

Name: Answer Key

Economics 151, Introduction to Economics

FINAL, Version 1

December 12, 2006

150 Points Possible

Score: 150

Multiple Choice. Select one "BEST" answer for each question. (3 points each)

- 1 The "bowed out" shape of the production possibilities curve arises because:**
 - a) As we move farther inside the PPC, an economy loses increasing amounts of both goods.
 - b) The opportunity cost of moving from a point on the PPC to a point outside the PPC increases.
 - c) *To continue to get the same increment in the production of a particular good, you must give up more and more of the other good.*
 - d) Since resources are scarce, producing more of one good means we must produce less of another.

- 2 The imposition of a price ceiling leads to:**
 - a) *Excess Demand.*
 - b) Excess Supply.
 - c) A Surplus.
 - d) Both b and c are correct.

- 3 Margarine is a good example of:**
 - a) *An inferior good.*
 - b) A luxury good.
 - c) A normal good.
 - d) A complement of butter.

- 4 The most common form of competition in the US is:**
 - a) Perfect Competition.
 - b) *Monopolistic Competition.*
 - c) Oligopoly.
 - d) Monopoly.

- 5 The price of a good reflects both the marginal social benefit and the marginal social cost of production:**
 - a) In a command and control economic system.
 - b) *In a perfectly competitive free-market economic system in the absence of externalities.*
 - c) In a free-market economic system.
 - d) In a perfectly competitive economic system.

- 6 Which one of the following purchases the largest share of GDP?**
 - a) *Consumers.*
 - b) Firms.
 - c) The Government.
 - d) Foreigners.

7 The disparity in living standards in the world has been:

- a) Growing across all countries.
- b) Shrinking across all countries.
- c) *Growing between rich and poor countries, but shrinking among rich countries.*
- d) Shrinking between rich and poor countries, but growing among rich countries.

8 Long run economic growth in developed countries is primarily the result of:

- a) Stable population growth.
- b) Savings, investment, and capital accumulation.
- c) Increased educational attainment among the labor force.
- d) *Technological growth and the exchange of ideas.*

9 Suppose a country's GDP grows at 10% per year. How long will it take for the country's GDP to double?

- a) 20 years
- b) 10 years
- c) *7 years*
- d) 5 years

10 Which one of the following has NOT been considered a potential source of technological progress?

- a) Research and Development in fundamental sciences.
- b) Monopolies that spur innovation.
- c) The scale of the market.
- d) *All of the above have been considered potential sources of technological progress.*

11 The short-run opportunity costs of government efforts to reduce inflation include:

- a) *Increased unemployment.*
- b) Increased cost of printing money.
- c) Increased instability within the banking sector.
- d) None of the above.

12 According to official statistics, which of the following had the lowest unemployment rate in 2002?

- a) Spain
- b) United States
- c) Argentina
- d) *Mexico*

13 Which of the following statements is FALSE?

- a) The Phillips Curve describes the short-run tradeoff between unemployment and inflation.
- b) There is no long-run tradeoff between unemployment and inflation.
- c) *Okun's Law describes the short-run tradeoff between GDP and inflation.*
- d) The natural rate of unemployment varies across time and countries.

14 Racial Diversity _____ productivity in industries employing highly-educated workers, and also _____ productivity in industries with a high level of union activity.

- a) increases; increases
- b) *increases; decreases*
- c) decreases; increases
- d) decreases; decreases

15 Which of the following is definitely NOT true?

- a) Racial (or ethnic) diversity increases productivity in most sectors of the US economy.
- b) *Racial (or ethnic) diversity increases productivity in most countries.*
- c) Racial (or ethnic) diversity facilitates creative decision making and problem solving.
- d) Racial (or ethnic) diversity increases costs associated with common action and public goods provision.

