

Econ 102
Midterm 1 - *Answers*
February 9, 2006

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

1. Please indicate which of the following statements are true

- I. In general, stocks are riskier than bonds, so bonds must pay a higher return
- II. Government bonds are considered less risky than corporate bonds
- III. Stocks and bonds are attractive financial instruments that pay fixed returns.

- a) I only
- b) II only**
- c) III only
- d) I and III only
- e) II and III only

Use the following table to answer questions 2 and 3:

Year	Nominal GDP (in billions)	GDP Deflator (base year 1997)
2000	10,453	121
2001	11,115	124
2002	11,990	125

2. Inflation between 2000 and 2001 was approximately

- a) 2.5 percent**
- b) 3.0 percent
- c) 3.8 percent
- d) 6.3 percent
- e) 8.2 percent

$$(GDP\ Deflator_{2001} - GDP\ Deflator_{2000}) / GDP\ Deflator_{2000} \times 100 = 2.5\%$$

3. What was the approximate percentage change in real GDP between 2000 and 2002?
- a) 18.5 percent
 - b) 14.7 percent
 - c) **11.0 percent**
 - d) 7.0 percent
 - e) 4.0 percent

Real GDP in 2000 = 10,453 / 1.21. Real GDP in 2002 = 11,990 / 1.25.

% change in real GDP = (Real GDP 2002 – Real GDP 2000)/Real GDP 2000

4. Which of the following statements is true?
- a) The GDP deflator calculates inflation using the current production basket while the CPI uses a fixed production basket.
 - b) The rate of change of the GDP deflator indicates real GDP growth because it is based on current production in the economy.
 - c) Changes in nominal GDP are the same as changes in the CPI because both capture changes in the cost of living.
 - d) **The GDP deflator calculates inflation using the current production basket while the CPI uses a fixed consumption basket.**
 - e) The GDP deflator is in real terms while the CPI is in nominal terms.

For Questions 5 & 6, suppose the following events took place in Slovakia in Year 0.

- I. Congress passed a law exempting capital gains from taxation
- II. The average savings rate of the citizens of Slovakia temporarily increased by 1%
- III. Slovakian firms increased research and development efforts in response to a new government initiative
- IV. New unpopulated land was annexed from Poland, which increased the natural resource endowment of Slovakia

5. Which of the events above will most likely increase Slovakia's per capita GDP *level* in the long run?
- a) I and IV
 - b) I, II and III

- c) IV only
- d) III and IV
- e) **I, II, III and IV**

6. Which of the events above will most likely increase Slovakia's per capita GDP *growth rate* in the long run?

- a) III and IV
- b) IV only
- c) I and III
- d) **III only**
- e) I, II, III and IV

For Questions 7 & 8 consider the following countries, their current GDP per capita figures, and growth rates as indicated. Assume that growth rates for all countries are constant:

Country	Current GDP per capita	Growth Rate per capita
Slovakia	\$7,000	X
Sweden	\$28,000	2.5%
United States	\$35,000	2%
Mongolia	\$3,000	4%

7. What would Slovakia's growth rate have to be in order for Slovaks to be approximately as well off as Swedes in 140 years?

- a) 2.6%
- b) 3.0%
- c) **3.5%**
- d) 5.0%
- e) 10.0%

Since Slovakia's current GDP is 1/4 of the current GDP of Sweden, this ratio must double twice in order for Slovaks to be as well off as Swedes. If Slovakia's GDP is 1% greater than Swedes, this ratio will double to 1/2 in approximately 70 years (Rule of 70). It will then double again to a ratio of 1:1 in another 70 years...for a total of 140 years.

8. Assume that the growth rate for Slovakia is actually 3%, which country will eventually be the wealthiest (per capita)?

- a) Slovakia
- b) Sweden
- c) United State
- d) Mongolia**
- e) Cannot tell from the information provided

Since Mongolia has the highest growth rate, and the question specifies that the growth rates are constant, we know that at some future period, they will catch-up to the other countries. From that point forward, at any given time Mongolia will be the wealthiest of the four countries.

