

Form A

Name: _____
Section No.: _____
UM ID No.: _____
GSI: _____
Form : _____

**Economics 102
Introduction to Macroeconomics
Prof. Alan Deardorff
Midterm Exam 1
February, 20 2002**

INSTRUCTIONS: READ CAREFULLY!!!

1. Please do not open the exam book until you are told to do so.
2. **PLACE YOUR NAME, FORM NUMBER (A OR B), STUDENT UM ID NO. (ON THE FRONT OF YOUR MCARD, ALL EIGHT DIGITS, DO NOT WRITE SSN), SECTION NUMBER AND FORM NUMBER ON THE EXAM AND ON THE SCANTRON SHEET. *THIS IS WORTH TWO POINTS ON THE EXAM.***
3. This exam has 100 points and is designed to take about 60 minutes to complete. However, you have approximately 75 minutes to complete the test. Check that you have all 11 pages of the exam.
4. **Section A** consists of 26 multiple choice questions worth 3 points each. Answers to all of the questions in Section A should be marked on the scantron sheet using a #2 pencil. There are no penalties for guessing.
5. **Section B** consists of 2 parts for which you must provide written answers on these sheets. Point values for questions in Section B are indicated in parentheses. Please try to fit your answer into the space provided.
6. Good luck!

| GSI | Section Number(s) | Days and Times |
|-------------------|-------------------|---------------------|
| Chris Kurz | 201 | Thu 10-11:30 |
| Andrew Wogman | 202, 203 | Thu 11:30-1, 1-2:30 |
| Ed Knotek | 205, 213 | Thu 2:30-4, 11:30-1 |
| Waldery Rodrigues | 208,210 | Fri 11:30-1, 1-2:30 |

Part A: Multiple Choice(78 points)

1. Suppose nominal GDP in Andrewland increases from year 2000 to 2001. Which of the following **MUST** be true from year 2000 to 2001?
 - a. some prices increased
 - b. some quantities increased
 - c. the GDP deflator increased
 - d. the GDP deflator decreased
 - e. either some prices or some quantities increased (or both)
2. Ed, squandering his GSI salary, buys a \$600 stereo. Of the \$600 stereo, \$400 of the value was produced in South Korea and \$200 of the value was produced in the United States. How will this purchase affect the national accounts of the United States?
 - a. consumption will increase by \$600; net exports will decrease by \$400
 - b. consumption will increase by \$600; net exports will decrease by \$600
 - c. consumption will remain unchanged; net exports will increase by \$200
 - d. consumption will increase by \$200; net exports will remain unchanged
 - e. consumption will increase by \$600; net exports will decrease by \$200
3. Consider a situation in which tomatoes are a part of the fixed market basket of goods the Bureau of Labor Statistics (BLS) uses to compute the CPI over the time period 1995 to 2000. Because of advances in genetic engineering, tomatoes produced in 2000 tend to stay fresher longer and taste better than tomatoes produced in 1995. This is an example of _____ and will cause the rate of inflation to be _____ between 1995 and 2000 (assume the price of tomatoes the BLS uses over the time period is the same).
 - a. introduction of new goods; understated
 - b. substitution bias; overstated
 - c. substitution bias; understated
 - d. unmeasured quality change; overstated
 - e. unmeasured quality change; understated
4. In an effort to stimulate investment, Congress passes a new law increasing the investment tax credit. However, Congress fails to take into account how much this new policy will hurt tax revenues, and once the change is enacted the government budget goes from a surplus to a deficit. In the market for loanable funds, the **total** effect on the equilibrium interest rate and quantity of loanable funds is:
 - a. the interest rate and the quantity of loanable funds are higher.
 - b. the interest rate is higher but the quantity of loanable funds is lower.
 - c. the interest rate is higher but the quantity of loanable funds may be higher, lower, or the same.
 - d. the quantity of loanable funds is the same but the interest rate is lower.
 - e. the quantity of loanable funds is higher but the interest rate may be higher, lower, or the same.

