question.

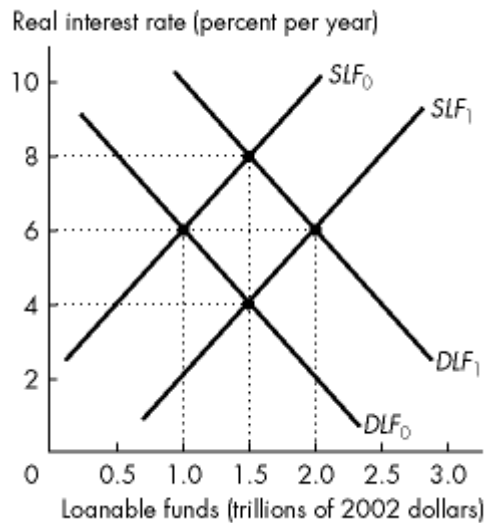


Figure 1

- 8) Refer to Figure 1. In Figure 1, the supply of loanable funds curve is SLF_0 and the demand for loanable funds curve is DLF_0 . An expansion that increases disposable income and expected profit
- A) shifts the supply of loanable funds curve rightward to curve SLF_1 and does not shift the demand for loanable funds curve.
 - B) shifts the supply of loanable funds curve rightward to curve SLF_1 , and shifts the demand for loanable funds curve rightward to curve DLF_1 .
 - C) has no effect on either the demand for loanable funds curve or the supply of loanable funds curve.
 - D) shifts the demand for loanable funds curve rightward to curve DLF_1 and does not shift the supply of loanable funds curve.
 - E) none of the above.

Refer to the table below to answer the following question.

Table 4

| Real interest rate (percent per year) | Loanable funds demanded (trillions of 2002 dollars) | Loanable funds supplied (trillions of 2002 dollars) |
|--|--|--|
| 4 | 7.0 | 7.0 |
| 5 | 6.5 | 7.5 |
| 6 | 6.0 | 8.0 |
| 7 | 5.5 | 8.5 |
| 8 | 5.0 | 9.0 |
| 9 | 4.5 | 9.5 |
| 10 | 4.0 | 10.0 |

- 9) Refer to Table 4. The table shows an economy's demand for loanable funds schedule and the private supply of loanable funds schedule when the government's budget is balanced. If the government budget deficit is \$1.0 trillion, the real interest rate is _____ percent a year, the quantity of investment is _____ trillion, and the quantity of private saving is _____ trillion.
- A) 7; \$8.5; \$5.5
 - B) 5; \$7.5; \$6.5
 - C) 3; \$6.5; \$7.0
 - D) 7; \$5.5; \$8.5
 - E) 5; \$6.5; \$7.5
- 10) An increase in the government budget deficit _____. If the country is an international borrower, the government budget deficit _____. If the country is an international lender, the government budget deficit _____.
- A) decreases the country's supply of loanable funds; increases foreign borrowing; decreases foreign lending
 - B) increases the country's supply of loanable funds; decreases foreign lending; increases foreign borrowing
 - C) decreases the country's demand for loanable funds; decreases foreign lending; increases foreign borrowing
 - D) increases the country's demand for loanable funds; increases foreign borrowing; decreases foreign lending
 - E) increases the country's demand for loanable funds; decreases foreign borrowing; increases foreign lending