16 Which of the following is most sensitive to interest rate fluctuations?

- a) Consumption
- b) *Investment*
- c) Government Expenditures
- d) Exports

17 If you transfer money from your savings account into your checking account, then:

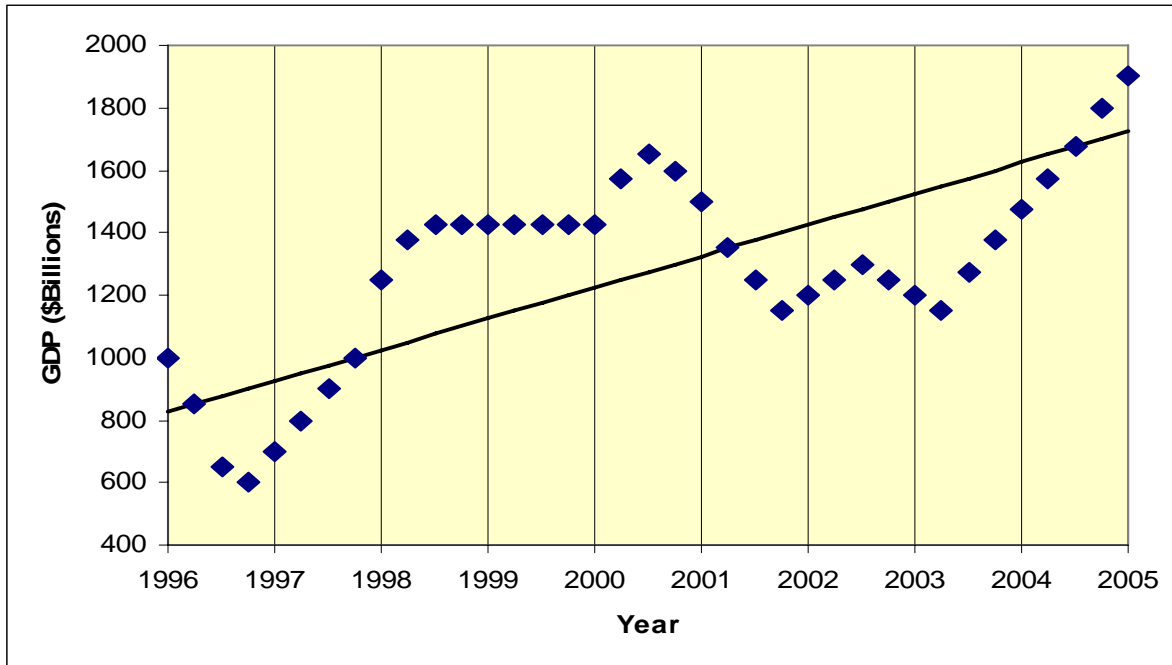
- a) M1 decreases and M2 increases.
- b) M1 increases and M2 decreases.
- c) M1 is constant and M2 decreases.
- d) *M1 increases and M2 is constant.*

18 The most commonly used tool in monetary policy is:

- a) Changes in government spending and taxes.
- b) Changes in required reserve ratios.
- c) Changes in the discount rate.
- d) *Open market operations.*

Short Answer.**1) Recessions**

In the graph below, each point represents real GDP during a quarter (Jan, Apr, Jul, and Oct represented by roman numerals) of a given year. The straight line represents potential GDP. Which of the following options identify the beginning and end dates of recessions? (9 points)



1996 I (possibly earlier) to 1996 IV

2000 III to 2001 IV

2001 II to 2003 II

1996 II to 1997 IV

2000 III to 2004 III

2001 II to 2004 III

1998 III to 2000 I

2001 II to 2001 IV

2002 III to 2003 II

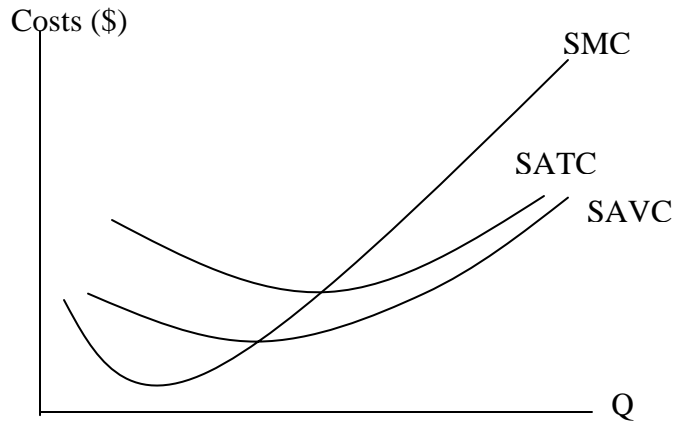
2) GDP

Which of the following transactions count toward 2006 US GDP? (6 points)

- A) Christoph, a German citizen, paid to take a course at Colgate this semester.
- B) Jennifer, a US citizen, paid to take a course at the London School of Economics this semester.
- C) Colgate hired Nathalie, a Canadian, to teach courses this semester.
- D) I paid a high school student \$15 to mow my lawn last September. (Not graded, depends on whether payment was “under the table” or not).
- E) I purchased an antique record player on EBay last month.
- F) My real estate agent earned a \$5000 commission when I bought a house (built in 1840) last summer.