9. Consider the closed economy loanable funds model presented in class: Suppose Congress passes a bill that expands investment tax credits for firms that invest in new equipment. Meanwhile, they adjust government spending so as to leave the government's budget unchanged. Which of the following will occur?

- a) An increase in investment and a decrease in the interest rate
- b) An increase in private savings and a decrease in the interest rate
- c) A decrease in investment, public savings and the interest rate
- d) An increase in investment, public savings and the interest rate
- e) An increase in investment, national savings and the interest rate**

The tax credit will shift the DLF curve to the right. The new equilibrium will mean a higher interest rate, greater equilibrium levels of investment and private savings. Public Savings will remain the same (as specified in the question), therefore national savings will increase.

For Questions 10 & 11 consider a closed economy model, i.e. $Y=C+I+G$. The following information is given:

$$Y=\$48,000$$

$$C=\$34,700 - 1000r$$

$$T=\$8,000$$

$$G=\$8,600$$

$$I=\$5000-2000r$$

10. What is the interest rate and the level of private savings in equilibrium?

- a) 10%, \$4,800
- b) 10%, \$5,400**
- c) 5%, \$4,800
- d) 5%, \$5,400
- e) 10%, \$4,200

$Y=C+I+G$ implies that $48000 = 34700 - 1000r + 5000 - 2000r + 8600$. We have one equation, one unknown (i.e., r)...we solve for $r=10\%$.

Once we have solved for r , we can solve for Investment=4800...we know $I=NS$, so $I=Private\ Savings + Public\ Savings$...we know that $Public\ Savings = -600$, therefore $Private\ Savings$ must be equal to 5400.

11. Now suppose that Congress passes a bill to increase spending on public school arts programs, and the new value of government purchases is \$9200. Everything else being equal, what is the new interest rate? Does private savings increase or decrease

- a) The new interest rate is 20%; private savings increases
- b) The new interest rate is 30%; private savings increases**
- c) The new interest rate is 25%; private savings increases
- d) The new interest rate is 30%; private savings remains the same
- e) The new interest rate is 25%; private savings decreases

Solution method is same as in problem 10.

12. In 2005 Hans, a German citizen, took a business trip to Hawaii and purchased software for his online trading *business* for \$20,000. He also paid \$300 to a local software engineer in Hawaii for a demonstration of how to use the software. Which of the following is correct?

- a) German Imports rose by \$20,000. German Investment rose by \$20,000.
- b) German Imports rose by \$20,000. US Exports rose by \$20,300.
- c) German Investment rose by \$20,000. US Exports rose by \$20,300.
- d) German Imports rose by \$20,300. German Investment rose by \$20,300.**
- e) German Imports rose by \$20,300. German Investment rose by \$20,000. German Consumption rose by \$300.

For Questions 13-15 use the following information:

Good	Year 1 Price	Year 2 Price	Year 3 Price	Year 4 Price
Widget	\$2	\$2.50	\$2.50	\$2.50
Gadget	\$5	\$4	\$5	\$6
Mouse pad	\$20	\$25	\$30	\$35

The CPI basket is 5 Widgets, 6 Gadgets and 1 Mouse Pad

13. Using Year 2 as the base year, what is the approximate rate of inflation from Year 3 to Year 4?

- a) 5 %
- b) 7.5%
- c) 10%
- d) 12.5%
- e) 15%**

The cost of the basket in Year 3 is 72.5. The cost of basket in Year 4 is 83.5. The percentage increase in the cost is approximately 15%.

14. Using Year 3 as the base year, what is the approximate rate of inflation from Year 3 to Year 4?

- a) 5%
- b) 7.5%
- c) 10%
- d) 12.5%
- e) **15%**

The rate of inflation from one year to another does not change if you change the base year. Those of you who realized this saved some time.

