

**ECON 311 - Intermediate Macroeconomics (Professor Gordon)**  
**Second Midterm Examination: Winter 2021**  
**Answer sheet**

**INSTRUCTIONS:**

1. The exam lasts **1 hour**.
2. The exam is worth 60 points in total: 30 points for the multiple choice questions (Part A) and 30 points for the four analytical problems (Part B).
3. You must show your work for part B questions. There is no need to explain your answers for the multiple choice questions.
4. Round your answers to **2 decimal points**
5. Please place your answers for the multiple choice questions (Part A) in a **single page**. Don't submit your work for the multiple choice questions.

Good luck!



## PART A: Multiple Choice Problems

Choose the one alternative that best completes the statement or answers the question.

- 1) The main differences between the bank and the nonbank institutions include all of the following EXCEPT
- A) banks are regulated by the Fed while nonbank institutions are not.
  - B) banks obtain the funds to buy investment by attracting deposits while nonbank institutions borrow funds.
  - C) banks hold more equity than nonbank institutions.
  - D) banks' balance sheets include assets and liabilities while nonbank institutions' balance sheets include only liabilities.
- 2) As shown by the IS-LM model, there are two reasons that the Fed can lose control of the economy. One of these reasons is
- A) federal funds rate can never reach zero percent.
  - B) zero federal funds rate is not sustainable.
  - C) household and business borrowers do not base their decision to borrow on interest rates.
  - D) that household and business borrowers cannot borrow at the zero federal funds rate.
- 3) An increase in the tax rate ( $t$ )
- A) will rotate the budget line upward.
  - B) will increase the slope of the budget line.
  - C) will shift the budget line downward.
  - D) A and B.
- 4) In which of the following episodes of “quantitative easing” did the Federal Reserve balance sheet increase the most?
- A) 2008-09
  - B) 2011
  - C) 2013-15
  - D) 2020
- 5) In a small open economy, an increase in government spending, while taxes remain the same, will be accompanied by
- A) a decrease in private investment and an increase in private saving.
  - B) an increase in private investment and a decrease in private savings.
  - C) a decrease in national savings and an increase in foreign borrowing.
  - D) an increase in national savings and a decrease in foreign borrowing.
- 6) The article on current Federal Reserve chair Jerome Powell contrasts his policies with those of Paul Volcker because
- A) Powell wants lower inflation; Volcker wanted higher inflation
  - B) Powell wants higher inflation; Volcker wanted lower inflation
  - C) Powell wants higher interest rates; Volcker wanted lower interest rates
  - D) Powell wants higher interest rates; Volcker wanted higher interest rates
- 7) With inflation of 5 percent, real GDP growth of 3 percent, and an outstanding national debt of \$3400 billion, the "allowable deficit" that holds the debt-GDP ratio constant is
- A) \$272 billion.
  - B) \$68 billion.
  - C) \$170 billion.
  - D) \$175.1 billion.
  - E) \$510 billion.
- 8) Exports are recorded in the balance of payments table of the exporting nation as
- A) current account credits.

- B) current account debits.
- C) capital account credits.
- D) capital account debits.

9) A notable feature of the 2020 economy is that \_\_\_\_\_ more for rich people than for poor people while \_\_\_\_\_ more for poor people than for rich people

- A) employment fell; consumption fell
- B) consumption fell; employment fell
- C) consumption rose; employment fell
- D) employment fell, consumption rose

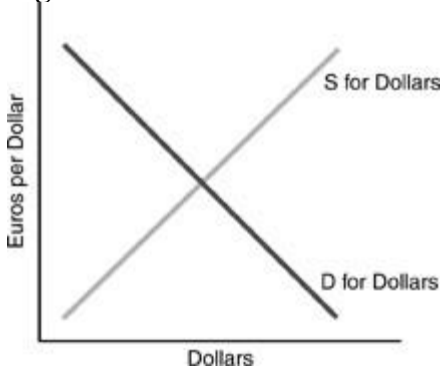
10) If a country's private saving is 100 and government saving is -100, domestic private investment

- A) must be 200.
- B) must be zero.
- C) is equal to the net amount the economy borrows from other countries.
- D) is equal to the net amount the economy lends to other countries.

11) If the European Central Bank buys dollars with euros, this causes the euro to \_\_\_\_\_ against the dollar, assisting European \_\_\_\_\_.