- 11) Which of the following is an economic function of a chartered bank?
- A) Pooling risk.
 - B) Issuing bank notes.
 - C) Supervising financial markets.
 - D) Conducting monetary policy.
 - E) None of the above.
- 12) The money creation process begins when
- A) desired reserves increase because of an increase in deposits.
 - B) banks have excess reserves.
 - C) bank deposits increase.
 - D) banks lend reserves.
 - E) the quantity of money increases.
- 13) If the interest rate is below the equilibrium, how is equilibrium achieved in the money market?
- A) People sell bonds to get rid of their excess money, lowering the price of bonds and raising the interest rate.
 - B) People buy goods to get rid of their excess money, lowering the price of goods and raising the interest rate.
 - C) People sell bonds to try and raise more money, lowering the price of bonds and raising the interest rate.
 - D) People sell goods to get rid of their excess money, lowering the price of goods and raising the interest rate.
 - E) People buy bonds to get rid of their excess money, raising the price of bonds and raising the interest rate.
- 14) Quantecon is a country in which the quantity theory of money operates. The country has a constant population, capital stock, and technology. In year 1, real GDP was \$400 million, the price level was 200, and the velocity of circulation was 20.
 In year 2 the quantity of money was 20 percent higher than in year 1.
 The quantity of money in year 1 was _____.
 The quantity of money in year 2 was _____.
 The price level in year 2 is _____.
- A) \$20 million; 24 million; 240
 - B) \$40 million; \$48 million; 220
 - C) \$40 million; \$48 million; 240
 - D) \$20 million; \$24 million; 220
 - E) \$80 million; \$88 million; 200

- 15) In the United Kingdom, the currency drain ratio is 0.38 and the desired reserve ratio is 0.002. The U.K. money multiplier is
- A) 2.62.
 - B) 3.61.
 - C) 2.77.
 - D) 0.38.
 - E) 0.28.
- 16) Choose the incorrect statement.
- A) The nominal CERI and the real CERI appreciated constantly between 1997 and 2008.
 - B) In the CERI, each currency gets a weight that represents the importance of the currency in Canada's international trade.
 - C) The average of the exchange rates of the Canadian dollar against the U.S. dollar, the European Union euro, the Japanese yen, the U.K. pound, the Chinese yuan, and the Mexican peso is the Canadian-dollar effective exchange rate index.
 - D) The absence of a gap between the real CERI and the nominal CERI between 1997 and 2008 results from the fact that the inflation rates in Canada and the other countries were similar.
 - E) The CERI shows that the dollar depreciated on average from 1997-2002 and then appreciated through 2007.
- 17) Which of the following factors influence the demand for Canadian dollars?
- A) Interest rates in Canada and other countries, and the expected future exchange rate.
 - B) The world demand for Canadian exports.
 - C) The world demand for Canadian exports and Canadian demand for imports.
 - D) Both A and B.
 - E) Both B and C.
- 18) Suppose the interest rate in Canada rises and the interest rate in Japan remains the same. Interest rate parity implies that given equal risk
- A) the yen is expected to appreciate against the dollar.
 - B) the inflation rate is higher in Japan.
 - C) Canadian financial investments are less profitable.
 - D) Japanese financial investments are less profitable.
 - E) the yen is expected to depreciate against the dollar.

Use the table below to answer the following question.

Table 5

| Year | Borrowed from Rest of World (billions of dollars) | Loaned to Rest of World (billions of dollars) |
|------|--|--|
| 1 | 60 | 20 |
| 2 | 60 | 40 |
| 3 | 60 | 60 |
| 4 | 60 | 80 |

- 19) Refer to Table 5. If Mengia's official settlement balance was in surplus every year, for which year or years can you say for sure there was a current account deficit?
- A) years 3 and 4
 - B) year 2 only
 - C) years 2 and 3
 - D) years 1, 2, and 3
 - E) year 1 only
- 20) A country's currency appreciates and its official holdings of foreign currency increase. The central bank is _____ foreign currency to limit the appreciation, and the official settlements account balance is _____.
- A) buying; negative
 - B) buying; zero
 - C) buying; positive
 - D) selling; positive
 - E) selling negative
- 21) Suppose there is an increase in the quantity of capital. As a result, the *SAS*
- A) and the *LAS* curves both shift leftward.
 - B) curve does not shift but the *LAS* curve shifts leftward.
 - C) and the *LAS* curves both shift rightward.
 - D) curve does not shift but the *LAS* curve shifts rightward.
 - E) shifts rightward, but the *LAS* curve does not shift.
- 22) Which one of the following variables can change without creating a shift of the aggregate demand curve?
- A) Price level.
 - B) Expectations about inflation.
 - C) The tax rate.
 - D) Monetary policy.
 - E) The interest rate.

Use the table below to answer the following question.

