Exam I, Form 2   UM ID # _____

Econ 102/100

First Midterm Exam - Answers

February 8, 2007

Section	Day	Time	Location	GSI
101	Friday	2:30-4	142 Lorch	JB
102	Friday	11:30-1	269 Dennison	Sue
103	Friday	1-2:30	430 Dennison	Angus
104	Friday	10-11:30	B239 EH	Sue
105	Friday	2:30-4	B239 EH	Angus
106	Friday	10-11:30	B247 EH	Omar
107	Friday	1-2:30	315 Dennison	JB
108	Friday	11:30-1	455 Dennison	Omar
109	Friday	11:30-1	130 Dennison	Brian

Instructions
- Do NOT open this exam booklet until instructed to do so!
- Please take a moment to complete the identification information on the scantron. Indicate your NAME, discussion SECTION number, FORM number, and UM ID number. THIS IS WORTH TWO POINTS ON THE EXAM!
- The exam has 100 points and is designed to take about 60 minutes to complete. However, you'll have approximately 80 minutes. Check that you have all xx pages of the exam.
- Read the questions and these instructions carefully!
- Use the space provided in this booklet and the back of the pages to work out the answers to the multiple choice problems. Use the space provided on the actual page for the short answer questions.
- You can use only NON-graphing calculators.
- For multiple choice questions, you get 3 points for a correct answer, 0 points for a blank, and 0 points for a wrong answer. There are NO penalties for guessing.
- Sign the honor code below!

Honor Code: I did not use any unauthorized aid on this exam.

Signature: _____

Part I: Multiple Choice: (26 questions, 3 pts each = 78 pts)
Pick the best answer among the given choices.

1. Suppose GDP per worker is held constant. If demographic shifts result in a higher proportion of old people in the population, what is the effect on GDP per capita? (Assume old people do not work).
   a) No effect.
   b) Increase.
   c) Decrease.
   d) GDP per worker and GDP per capita refer to the same thing.
   e) Insufficient information.

2. Suppose the stocks of physical capital, human capital, natural resources, and the level of technology are all held constant. Which of the following is true?
   a) An increase in the labor force leads to an increase in total output and output per worker.
   b) An increase in the labor force leads to a decrease in total output and output per worker.
   c) An increase in the labor force leads to an increase in total output but a decrease in output per worker.
   d) An increase in the labor force leads to a decrease in total output but an increase in output per worker.
   e) An increase in the labor force has no effect on total output and output per worker.

3. Which of the following reasons could be put forth to argue that the Real Gross Domestic Product is not a perfect measure of the economic well-being of a country?

   i.   It includes positive externalities such as spillovers in advertising from private firms.
   ii. It excludes earnings of foreign investors.
   iii. It overstates the impact of the underground economy.
   iv. It leaves out the goods and services produced within households.
   v.   It doesn't take into account the effects of polluting means of production.
   vi. Money doesn't bring happiness.
   vii. It doesn't account for leisure.

   a) iv, v, and vii
   b) i, iv, v, and vi.
   c) ii, iii, and vii
   d) iii, iv, and v
   e) i, ii, iv, vi, and vii.

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4. Using data from the following table, compute the Real GDP for the year 2003 using the year 2005 as the base year.

	Quantities		
Item	*2003*	*2004*	*2005*
Shrimp	35	30	55
Shoes	4	6	6
Silverware	6	8	4
	Prices		
Item	*2003*	*2004*	*2005*
Shrimp	$15	$20	$25
Shoes	$115	$120	$165
Silverware	$40	$40	$45

   a) $1805
   b) $1675
   c) $1225
   d) $2545
   e) $1765

5. Using data from the following table, compute the GDP Deflator for the year 2005 using the year 2003 as the base year.

	Quantities		
Item	*2003*	*2004*	*2005*
Shrimp	35	30	55
Shoes	4	6	6
Silverware	6	8	4
	Prices		
Item	*2003*	*2004*	*2005*
Shrimp	$15	$20	$25
Shoes	$115	$120	$165
Silverware	$40	$40	$45

   a) 151.94
   b) 65.81
   c) 87.46
   d) 145.55
   e) 107.03

6. In which of the years below was purchasing power the highest? Use the table below which gives the nominal income and the CPI.