15. Using Year 3 as the base year, what is the CPI for year 1?

- a) **82.76**
- b) 92.50
- c) 100
- d) 107.5
- e) 120.83

16. Hans, a US citizen, buys \$500 worth of marijuana while on vacation in Holland. Upon his return, he sells the marijuana to unsuspecting Americans for \$5,000. Upon discovering this, Franz reports Hans to the FBI, which spends \$10,000 to put Hans behind bars for sale of an illegal substance. What is the increase in US GDP resulting from these transactions?

- a) \$15,500
- b) \$15,000
- c) \$10,500
- d) **\$10,000**
- e) \$500

The first two events are illegal activities and do not count toward GDP. The expenditure by the FBI is a good or service purchased by the government.

17. In December of 2005, the Consumer Price Index of the United States

- a) Rose to 5% above what it was in December 2004
- b) Rose to 1% above what it was in December 2004
- c) Rose to 3% above what it was in November 2005
- d) Rose to 0.3% above what it was in November 2005
- e) **Fell to 0.1% below what it was in November 2005**

18. According to the Congressional Budget Office, the U.S. federal budget deficit has

- a) Increased every year since President Bush took office
- b) Increased every year but one since President Bush took office**
- c) Is no larger today than when President Bush took office
- d) Rose during the first two years of Bush's presidency, but has fallen every year since then
- e) Fell every year since President Bush took office

19. Writing in 1999, Amy Ridenour noted in her article, "Americans Are Better Off Than We Think", that

- a) The poor today are worse off than the poor were 20 years ago.
- b) The average workweek of Americans has fallen by almost 50% since the 1950s.
- c) The percentage of the American workforce in service jobs has actually been falling.
- d) Many service-sector jobs pay more than jobs in manufacturing.**
- e) Of those who were poor 20 years ago (in the poorest fifth of the population), almost half had moved out of the poorest fifth 20 years later.

20. According to Paul Romer, one of the things that make economic growth possible is

- a) The secrecy of others forces inventors to come up with new ideas themselves.
- b) Epidemics shrink the population, so that per capita income rises
- c) The physical world has vast unexplored possibilities.**
- d) Technological progress follows a single, predetermined path.
- e) Education is genetically inherited, so that children do not have to relearn the skills acquired by their parents.

21. Which of the following is a valid reason for the consumer price index to overstate the rate of inflation?

- a) The CPI basket does not include newly invented goods, which tend to rise in price as they become more popular.
- b) The Bureau of Labor Statistics, which calculates the CPI, employs economists whose salaries are indexed to prices, causing them to claim that prices rise even when they don't.
- c) **By using fixed quantities of goods to weight price changes, the CPI fails to capture people's tendency to substitute away from goods as their prices rise.**
- d) The CPI fails to take account of the fact that the quality of goods, services, and the environment are all deteriorating over time.
- e) There is a vast right-wing conspiracy to reduce the real wages of America's workers, which is achieved by pushing prices higher and higher.

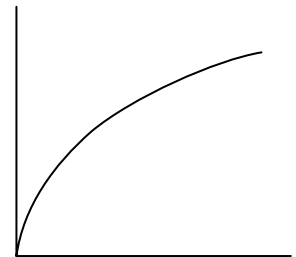
22. An increase in aggregate demand causes

- a) **GDP to rise in the short run but not in the long run.**
- b) The price level to rise in the short run but not in the long run.
- c) GDP to rise in the long run but not in the short run.
- d) The price level to rise in the long run but not in the short run.
- e) Both GDP and the price level to rise in both the short run and the long run.