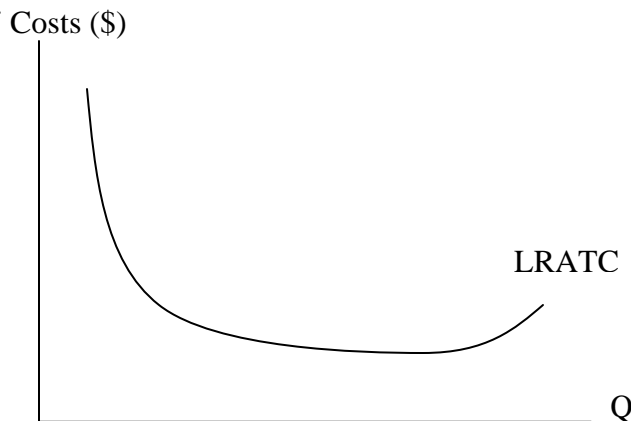
3) Costs

A) Draw the short run marginal cost, average variable cost, and average total cost curves for a perfectly competitive industry. At what point do diminishing returns begin? (8 points)



Diminishing returns begin when where SMC starts rising.

B) Draw a long run average total cost curve. At what point do diminishing returns begin? (4 points).



There are no diminishing returns in the long run, since capital is not fixed. The curve may increase, however, due to increasing communication costs within large firms. In this case, economies of scale have been exhausted.

4) Property Rights

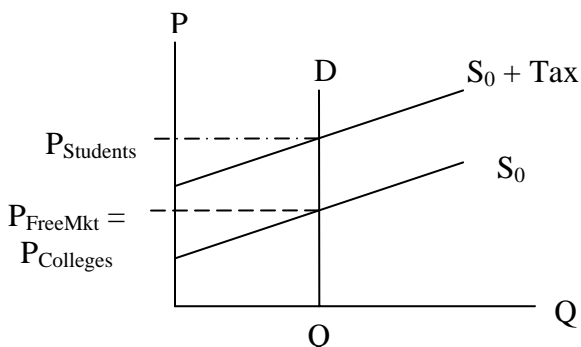
During Thanksgiving Break, I argued to my in-laws that it is immoral to eat fish due to the absence of well-enforced property rights in the seafood industry. Please explain, briefly, what often results when markets lack well-enforced property rights. (4 points)

The absence of well-defined property rights often leads to externalities and an inefficient level of production. In this case, fish are over-consumed because people do not have a private incentive to conserve.

5) Tax Policy

Many young adults claim they would pay any price to attend college. Suppose the demand for college is perfectly inelastic.

- A) The government decides to charge colleges a tax (T) for every student enrolled. Sketch a supply and demand diagram to illustrate the effects of this tax. Indicate the free market price of enrollment, the price charged to students, and the price earned by colleges. (8 points)



- B) Who pays the incidence of this tax (no need to justify your answer)? (2 points)

Students pay the incidence (burden) of the tax, even though the tax was placed on colleges.

- C) Comment on the size of the inefficiency created by this tax policy. (2 points)

The inefficiency, or Deadweight Loss, is nonexistent because demand is perfectly inelastic and the quantity exchanged will not change.

6) Inflation

In 1817, 13 men founded what would become Colgate University with “13 dollars, 13 prayers, and 13 articles.” According to the Federal Reserve Bank of Minneapolis (<http://minneapolisfed.org/Research/data/us/calc/hist1800.cfm>), the CPI in 1817 was about 50, and the CPI in 2006 is about 600.

- A) What is the total rate of inflation between 1817 and 2006? (3 points)

$$\text{Inflation} = (600-50)/50 = 11 = 1100\%$$

- B) What is the nominal and real value of the money used to found our fine institution? (5 points)

$$\text{Nominal} = \$13$$

$$\text{Real (2006 dollars)} = 13 \cdot (1 + 1100\%) = 13 \cdot 12 = \$156; \text{ Or, } \$13 \cdot 600/50 = \$156$$

7) GDP and Inflation Calculations

A fictional economy produced two goods (bicycles and cars) in 2001 and 2002 according to the table below. Be especially careful in showing your work when answering the following questions to earn partial credit for simple math mistakes.

	<u>2001</u>		<u>2002</u>	
	Price	Quantity	Price	Quantity
Bicycles	100	50	400	25
Cars	1500	10	2000	15

A) Calculate the nominal GDP in 2001 and 2002. (4 points)

$$Nominal_{01} = 100 * 50 + 1500 * 10 = 20,000$$

$$Nominal_{02} = 400 * 25 + 2000 * 15 = 40,000$$

B) Calculate real GDP in 2001 and 2002 using 2001 as the base year. (4 points)

$$Real_{01} = 100 * 50 + 1500 * 10 = 20,000$$

$$Real_{02} = 100 * 25 + 1500 * 15 = 25,000$$

C) Calculate the growth rate of real GDP between 2001 and 2002 (3 points)

$$Growth = (25,000 - 20,000) / 20,000 = 1/4 = 25\%$$

D) What is the GDP deflator in 2001 and 2002? (4 points)

$$Deflator_{01} = 100 * 20,000 / 20,000 = 100$$

$$Deflator_{02} = 100 * 40,000 / 25,000 = 100 * 8/5 = 160$$

(Sorry, more arithmetic than anticipated)