CPI				
1935	*1960*	*1975*	*1990*	*2005*
65	100	135	175	205
Nominal Income				
1935	*1960*	*1975*	*1990*	*2005*
$5,360	$8,542	$14,968	$18,374	$22,531

     a) 1935
     b) 1960
     c) 1975
     d) 1990
     e) 2005

Use the following information about the closed economy of Vanatu to answer questions 7 and 8:

Y=$35,000
T=$5,000
C=MPC*(Y-T)+$1000-1,000r
MPC=0.8
G=$6,500
I=$4000-2,000r

7. Which of the following is INCORRECT?
     a) Marginal propensity to save is equal to 0.2
     b) The Vanatu government runs a budget deficit
     c) If MPC is increased to 0.85, the real interest rate will be quadrupled.
     d) The level of national savings is $3667.
     e) The level of disposable income is equal to $24,000

8. Now suppose that the government of Vanatu wants to increase spending on military services. Assume that government purchases increase by $1,500. At the same time, assume the inflation rate in Vanatu is, and remains, 10%. Then
     a) The nominal interest rate now is 76.7%; private savings increases
     b) The nominal interest rate now is 67.5%; private savings decreases
     c) The nominal interest rate now is 33.2%; private savings increases
     d) The nominal interest rate now is 43.3%; private savings decreases
     e) The nominal interest rate now is 57.7%; private savings increases

Real interest
rate (r)

$S_{LF}{}^1$

$S_{LF}{}^2$

D_{LF}

$S^1=I^1$ $S^2=I^2$

$
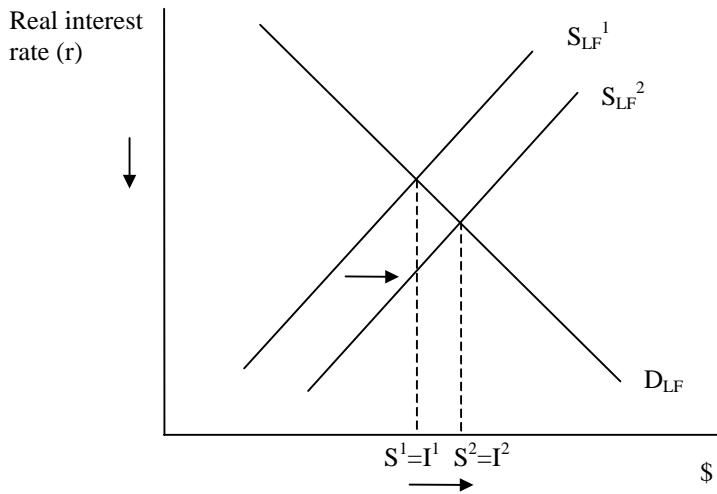
9. Which of the following events can generate the diagram above?
    a) An increase in government purchases
    b) A revenue-neutral decrease in tax credit for personal savings
    c) **A revenue-neutral decrease in the tax rate on interest income**
    d) **An increase in the income tax rate (There are two correct answers.)**
    e) A revenue-neutral increase in investment credit

10. Which of the following statements is CORRECT?
    a) If JB lives in a closed economy, his savings should be equal to his
        investment
    b) If JB deposits $100 in a bank, then investment goes up by $100 for the
        whole economy
    c) It is impossible for JB to save less than he invests.
    d) Open economies should encourage every person to save because national
        savings is always equal to domestic investment, and investment can boost
        the economy up.
    e) **None of the above**

11. Which of the following statements about the U.S. economy is true?
    a) Over the last 30 years, the CPI has been less volatile than the GDP
        deflator.
    b) Over the last 30 years, the CPI has been more volatile than the GDP
        deflator because the former excludes the price of foreign goods while the
        latter doesn't.
    c) Because the price of oil is a larger share of the GDP deflator than it is of
        the CPI, when it increases, the deflator tends to respond more strongly.
    d) The GDP deflator is at its most accurate in the year the basket is
        reassessed.
    e) **The CPI tends to overstate the rate of inflation.**