23. With appropriate labels, which of the following could be represented by the graph at the right?

- I: Constant returns to scale.
- II: The Law of Diminishing Returns
- III: The assumption of diminishing marginal utility

- a) I
- b) II
- c) III
- d) I and II
- e) **II and III**



24. In a closed economy with **no government**, savings equals investment because
- a) The circular flow of income and expenditure assures that income not spent on consumption equals that value of goods devoted to investment.
 - b) $Y=C+I$ and $S=Y-C$ implies $S=I$
 - c) The interest rate adjusts to equate supply of loanable funds to demand for loanable funds
 - d) **All of the above**
 - e) None of the above
25. Which of the following is an example of adverse selection?
- a) People who think they will be compensated for damage by the government choose not to buy hurricane insurance.
 - b) **Young healthy people choose not to buy health insurance.**
 - c) Insurance companies engage in racial discrimination.
 - d) People with good insurance drive faster than those without.
 - e) Life insurance is best marketed with rhyming jingles.
26. Equity finance is
- a) A government budget deficit of zero.
 - b) The absence of risk aversion.
 - c) **The sale of stock by a corporation to raise money.**
 - d) The market value of a company.
 - e) The holding of a diversified portfolio of stocks or, alternatively, shares in a mutual fund.

Short Answer Question 1 (10 points):

Robinson Crusoe and the cast of Lost (a TV program) are stranded on remote but neighboring islands A and B, respectively. Island A has a lot of coconut trees. Miraculously, the people all have US dollars to use for purposes of exchange.

In Year 1, since he can't reach the coconuts, Crusoe cuts down all the trees in order to harvest 500 coconuts. The inhabitants of island B form a government to which they turn over their cash, and the government then buys 400 of Crusoe's coconuts from him for \$800. They feed them to the inhabitants of island B in a government program. Meanwhile, Crusoe consumes 50 of his remaining 100 coconuts and plants the other 50.

In Year 2, the 50 coconuts that he planted in Year 1 grow to become trees, and he again harvests 500 more coconuts. This time he sells all of them to the individual inhabitants of island B for a total of \$1,500 (the former government of island B was disbanded on the last day of Year 1). Crusoe uses all of this cash to buy a bicycle produced on island B in Year 2.

A) Fill in the chart below in terms of US Dollars (8 points):

Year	Island	GDP	Consumption	Investment	Net Exports	Government Spending
Year 1	Island A	<i>1000</i>	<i>100</i>	<i>100</i>	<i>800</i>	<i>N/A</i>
	Island B	<i>0</i>	<i>0</i>	<i>0</i>	<i>-800</i>	<i>800</i>
Year 2	Island A	<i>1500</i>	<i>1500</i>	<i>0</i>	<i>0</i>	<i>N/A</i>
	Island B	<i>1500</i>	<i>1500</i>	<i>0</i>	<i>0</i>	<i>0</i>

B) What accounts for the higher/lower GDP from Year 1 to Year 2 for island A (2 points)?

Although the same number of coconuts were produced in both years (i.e., 500), the implied price of coconuts went up by 50% from year 1 to year 2.

Short Answer Question 2 (10 points):

The graph at the right, repeated below, shows supply (SLF) and demand (DLF) for loanable funds in an initial equilibrium. For each of the two problems below

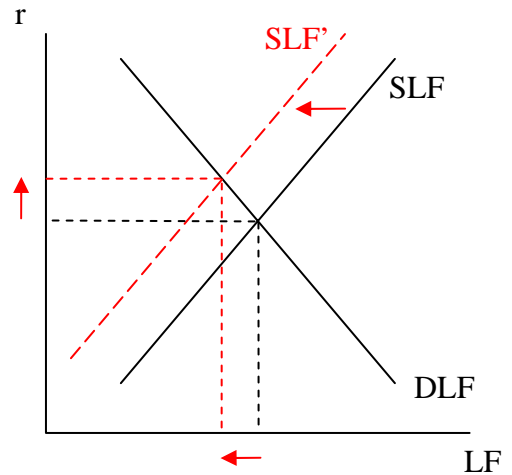
- i) label the curves,
- ii) show how the curve(s) shift,
- iii) identify the new equilibrium, and
- iv) state how the indicated variables change as a result.

- a. Government increases its spending by paying out more in social security benefits.

Interest rate _____ *Up* _____

Investment _____ *Down* _____

Government saving _____ *Down* _____



- b. A new technology makes physical capital more productive, stimulating investment

Interest rate _____ *Up* _____

Investment _____ *Up* _____

Private saving _____ *Up* _____