- A) appreciate, importers of American goods
- B) appreciate, exporters of goods to America
- C) depreciate, importers of American goods
- D) depreciate, exporters of goods to America

**Figure 6-3**



12) In the Figure 6-3 above, if the supply of dollars increases

- A) the dollar and the euro appreciate.
- B) the dollar and the euro depreciate.
- C) the dollar appreciates and the euro depreciates.
- D) the dollar depreciates and the euro appreciates.

13) Policymakers supporting Federal government fiscal stimulus measures are not concerned about the rising debt-GDP ratio because of

- A) low interest rates and high inflation
- B) high interest rates and low inflation
- C) low interest rates and low inflation
- D) high interest rates and high inflation

14) Which of the following will NOT shift the aggregate demand curve?

- A) an increase in the money supply
- B) a change in the price level
- C) a reduction in the marginal propensity to save
- D) an increase in government spending

- 15) Keynes discussed the possibility of a horizontal LM curve, which causes a \_\_\_\_\_, thus the possibility of \_\_\_\_\_.
- A) vertical AD curve, monetary impotence
  - B) vertical AD curve, an escape from monetary impotence
  - C) horizontal AD curve, monetary impotence
  - D) horizontal AD curve, an escape from monetary impotence
- 16) Subprime mortgages refer to the mortgages issued
- A) by low rating financial institutions.
  - B) at an interest rate below prime rate.
  - C) to borrowers with low incomes and poor credit histories.
  - D) by government
- 17) In the Global Economic Crisis, the negative wealth effect from a 50 percent decline in the stock market caused
- A) LM curve to shift to the right.
  - B) LM curve to shift to the left.
  - C) IS curve to shift to the left.
  - D) IS curve to shift to the right.
- 18) The securities, such as stocks or bonds, constitute a(n) \_\_\_\_\_ for the savers and a(n) \_\_\_\_\_ for the borrowers.
- A) asset; liability
  - B) debt; assets
  - C) liability; asset
  - D) debt or an asset; liability or an asset
- 19) Can a nation have in its balance of payments a current account deficit at the same time as a less-than-equal capital account surplus?
- A) No, because current and capital accounts must both balance, by accounting convention.
  - B) No, because a current account deficit must be offset by an equal capital account surplus so the balance of payments balances overall.
  - C) Yes, and the nation would have an overall deficit in its balance of payments.
  - D) Yes, and the nation would have an overall surplus in its balance of payments.
- 20) If the Federal Reserve intervenes in the foreign-exchange markets and buys foreign currencies
- A) the U.S. money supply rises and foreign currencies depreciate.
  - B) the U.S. money supply falls and foreign currencies depreciate.
  - C) the U.S. money supply rises and foreign currencies appreciate.
  - D) the U.S. money supply falls and foreign currencies appreciate.
- 21) The relation  $S + (T - G) = I + NX$  describing the equilibrium of an economy explicitly demonstrates
- A) deficit spending by the government reduces either investment and/or net foreign investment.
  - B) deficit spending reduces private saving (assuming net foreign investment remains unchanged).
  - C) as private saving increases net foreign investment must decrease, exports decline.
  - D) as private saving increases the deficit must decline if investment decreases.
- 22) The clearest indicator of a switch to a less expansionary fiscal policy is a
- A) rise in the actual surplus.
  - B) fall in the actual surplus.
  - C) rise in the natural employment surplus.
  - D) fall in the natural employment surplus.
- 23) Which of the following would give rise to a debit in the balance of payments?

- A) foreign purchases of U.S. assets
- B) dividends earned from foreign companies
- C) dividends paid to foreigners
- D) direct investment by foreign firms in the United States

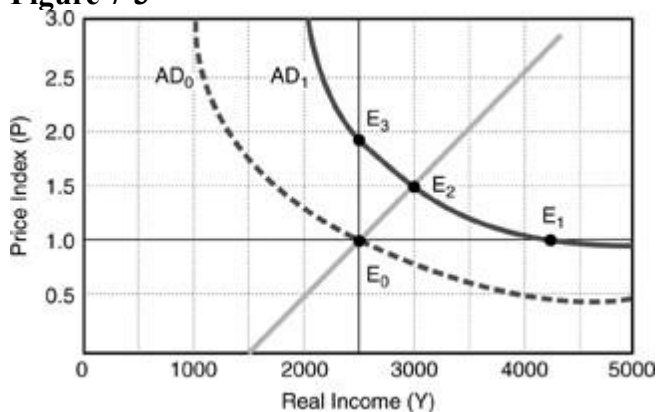
24) The paradox that the U.S. has positive net international investment income while also having a large negative international investment position is partly explained by

- A) the “exorbitant privilege”
- B) net foreign transfers by foreign-born Americans
- C) net revaluations
- D) a persistent capital account surplus

25) Assume that the price level in both the United States and Europe is 200, and that the real and nominal exchange rate is 6 euros per dollar. If the price level in the United States increases by 20 percent and the nominal exchange rate remains unchanged, then the real exchange rate is

- A) 6 euros per dollar.
- B) 5 euros per dollar.
- C) 7.2 euros per dollar.
- D) 6.6 euros per dollar.