Table 6

| Price Level (2002=100) | Aggregate Demand (billions of 2002 dollars) | Short-Run Aggregate Supply (billions of 2002 dollars) | Long-Run Aggregate Supply (billions of 2002 dollars) |
|---------------------------|--|--|---|
| 100 | 800 | 300 | 600 |
| 110 | 700 | 400 | 600 |
| 120 | 600 | 500 | 600 |
| 130 | 500 | 600 | 600 |
| 140 | 400 | 700 | 600 |

- 23) Refer to Table 6. Consider the economy represented in the table. The economy eventually moves to its long-run equilibrium. In long-run equilibrium, the price level is _____ and real GDP is _____ billion.
- A) 130; \$600
 - B) 120; \$500
 - C) 130; \$500
 - D) 120; \$600
 - E) 125; \$550

Use the table below to answer the following question.

Table 7

| | 2004 | 2005 | 2006 |
|----------------------|------|------|------|
| Real GDP growth rate | 8.1 | 8.3 | 7.3 |
| Inflation | 4.2 | 4.7 | 4.6 |

- 24) Refer to Table 7. The International Monetary Fund's World Economic Outlook database provides the data given in the table for India in 2004, 2005 and 2006. The numbers in the table are consistent with
- A) increases in long-run and short-run aggregate supply and even greater increases in aggregate demand.
 - B) increases in long-run and short-run aggregate supply and even larger decreases in aggregate demand.
 - C) increases in short-run aggregate supply and no change in aggregate demand.
 - D) increases in short-run aggregate supply and increases in aggregate demand, but the increases in aggregate demand are smaller than the increases in short-run aggregate supply.
 - E) decreases in long-run and short-run aggregate supply and even greater decreases in aggregate demand.

25) Keynesian macroeconomists recommend

- A) policies that actively offset changes in long-run aggregate supply that result in negative economic growth.
- B) policies that minimize the disincentive effects of taxes on employment, investment, and technological change.
- C) policies that actively offset changes in aggregate demand that bring recession.
- D) an increase in the quantity of money to offset decreases in aggregate demand and a decrease in the quantity of money to offset increases in aggregate demand.
- E) none of the above.

Use the table below to answer the following question.

Table 8

| Disposable Income (dollars) | Consumption Expenditure (dollars) |
|-----------------------------------|---|
| 325 | 325 |
| 400 | 375 |
| 475 | 425 |
| 550 | 475 |
| 625 | 525 |

26) Refer to Table 8. What is the value of the marginal propensity to save?

- A) 1.33
- B) 0.33
- C) 0.27
- D) 0.67
- E) 0.25

Use the figure below to answer the following question.

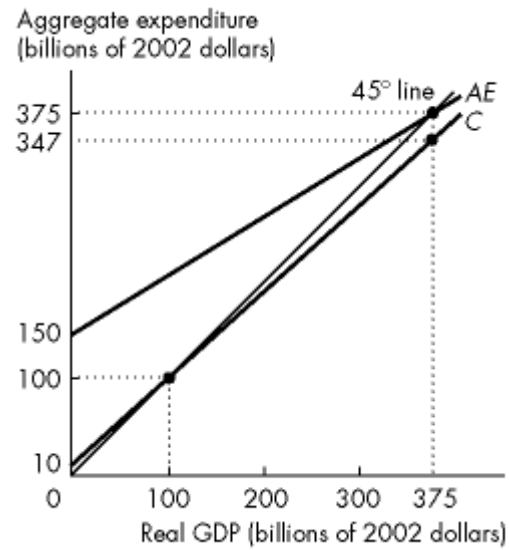


Figure 2

There are no taxes in this economy.

- 27) In Figure 2, at the equilibrium level of real GDP, *induced* expenditure is
- A) \$347 billion.
 - B) \$225 billion.
 - C) \$375 billion.
 - D) \$150 billion.
 - E) \$28 billion.

Use the figure below to answer the following question.