12. Which of the following is WRONG?
   a) Junk bonds are riskier than U.S. Treasury bonds, so junk bonds pay a higher yield.
   b) Long-term bonds usually pay higher interest rates than short-term bonds.
   c) If you own some municipal bonds, you don't need to pay federal income tax on the interest income.
   d) Mutual funds can help small investors to diversify their portfolio.
   e) **None of the above**

13. Suppose that GDP is generated by the production function $Y=AF(L,K,H,N)$ with the same properties that we assumed in class. Suppose that in year 2000 the variables in this equation have the values shown in the table below, and that in year 2010 each of the variables A, L, K, H, and N have grown by exactly 10% to the values shown. What can you then say about the value of Y in 2010?

	2000	2010
A	7000	7700
L	110,000	121,000
K	62.40	68.64
H	0.830	0.913
N	478.0	525.8
Y	1,000,000	?

   a. It will remain at 1,000,000.
   b. It will be somewhere between 1,000,000 and 1,100,000.
   c. It will be exactly 1,100,000.
   d. It will be somewhere between 1,100,000 and 1,210,000.
   e. **It will be exactly 1,210,000**

14. According to the Rule of 70, if a country's income grows at an annual rate of 14% a year, its income will
   a. Grow by 70% in 5 years.
   b. Double in 7 years.
   c. Triple in14 years.
   d. **Quadruple in 10 years.**
   e. All of the above.

Use the following table to answer questions 15-17. Suppose that in the small economy of Lorchland there were 4 goods in the years 2004-2006. The details are contained in the following table:

	CPI Basket	2004		2005		2006	
	8	Quantity	Price	Quantity	Price	Quantity	Price
Tea	2	3	1	4	1.5	5	1.5
Biscuits	4	6	2	7	2	8	3
Coffee	3	4	1	6	1	6	2
Bagels	5	6	3	8	4	9	4

15. What's the CPI for Lorchland in the year 2005? (let the base year be 2004)
   a. 110.1
   b. 125.2
   c. 130.4
   d. 121.4
   e. None of the above

16. What's the GDP deflator for Lorchland for the year 2006? (let the base year be 2004)
   a. 150.3
   b. 147.2
   c. 139.5
   d. 124.4
   e. None of the above

17. What's the inflation rate in Lorchland for the year 2006 (using the CPI)?
   a. 19.8%
   b. 22.5%
   c. 20.6%
   d. 25.3%
   e. None of the above

18. According to Paul Romer in the assigned article "It's All In Your Head," what should a country's leaders do to promote economic growth?
    a. Governments should include a Department of Innovation in which employees are instructed to seek new methods of production.
    b. Raise interest rates.
    c. Eliminate patent protection on inventions so that inventors must keep coming up with new ones.
    d. Tax people for having children.
    e. Create and improve institutions that motivate people to seek improvements.

19. According to the "catch-up effect"
    a. Countries that start off poor tend to grow more rapidly than countries that start off rich.
    b. If government increases spending without raising taxes, the interest rate it can get for borrowing increases.
    c. There is a "first-mover advantage" that helps rich people to block poor people from becoming rich.
    d. The consumer price index tends to overstate the price level because firms tend to report only high prices to the government.
    e. Countries that start off poor have a harder time catching up to rich countries than those rich countries had in becoming rich.

20. In two of the assigned readings, you read one author, Orszag, who opposed a tax cut and another, Mitchell, who favored it. Mitchell's argument was based on his belief that
    a. A tax cut reduces disposable income.
    b. A cut in the income tax rate will cause the total taxes collected to rise.
    c. With less revenue to spend, government will reduce its purchases of goods and services.
    d. A tax cut induces people to work less and enjoy more leisure.
    e. The proceeds of taxes mostly go to foreigners, doing our own economy little good.