E) What is the rate of inflation between 2001 and 2002? (3 points)

$$Inflation = (160 - 100) / 100 = 60\%$$

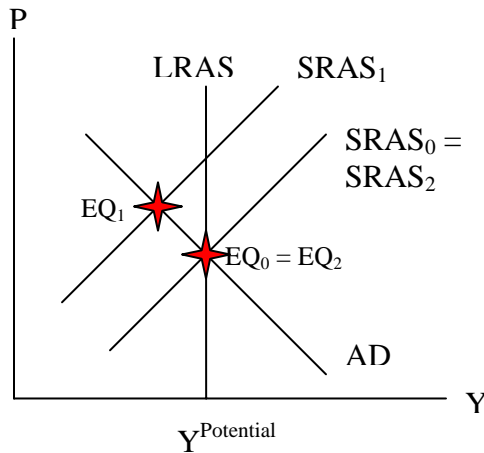
F) Yes or No (No need to justify your answer): Would your answers in parts C and E be different if you had used 2002 as the base year? (2 points)

Yes, they are likely to be different.

8) Aggregate Supply and Demand

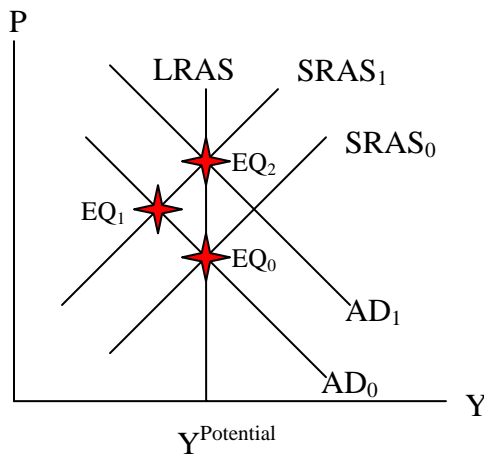
John Maynard Keynes and Milton Friedman were the two greatest economists of the 20th Century, but they advocated very different policies in response to economic shocks. Suppose an economy is initially at long run (potential) GDP. Suddenly, China’s demand for oil increases dramatically, causing oil prices to rise. Illustrate the short run and long run effects of this shock on an AS/AD diagram for the following scenarios. Make sure to label the initial equilibrium, short-run equilibrium, and long-run equilibrium.

- A) Mr. Friedman supported free markets, and would advise against government intervention. Identify the initial, short-run, and long-run equilibria resulting from the oil shock. (5 points)



The oil shock brings output below potential. Unemployment rises in the short run, but then self-correcting mechanisms occur. That is, workers become willing to work for lower nominal wages. With lower labor costs, equilibrium returns to its initial Price and Output level.

- B) Mr. Keynes supported government intervention to stabilize the economy. Identify the initial, short-run, and long-run equilibria resulting from the oil shock, assuming that the government responds by pursuing counter-cyclical fiscal policy. (5 points)



As before, the oil shock brings output below potential. However, the government responds and increases spending (or decreases taxes). This causes AD to increase, resulting in higher prices, but returning to potential GDP (presumably quicker than in Part A).

- C) Mr. Keynes argued that government intervention was desirable because “in the long run, we’re all dead.” Mr. Friedman argued that such policies carry undesirable consequences, however. By comparing your graphs in part A and B, name one such undesirable consequence. (2 points)

Mr. Friedman hated inflation, and thought it has disastrous long-term consequences.

9) Aggregate Expenditure

An open economy is characterized by the following table:

$$C = 1200 + .75*(\text{Disposable Income})$$

$$I = 500$$

$$G = 300$$

$$X = 200$$

$$M = 0.25*(\text{Disposable Income})$$

$$\text{Lump Sum Tax} = 400$$

$$\text{Potential GDP} = 3500$$

A) What is the short-run equilibrium level of GDP in this economy? (5 points)

$$Y = 1200 + 500 + 300 + 200 + 0.75 * (Y-400) - 0.25 * (Y-400)$$

$$Y = 2200 + 0.75*Y - 300 - 0.25*Y + 100$$

$$Y = 2000 + 0.50*Y$$

$$0.50*Y = 2000$$

$$Y = 4000$$

B) What does the government spending multiplier in this economy equal? (4 points)

$$\text{Multiplier} = 1/(1 - mpc + mpm) = 1/(1-0.75+0.25) = 1/0.5 = 2$$

C) By how much would government spending need to change to bring the economy to potential? (4 points)

$$\Delta Y/\Delta G = \text{Multiplier}$$

$$(3500-4000)/\Delta G = 2 ; -500/\Delta G = 2 ; \Delta G = -500/2 = -250$$