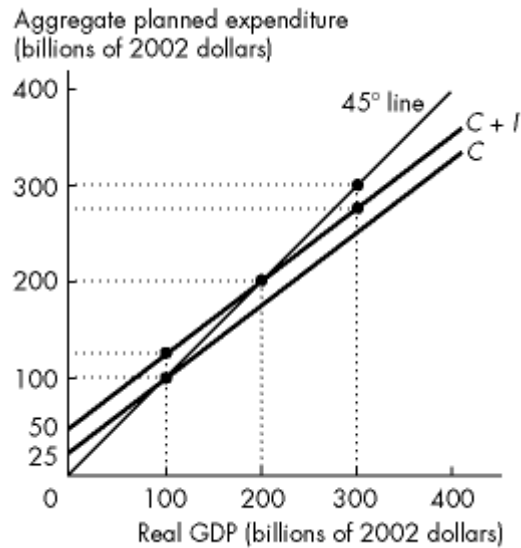


Figure 3

The economy shown in the graph does not engage in international trade and has no government. Planned aggregate expenditure equals the sum of consumption expenditure (C) and investment (I).

- 28) Refer to Figure 3. If investment increases by \$25 billion, then real GDP increases by
- \$50 billion.
 - \$125 billion.
 - \$100 billion.
 - \$75 billion.
 - \$25 billion.
- 29) An increase in investment shifts the AE curve upward by an amount equal to the _____, and shifts the AD curve rightward by an amount equal to the _____.
- change in investment times the multiplier; change in investment
 - change in investment times the multiplier; change in investment times the multiplier
 - change in investment; change in investment times the multiplier
 - change in investment; change in investment
 - change in investment divided by the multiplier; change in investment

- 30) You are given the following information about the Canadian economy. Autonomous consumption expenditure is \$50 billion, investment is \$200 billion, and government expenditure is \$250 billion. The marginal propensity to consume is 0.7 and net taxes are \$250 billion. Net taxes are assumed to be constant and not vary with income. Exports are \$500 billion and imports are \$450 billion.

The equation of the AE curve in billions of dollars is _____. Equilibrium expenditure is _____.

- A) $AE = 0.7Y + 1,275$; \$4,250 billion
 - B) $AE = 0.7Y + 375$; \$1,250 billion
 - C) $AE = 0.7Y + 375$; \$536 billion
 - D) $AE = 0.7 + 375Y$; \$1,250 billion
 - E) $AE = 0.7Y + 300$; \$1,000 billion
- 31) The economy starts out at a full-employment equilibrium. Some events then occur that generate a demand-pull inflation. All of the following events *except* an increase in _____ might cause a demand-pull inflation.
- A) transfer payments
 - B) the money wage rate
 - C) government expenditure
 - D) exports
 - E) the quantity of money
- 32) The Canadian short-run Phillips curve _____ when the expected inflation rate rises and _____ when the expected inflation rate falls. The Canadian short-run Phillips curve _____ when the natural unemployment rate increases and _____ when the natural unemployment rate decreases.
- A) shifts upward; shifts downward; does not shift; does not shift
 - B) does not shift; does not shift; shifts rightward; shifts leftward
 - C) shifts upward; shifts downward; shifts rightward; shifts leftward
 - D) shifts upward; does not shift; shifts rightward; does not shift
 - E) shifts downward; shifts upward; shifts rightward; shifts leftward
- 33) The Canadian long-run Phillips curve _____ when the expected inflation rate rises and _____ when the expected inflation rate falls. The Canadian long-run Phillips curve _____ when the natural unemployment rate increases and _____ when the natural unemployment rate decreases.
- A) shifts rightward; shifts leftward; does not shift; does not shift
 - B) shifts upward; shifts downward; shifts rightward; shifts leftward
 - C) shifts rightward; shifts leftward; shifts rightward; shifts leftward
 - D) does not shift; does not shift; shifts rightward; shifts leftward
 - E) does not shift; does not shift; does not shift; does not shift