5. All of the following change the amount that can be produced by the US (i.e. potential output) EXCEPT:
- a relaxation of border controls between the U.S. and Mexico
 - the overall education level of U.S. citizens decreases
 - a change in the U.S. GDP deflator
 - discoveries of new oil reserves in Alaska
 - the government outlaws the use of cellular technology because of health concerns
6. Suppose you are given the following (somewhat fictional) information on per capita personal income (\$) by state for 1999 and 2000.

| | <u>1999</u> | <u>2000</u> |
|--------------------|--------------|--------------|
| Ohio | 27000 | 28080 |
| Texas | 20000 | 21000 |
| Connecticut | 38000 | 40280 |

Given the above information, and assuming each state continues to grow at the same percentage rate as it did from 1999 to 2000, which of the following is true concerning per capita personal income?

- Ohio will eventually overtake Connecticut
 - Texas will eventually overtake Connecticut
 - Ohio will always have a higher per capita personal income than Texas
 - Texas will eventually overtake Ohio
 - None of the above
7. Suppose Andrew decides to buy a new Cadillac Escalade. He can pay for the car by either

- (1) making one payment a year from now of \$30,000 and a second two years from now of \$30,000, or,
- (2) making one lump sum payment today at the time of purchase.

Assuming the relevant interest rate will be 5% per year over the next 2 years, what lump sum payment today would make Andrew indifferent between option (1) and (2) (rounded to the nearest dollar)?

- \$57211
- \$60000
- \$57143
- \$63000
- \$55782

8. Assume a closed economy. If actual private savings is greater than actual investment, then
- the government is running a budget deficit
 - the government is running a budget surplus
 - national savings is greater than investment
 - national savings is less than investment
 - the market for loanable funds is not in equilibrium
9. If we initially have GDP of $Y=3000$, and if we now triple the amount of capital and labor employed in this economy when we have a production function of $Y=3000K^{1/2}L^{1/2}$. What will the new amount of output be?
- 6000
 - 8000
 - 9000
 - 3000
 - can't answer this without specific numbers for K and L

Use the following information to answer the following two questions. The information concerns the economy of Texas, which only produces two types of goods: Guns and BBQ. Sales and price data for these two products for two different years are shown below.

| Year | # of Guns sold | Price of guns | # of BBQ sold | Price per BBQ |
|------|----------------|---------------|---------------|---------------|
| 1990 | 2 | \$10,000 | 10 | \$5,000 |
| 1995 | 10 | \$4,000 | 30 | \$8,000 |

10. Assuming Guns and BBQ are final goods, calculate nominal GDP for 1990.
- 65,000
 - 280,000
 - 300,000
 - 70,000
 - none of the above
11. Calculate the GDP Deflator for 1995 with 1990 as the base year
- 100.0
 - 112.0
 - 89.2
 - 120.0
 - none of the above

Use the following information to answer questions 12-13

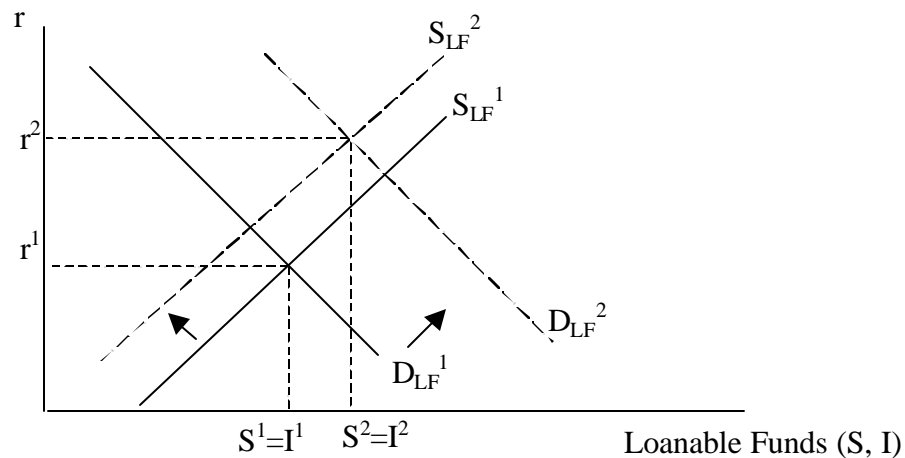
Imagine yourself in the economy Holstein, a land that uses cows (and only cows) as the reserves of an elaborate system of fractional reserve banking. There is a central bank (The Bovine Reserve Bank) and a large banking sector that uses large acres of land as vaults to hold the nation's wealth.