21. Compared to the normal CPI, the "Core CPI"
    a. Includes housing, whereas the normal CPI does not.
    b. Includes education, whereas the normal CPI does not.
    c. Excludes food, whereas the normal CPI does include it.
    d. Excludes high-technology products, whereas the normal CPI does include it.
    e. Is more volatile.

22. Tuvalu is a closed economy, and its public schools are in need of repair. The President proposes that the Tuvalu government should embark on a massive school repair program, and pay for the program by raising taxes. As Minister of Finance, what is your prediction for the impact of this policy, based on the loanable funds model?
    a) There will be no change in public or private savings.
    b) The decrease in private savings is equal to the increase in tax revenue.
    c) The marginal propensity to consume will fall.
    d) The real interest rate will rise and investment will go down.
    e) National savings will remain the same.

23. The U.S. government currently runs a large budget deficit. Suppose you wake up tomorrow, read the WSJ, and learn that the U.S. government has drastically cut spending and is now running a budget surplus. Assuming that this change is permanent, what will happen in the market for loanable funds?
    a) Real interest rate will decrease, investment will increase
    b) Real interest rate will increase, investment will decrease
    c) Real interest rate remains the same, investment does not change
    d) Real interest rate will increase, investment will increase
    e) Real interest rate will decrease, investment remains the same

24. Which of the following is **not** one of the "common ingredients" mentioned in the assigned article by Nobel Prize Winner Michael Spence as being observed in countries that have experienced high rates of growth?
    a. High taxes
    b. A functioning market system
    c. High levels of saving
    d. Public and private sector investment
    e. Resource mobility

Part II: Short Answer: (20pts)
　　Answer on these sheets

1. The Consumer Price Index (CPI) is a key tool for measuring the cost of living. However, it has several drawbacks. Suppose the U.S. government will use 2000 as the base year for the calculation of the 2006 CPI. Fill in the blanks and answer the questions below.

　　a) The fact that iPods were not available in 2000 introduces **new goods** bias in the 2006 CPI. Would this bias be positive (the CPI we calculate would be too high relative to the "truth") or negative?

　　The calculated CPI would be too high (positive bias), because new goods tend to fall in price.

　　b) An increase in the use of Power Point presentations has improved the quality of university lectures since 2000. Assuming that the price of university lectures has remained constant since 2000, the use of Power Point has led to **quality** bias in the 2006 CPI. Will this bias in the CPI result in under or over-estimating the purchasing power of income in 2006?

　　We'll underestimate the purchasing power of income, as the same amount of money can now purchase a better university lecture.

　　c) Gasoline prices rose to historically high levels in the U.S. in the summer of 2006, but at the same time it was observed that consumption of gasoline fell by more than was expected. Using this surprising decrease in gasoline consumption as new evidence, does it seem that **substitution** bias in the CPI is larger or smaller than we may have thought before the summer of 2006?

The big decrease in consumption is evidence that substitution bias may be larger than we thought before.

2. The Production function we talked about in lecture shows how inputs are converted into output. Assuming that education levels and natural resources do NOT enter the production function, it has the form $Y = AF(\underline{\hspace{1cm}} , \underline{\hspace{1cm}})$ where A represents technology.

   a) Define and fill in the blanks for the two inputs, given that education levels and natural resources do not appear.

   L: Quantity of Labor
   K: Quantity of Capital

   b) Thomas Malthus predicted that population growth would always outpace economic growth, so that per-capita GDP would never increase. What is the primary reason why Malthus turned out to be wrong?

Technology improved so much that even though the population did grow, productivity (output per worker) has grown even more.

   b) The textbook points out that countries that have opened their economies to trade with the outside world have tended to experience higher rates of per-capita economic growth. Explain BRIEFLY (in 4 lines or less) which inputs to the production function are affected, and how, causing open economies to experience higher growth rates.

Opening the economy leads to an increase in A (technology), as the country can make use of technologies which have been developed in other countries. The level of K (capital) also increases, because foreign investors are now allowed to invest in the country (such as by building factories).