**Figure 7-3**



26) Employing Figure 7-3 above with equilibrium initially at E0, assume the nominal money supply increases. If prices are flexible, in the short run \_\_\_\_\_ and in the long run \_\_\_\_\_.

- A) prices and output rise as in E2; output remains at 3000
- B) prices and output remain at E0; output changes to 2500
- C) prices and output rise, E0 to E2; output returns to E3
- D) None of the above.

27) The short-run aggregate supply curve slopes upward because, with a given equilibrium wage rate, a higher actual price level will

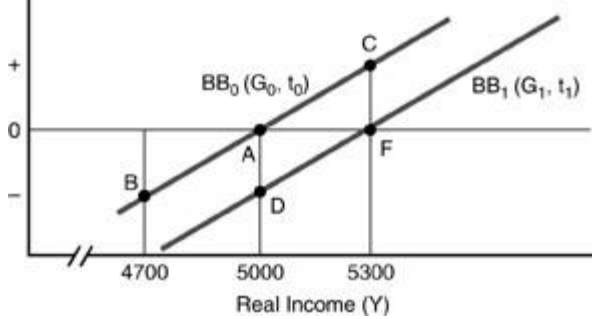
- A) reduce the actual real wage and induce firms to hire more labor.
- B) shift the labor supply curve.
- C) increase the aggregate demand for goods, so that output will rise.
- D) All of these.

28) During 1929-32 in response to the Great Depression, Federal government policy included \_\_\_\_\_ taxes and \_\_\_\_\_ tariffs.

- A) raising; reducing
- B) reducing; raising
- C) reducing; reducing
- D) raising; raising

- 29) When the 2020 recession is contrasted with the economy in 2009, personal income \_\_\_\_\_ more in 2020 than in 2009 while personal saving \_\_\_\_\_ more in 2020 than in 2009
- A) decreased; decreased
  - B) increased; decreased
  - C) increased; increased
  - D) decreased; increased

**Figure 5-1**



- 30) In the Figure 5-1 above, if the budget line  $BB_0$ , the natural real GDP is \$5300, and actual real GDP is \$5000, then the cyclical budget surplus or deficit is the
- A) horizontal distance between A and F.
  - B) vertical distance between F and D.
  - C) vertical distance A and F.
  - D) horizontal distance between B and D.

## Multiple Choice Questions Solution

1. D
2. D
3. D
4. D
5. C
6. B
7. A
8. A
9. B
10. C
11. D
12. D
13. C
14. B
15. A
16. C
17. C
18. A
19. C
20. C
21. A
22. C
23. C
24. A
25. C
26. C
27. A
28. D
29. C
30. B



## PART B: Analytic Problems

### Question 1: Government Deficits (11 points)

Suppose that:

$$Y_N \text{ (Natural Real GDP)} = 8,000$$

$$Y_A \text{ (Actual Real GDP)} = 6,000$$

$$T_a = 2,000$$

$$t = 0.4$$

$$G = 5,000$$

- a) Compute the **Actual Surplus** and the **Natural Employment Surplus**. (2 points)

$$\text{Actual Surplus} = 2,000 + 0.4(6,000) - 5,000 = 4,400 - 5,000 = -600$$

$$\text{Natural Employment Surplus} = 2,000 + 0.4(8,000) - 5,000 = 5,200 - 5,000 = 200$$

$$\text{The line for the next graph: } T - G = T_a + t \cdot Y - G = 2,000 + 0.4 \cdot Y - 5,000 = -3,000 + 0.4 \cdot Y,$$

Where intercept is equal to -3000 and the slope is 0.4

Balanced budget is achieved when  $T - G = 0$  or  $0.4 \cdot Y = 3,000 \Rightarrow Y = 7,500$