12. Using cows as money is an example of:
- a. fiat money
 - b. commodity money
 - c. investment
 - d. M1
 - e. Currency
13. Suppose the amount of loans in this economy is 450 cows, the reserve requirement is 10%, and banks are holding exactly their required reserves and people, for obvious reasons, hold no cows. The amount of cows that are actually located in the nation's banks is ____ and the total money supply is ____.
- a. 500, 45
 - b. 600, 60
 - c. 40, 450
 - d. 50, 500
 - e. 45, 400
14. Kurzilon is a small island nation in the Pacific Ocean that uses only fiat money. Upon the discovery of a vast amount of gold on the island, the money supply of Kurzilon will
- a. increase permanently
 - b. not be affected.
 - c. decrease permanently.
 - d. increase in the short run and then return to its previous level

16. Auntie Em, who lived through the Great Depression, doesn't trust banks. She convinces Dorothy to take the \$64 she's keeping for new ruby slippers from her account at Third Oz Bank and stuff it under her mattress for safe-keeping. Then

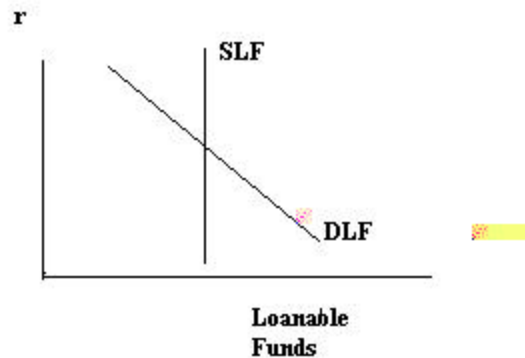
- the money supply increases by \$64.
- the money supply decreases by \$64.
- there is no change to the money supply.
- the money supply decreases by less than \$64.
- the change in the money supply is ambiguous without knowing the money multiplier.

17. After carefully studying the following graph and explanations, select the scenario below that is best captured by moving from the curves labeled 1 to those labeled 2.



- The war in Afghanistan and slowing economic conditions at home cause the government budget to go from surplus to deficit, but stimulate investment by the private sector.
- Firms, taking advantage of lax accounting regulations on investment projects, suddenly decide to invest more.
- Consumers, afraid that the recession is getting worse, increase their saving in case they lose their job.
- Enron and Kmart declare bankruptcy, sending the bond market into panic as investors move their assets into safer instruments.
- The government increases taxes, discouraging investment.

18. Select the alternative that gives an interpretation consistent with the graphic below: (SLF is the supply of loanable funds, DLF is the demand for loanable funds and r is the real interest rate)



- Households and firms demand the same quantity of loanable funds regardless of the level of the real interest rate.
 - National saving is the same no matter what is the level of the real interest rate.
 - Public saving is constant, private saving is variable accordingly to the level of the real interest rate.
 - The interest rate in this economy is not able to adjust to balance the supply and demand for loanable funds.
 - Changes in D_{LF} will not change the level of the real interest rate if S_{LF} stays invariant.
19. According to the Economic Report of the President as reported in the Wall Street Journal, productivity growth in the United States during the last half of the 1990s compared how to the twenty or so years before that?

| | Average Annual Rate of Productivity Growth | |
|----|---|-----------|
| | 1973-1995 | 1995-2001 |
| a. | 3.1% | 2.5% |
| b. | -0.2% | 1.5% |
| c. | 1.4% | 2.6% |
| d. | 2.1% | 2.1% |
| e. | 2.4% | 1.8% |