- 34) The key ripple effect in real business cycle theory is the _____ decision and it depends on the _____.
- A) when-to-work; real interest rate
 - B) what-to-save; nominal interest rate
 - C) when-to-invest; real interest rate
 - D) where-to-work; real wage rate
 - E) when-to-work; rigidity of the money wage rate
- 35) According to real business cycle theory, if the Bank of Canada increases the quantity of money when real GDP decreases, real GDP
- A) will increase but only temporarily.
 - B) will be unaffected, but the price level will rise.
 - C) will decrease due to the inefficiencies introduced into production as a result.
 - D) will increase permanently.
 - E) and the price level will both be unaffected.
- 36) The current federal government budget includes all of the following policies *except*
- A) provides \$3.2 billion in personal income tax relief to support growth and job creation.
 - B) supports the next generation of business leaders with \$10 million in new funding for the Canadian Youth Business Foundation.
 - C) commits \$600 million to help develop and attract talented people to strengthen Canada's capacity for world-leading research and development.
 - D) increases the Employment Insurance premium rates to create a greater pool of funds to pay the unemployed in case of another recession
 - E) encourages investment in energy projects and clean energy generation.
- 37) The autonomous tax multiplier equals
- A) $-MPC/(1-\text{slope of } AE \text{ curve})$.
 - B) $-MPC/(1-MPC)$.
 - C) $MPC/(1-\text{slope of } AE \text{ curve})$.
 - D) $MPC/(1-MPC)$.
 - E) $-\text{slope of } AE \text{ curve}/(1-\text{slope of } AE \text{ curve})$.
- 38) Government debt in Canada is
- A) less in 2010 than it was in 2009.
 - B) equal to revenues minus outlays.
 - C) greater in 2010 than it was in 2009.
 - D) always increasing.
 - E) one-tenth the size of the U.S. government debt.

39) An income tax _____ potential GDP by shifting the labour _____ curve _____.

- A) decreases; demand; rightward
- B) decreases; supply; leftward
- C) increases; supply; rightward
- D) increases; supply curve and labour demand curve; rightward
- E) increases; demand; rightward

40) According to the Laffer curve, raising the tax rate

- A) always increases the amount of tax revenue.
- B) does not change the amount of tax revenue.
- C) might increase, decrease, or not change the amount of tax revenue.
- D) has no effect on the amount of tax revenue.
- E) always decreases the amount of tax revenue.

41) Currently the government of Ricardia has outlays equal to \$100 billion, and a tax scheme that is related positively to real GDP by the following equation: $\text{Taxes} = \$25 \text{ billion} + 0.1(\text{real GDP})$. What are autonomous taxes in Ricardia?

- A) \$25 billion
- B) \$2.5 billion
- C) 0.1
- D) It depends on the level of real GDP.
- E) \$250 billion

Use the figure below to answer the following question.

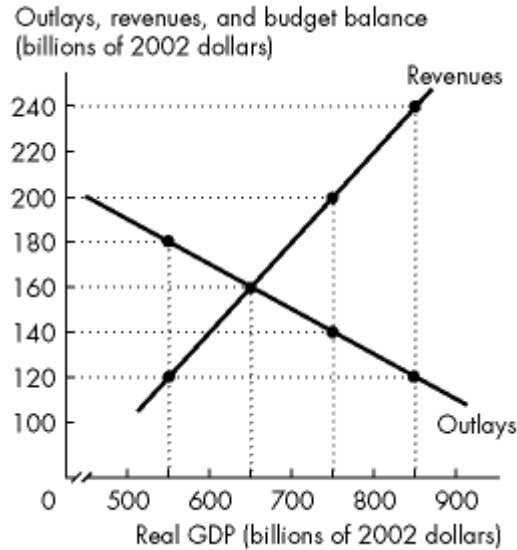


Figure 4

- 42) Refer to Figure 4, which shows the outlays and revenues for the government of Pianoland. If real GDP equals \$550 billion, the structural deficit is $180-120$
- A) a surplus of \$60 billion.
 - B) \$60 billion.
 - C) zero.
 - D) a surplus of \$40 billion.
 - E) unknown given the available information.
- 43) One criticism of the Bank of Canada's focus on an inflation control target is that
- A) it makes setting expectations of inflation difficult.
 - B) if inflation falls below the target range a recession will result.
 - C) the Bank rarely achieves its target.
 - D) the Bank pays too much attention to unemployment and real GDP growth and not enough to inflation control.
 - E) if inflation edges above the target range, the Bank decreases aggregate demand and could create a recession.