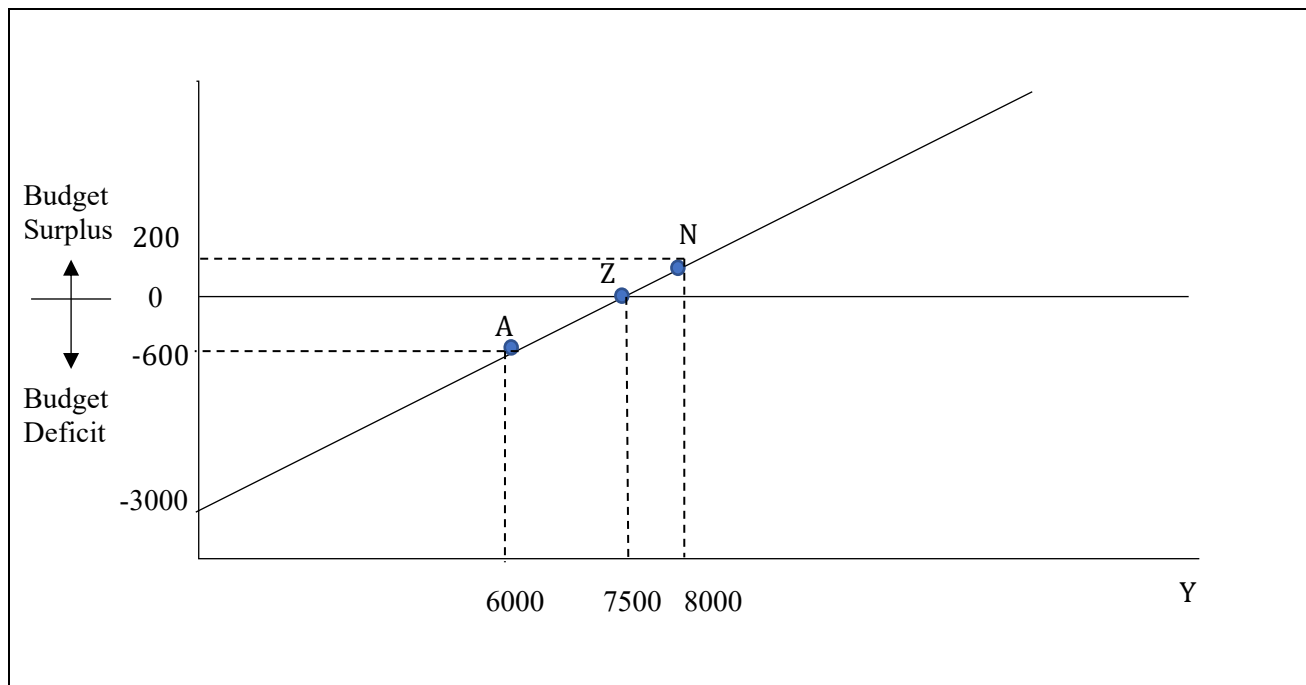
- b) Plot the budget line on the graph below. Label the horizontal axis and the points below, with coordinates:

A: Actual Deficit

N: Natural Employment Deficit

Z: Zero Deficit

(3 points)



- c) What is the **slope** of the budget line? (1 point)

$$\text{Slope} = t = 0.4$$

- d) What would happen to the budget line if, holding government spending fixed, **tax rate (t) decreased**? (2 points)

**Gets flatter (around Y=0)**

- e) What would happen to the budget line if, holding tax rates and government spending fixed, the **autonomous taxes (T<sub>a</sub>) increased**? (2 points)

**Shifts upward**

- f) Suppose policymakers want to use fiscal policy to raise Actual Real GDP to Natural Real GDP. This requires two actions:

1. G increases by 500 to 5,500.
2. The tax rate t is cut by 0.2 to 0.20.

What is the **new Natural Employment Surplus**? (1 points)

**Natural Employment Surplus = 2000+0.2(8,000)-5,500 = -1900**

## QUESTION 2 (9 points): Open-economy IS-LM model

Let a **small open economy** with perfect **capital mobility** and **flexible exchange-rate regime** be described by the following equations:

$$C = 100 - 4r + 0.8(Y - T),$$

$$T = 100 + 0.75Y$$

$$G = 80$$

$$I_p = 120 - 4r$$

$$NX = 100 - 0.2Y - 20e,$$

$$M^D/P = 0.4Y - 1.6r$$

$$M^S/P = 80$$

where e is the exchange rate.