20. In the assigned article about data from the most recent U.S. census, Wattenberg compares the U.S. population to that of the largest countries in Europe over the last century. He notes that
- a. U.S. population has grown less rapidly than Europe's, because higher incomes here have reduced the demand to have children.
 - b. Populations in the U.S and Europe have grown at about the same rate, in spite of increasing migration from Europe into the United States.
 - c. Population density has increased faster in Europe than in the U.S., because of the increase in land that has become available here.
 - d. Although the U.S. population has grown more rapidly than Europe's due to increased fertility, the ratio of the U.S. population to that of Europe has fallen.
 - e. The U.S. population has grown from less than half that of Europe to now being more than equal to it, the difference being largely due to immigration.
21. Which of the following is not one of Mankiw's Ten Principles?
- a. An increase in all factor inputs causes a proportional increase in the economy's output.
 - b. People respond to incentives.
 - c. The cost of something is what you give up to get it.
 - d. A country's standard of living depends on its ability to produce goods and services.
 - e. Prices rise when the government prints too much money.
22. Which of the following would not be considered a part of U.S. "investment," as it contributes to the definition of U.S. GDP?
- a. The Ford Motor Company builds a factory in West Virginia.
 - b. Your professor buys 1000 shares of stock in Microsoft.
 - c. A steel producer in Pennsylvania adds to its inventories of steel it has produced.
 - d. The Starbucks Company in Seattle Washington buys a huge new coffee roasting machine.
 - e. The State Farm insurance Company buys furniture for its new office building in Chicago.
23. When the Consumer Price Index rises in the United States
- a. Those whose incomes come from Social Security payments are given larger nominal payments.
 - b. Workers benefit because their fixed wages buy more goods.
 - c. Consumers substitute toward cheaper imported goods.
 - d. This may be due to the invention of high-priced new goods.
 - e. It indicates that consumption has risen in real terms.

24. The Law of Diminishing Returns tells us that
- a. An equal increase in all factor inputs will cause output per capita to fall.
 - b. Growth in the labor force without growth in other factors of production will cause a fall in productivity.
 - c. When the price of a bond rises, the return on the bond falls.
 - d. When consumers return unwanted Christmas presents after New Years, GDP is reduced.
 - e. A fall in the interest rate causes investment to decline.
25. About how fast would U.S. per capita income have to grow, per year, in order for it to double in ten years?
- a. 3%
 - b. 5%
 - c. 7%
 - d. 10%
 - e. 14%
26. Which of the following would cause the greatest increase in the U.S. CPI, assuming that all other prices remain constant?
- a. A 10% rise in the prices of all food and beverages.
 - b. A 10% rise in the prices of all housing.
 - c. A 10% rise in the prices of all transportation.
 - d. A 10% rise in the prices of all apparel.
 - e. It is impossible to say, since it depends on how quantities consumed respond to the price changes.

(exam continued on next page)

Part B: Written Answers(4 points each—8 points total for B1)

B1. Suppose you are given the following information about a closed economy:

$$Y = \$10,500$$

$$T = \$1,000$$

$$S = \$1,600 + 0.1(Y - T) + 2000r$$

$$I = \$2,700 - 3000r$$

$$G = \$800$$

Real GDP = Income

Total Tax Collections

(Total) National Savings Function

(includes government savings)

(r = real interest rate)

(Total) Investment Function

Government Purchases

(a) Calculate the equilibrium real rate of interest in this economy.

(b) What is the total level of saving and investment at this rate of interest? How much of the total savings is comprised of government savings and how much is private savings?

B2.(True/False/Uncertain—Explanation Determines your grade.)

4 points each—12 points total for part B2

- (a) Bond prices increase with increases in interest rates.
- (b) Mr. Soprano decides to take 300 dollars out of his wallet and deposit it into the local Bank of America. If the reserve requirement for banks in the US is 20%, then if we assume banks lend all excess reserves and every individual deposits her/his cash into the banking system, there will be a total change in the money supply of \$1500.
- (c) Private saving is always equal to national saving if the government has a balanced budget.