- 44) The objective of the Bank of Canada's monetary policy is
- A) to keep the unemployment rate below 5 percent, the inflation rate between 1 and 3 percent a year, and long-term real GDP growth above 4 percent a year.
 - B) to keep the overnight loans rate below 2 percent a year and the unemployment rate at its natural rate.
 - C) to keep the labour force participation rate above 80 percent, the inflation rate below 2 percent a year, and the exchange rate fluctuating by less than 3 percent a year.
 - D) to control the quantity of money and interest rates to avoid inflation and when possible prevent excessive swings in real GDP growth and unemployment.
 - E) to keep the unemployment rate below 5 percent, the inflation rate between 1 and 3 percent a year, and long-term interest rates below 4 percent a year.
- 45) When the Bank of Canada buys securities, reserves _____. The Bank of Canada's assets _____ and its liabilities _____.
- A) decrease; decrease; decrease
 - B) increase; increase; decrease
 - C) increase; decrease; increase
 - D) decrease; decrease; increase
 - E) increase; increase; increase
- 46) The overnight rate is determined by equilibrium in the market for _____. The overnight rate _____.
- A) loanable funds; equals the real interest rate
 - B) money; equals the real interest rate
 - C) reserves; is the rate that sets the quantity of reserves demanded equal to the quantity of reserves supplied
 - D) reserves; equals the real interest rate minus the inflation rate
 - E) loanable funds; equals the real interest rate minus the inflation rate
- 47) When the Bank of Canada raises the overnight loans rate, other short-term interest rates
- A) fall, consumption expenditure, investment and net exports decrease, and the aggregate demand curve shifts leftward.
 - B) rise, consumption expenditure, investment and net exports decrease, and the aggregate demand curve shifts leftward.
 - C) fall, consumption expenditure, investment and net exports increase, and the aggregate demand curve shifts rightward.
 - D) rise, consumption expenditure, investment and net exports increase, and the aggregate demand curve shifts rightward.
 - E) none of the above.

- 48) The purchase of government bonds by the Bank of Canada
- A) decreases the supply of loanable funds.
 - B) increases aggregate demand.
 - C) raises the overnight loans rate.
 - D) decreases bank reserves.
 - E) decreases the quantity of money.
- 49) Suppose the neutral real overnight rate is 2 percent per year, inflation is 2.5 percent, the target inflation rate is 2 percent, and the output gap is 1 percent. Using the Taylor rule, the Bank of Canada sets the overnight loans rate equal to
- A) 3 percent.
 - B) 5.5 percent.
 - C) 5.25 percent.
 - D) 3.5 percent.
 - E) 5.75 percent.
- 50) The k -percent rule makes the quantity of money
- A) grow at a decreasing rate.
 - B) grow at a rate equal to the growth rate of potential GDP.
 - C) grow at an increasing rate.
 - D) respond to the state of the economy using all the information available.
 - E) none of the above.

Answer Key

Testname: FINALAPR10

- 1) B
- 2) A
- 3) B
- 4) A
- 5) B
- 6) C
- 7) A
- 8) B
- 9) E
- 10) D
- 11) A
- 12) B
- 13) C
- 14) C
- 15) B
- 16) A
- 17) D
- 18) A
- 19) D
- 20) A
- 21) C
- 22) A
- 23) D
- 24) A
- 25) C
- 26) B
- 27) B
- 28) C
- 29) C
- 30) B
- 31) B
- 32) C
- 33) D
- 34) A
- 35) B
- 36) D
- 37) A
- 38) C
- 39) B
- 40) C
- 41) A
- 42) E

Answer Key

Testname: FINALAPR10

- 43) E
- 44) D
- 45) E
- 46) C
- 47) B
- 48) B
- 49) C
- 50) B