- (A.) Derive **IS and LM** equations for this economy. (2 points)

$$\text{IS curve: } A_p = 100 - 4r - 0.8 \cdot 100 + 80 + 120 - 4r + 100 - 20e = 320 - 8r - 20e$$

$$k = 1/s(1-t) + t + nx = 1/(0.2 \cdot 0.25 + 0.75 + 0.2) = 1$$

$$Y = 320 - 8r - 20e$$

$$\text{LM curve: } Y = 200 + 4r$$

Initially, foreign and domestic interest rates are equal ( $r = r^f$ ), the foreign exchange rate is  $e=3$ .

(B.) Find the equilibrium income, interest rate and net export. (2 points)

$$\begin{aligned}260 - 8r &= 200 + 4r \\60 &= 12r \\r &= 5 \rightarrow Y = 220 \\NX &= 100 - 0.2 \cdot 220 - 20 \cdot 3 = 100 - 104 = -4\end{aligned}$$

(C.) Suppose that the government decides to decrease income tax to 12.5% (0.125). Additionally, the government decides to cut government spending by 40. How would GDP, the domestic interest rate and net exports change if we let the domestic and foreign interest rate diverge? (3 points)

$$\begin{aligned}k' &= 1 / (0.2 + 0.8 \cdot 0.125 + 0.2) = 2 \\Ap &= 280 - 8r - 20e \\IS: Y &= 2(280 - 60 - 8r) = 440 - 16r \\LM: Y &= 200 + 4r \\r &= 12, Y = 248, NX = 40 - 0.2Y = -9.6\end{aligned}$$

(D.) Does interest rate parity hold? If not, then investors and possibly the government and central bank will have to react. What factors adjust to get the economy here? (2 Points)

**The high domestic interest rate will induce investors to increase their holdings of local assets. Buying those assets will put upward pressure on the local currency. As a result, the local currency appreciates, i.e.  $e$  goes up.**

### QUESTION 3 (10 points): AS-AD

In this question we seek to connect AS-AD with IS-LM and monetary policy in a **closed economy** in which natural output is given by  $Y^N = 56$ .

(A.) Suppose the demand side of the economy (i.e. the IS-LM part of the economy) is described by the following IS and LM curves:

$$\text{IS: } Y = 60 - r$$

$$\text{LM: } Y = 5(M^S/P) + 2r$$

Consider a case where initial *nominal* money supply is  $M^S = 15$ . Using the IS and LM curves, derive the AD curve. (Hint: Begin by solving the IS curve for  $r$ . Then substitute out  $r$  in the LM curve to derive an expression in terms of the endogenous variables of the AD curve.) (3 Points)

1. Shift  $r$  to the LHS and  $Y$  to the RHS of (IS):  $r = 60 - Y$  (1pt)

2. Substitute the above equation into the (LM) curve and solve for  $Y$ :

$$Y = 5(M^S/P) + 2r$$

$$Y = 5(M^S/P) + 2(60 - Y)$$

$$3Y = 5(M^S/P) + 120$$

$$\text{AD: } Y = 25/P + 40 \text{ (2pts)}$$

(B.) We now turn to the short-run equilibrium of the economy. Suppose that nominal wages are initially such that  $W=10$ . Short run aggregate supply is described by:

$$\text{SAS: } Y = 80 - W - (35/P)$$

Find the short-run equilibrium values of  $(Y,P)$  for this economy. (3 Points)

Solve for the equilibrium condition.

$$Y(\text{AD}) = Y(\text{SAS})$$

$$25/P + 40 = 70 - 35/P \text{ (1pt)}$$

$$60/P = 30$$

$$\text{P(SR)} = 2 \text{ (1pt)}$$

And therefore:

$$Y(\text{SR}) = 25/2 + 40 = 12.5 + 40 = 52.5. \text{ (1pt)}$$

(C.) Suppose that the central bank changes the nominal money supply  $M^S$  to move the AD curve to achieve the natural output level **in the short run**. What is the new level of  $M^S$  (suppose we are in the short run where the nominal wage is unchanged) ? (4 Points)

In order for the economy to move back to the natural output, the AD curve has to revert back the long run output and price level. Notice that the long run equilibrium when nominal wage is unchanged is given by:

$$80 - 10 - (35/P) = 56$$

$$\text{P} = 2.5; \text{ (1.5pt)}$$

Therefore the new level of  $M^{S'}$  is given by

$$Y^N = 5/3 * M^{S'} / P + 40 ;$$

$$56 = 5/3 * M^{S'} / 2.5 + 40;$$

$$\text{M}^{S'} = 24 \text{ (2.5pt)}$$

