

MULTIPLE CHOICE (5 points each) Note that there are several versions of the exam with different orders for the multiple choice questions. Your question and alternative order may differ from what is given below, but all the questions and alternatives are the same across exams; only the order is different. Correct answers are marked with **. There are explanations for some questions given in bold after the question. In other cases you should refer to the lecture notes if the reasoning behind the answer is not clear to you.

- ___ 1. Which alternative is not a problem with using GDP as a measure of a country's social welfare?
- (A) GDP ignores inequality of the income distribution.
 - (B) **GDP does not account for the fact that goods consumed contain parts produced in foreign countries.
 - (C) GDP excludes the contribution to welfare from economic activities that are not exchanged through formal markets.
 - (D) Human welfare depends on more than material standards of living.

By subtracting imports, GDP does correct for intermediate goods produced abroad.

- ___ 2. Which of the following alternatives best explains why prices are used to add up diverse goods in the GDP measure?
- (A) Prices are the only feasible way to add up different kinds of goods and services.
 - (B) If price data were not used, GDP would not reflect inflation accurately.
 - (C) The use of price data eliminates the effect of intermediate goods on GDP.
 - (D) **Prices reflect the values people in society place on different goods and services.
- ___ 3. Mary buys a new car. She pays \$15,000 in cash and the car dealer gives her \$10,000 for her old car that she trades in. The effect of this transaction alone on GDP is an:
- (A) **Increase of \$25,000.
 - (B) Increase of \$15,000.
 - (C) Increase of \$10,000.
 - (D) None of the above.

This is perhaps the hardest question on the exam. Many of you will think that the \$10,000 trade-in is just the exchange of an existing asset, which in a sense is true. But the asset in this case is used as part of the payment for the new car. It's best to think of this in two steps. First, the consumer buys a newly produced car for \$25,000, then there is an existing asset exchange for \$10,000. The \$25,000 transaction is reflected in GDP while the \$10,000 existing asset exchange has no effect. Another way to get to the answer is to reject alternative B by realizing that it would not make sense that the same car sold without a trade in would add more to GDP since it represents the same amount of production. I realized when I included this question that it requires somewhat subtle reasoning to answer it correctly. But I included it knowing that some of the other question are quite straightforward.

- ___ 4. Which of the following economic statements is normative?
- (A) A monetary policy of low interest rates speeds the economy's recovery from a recession.
 - (B) The monetary policy of high interest rates likely caused the early 1980s recession.
 - (C) **The Fed should control the money supply to prevent inflation.
 - (D) Higher money growth increases the inflation rate.

- _____ 5. Which event below increases measured U.S. GDP by exactly \$5,000?
- (A) Smith buys \$5,000 in building materials, uses them to build a garage for Jones, and charges Jones \$8,000 in total.
 - (B) **Smith buys \$5,000 worth of newly produced building materials to construct a garage for Jones, but Jones backs out of the deal and pays nothing. Smith keeps the new materials in inventory.
 - (C) Jones buys \$3,000 in building materials and builds a new garage himself that adds \$5,000 to the value of his home.
 - (D) Jones pays a Canadian citizen \$8,000 to build a new garage in the U.S. The Canadian buys building materials in the U.S. for \$5,000 and takes his \$3,000 profit into Canada.

What matters is production. The fact that Jones backed out of the deal and Smith holds the newly produced materials in inventory does not change the outcome for alternative B. In case A, GDP rises by \$8,000. For C, GDP rises by \$3,000 because the labor Jones did for himself is not purchases in a market transaction. In case D, GDP rises by \$8,000 because the production took place within the borders of the US even though the producer takes some of the income back to Canada.

- _____ 6. Unexpected inflation:
- (A) Increases real interest rates.
 - (B) Benefits individuals with fixed nominal incomes.
 - (C) Raises real GDP.
 - (D) **Transfers purchasing power from lenders to borrowers.

If inflation is higher than people expect when they engage in a financial contract, the dollars paid back are worth less than anticipated. This benefits the borrower and hurts the lender.

- _____ 7. Which of the following alternatives gives the most accurate criticism of the view that the 1960s was a "Golden Age" for the United States?
- (A) The economy experienced substantial "stagflation" in the 1960s.
 - (B) **GDP is an imperfect measure of human welfare.
 - (C) Real GDP growth in the 1960s was not much higher than in the 1990s.
 - (D) Inflation was high in the 1960s.

Social unrest surrounding the Vietnam War, civil rights, and other issues made this a tumultuous period. The disruption from these non-economic events is not reflected in GDP

- _____ 8. The Apple corporation is owned in large part by U.S. citizens. Suppose that Apple increases its production of iPhones in China that are sold for a profit in Europe. Which of the following alternatives correctly describes the result of this activity?
- (A) **U.S. GDP is unaffected but U.S. national income rises.
 - (B) U.S. GDP and U.S. national income rise.
 - (C) U.S. national income rises by less than U.S. GDP rises.
 - (D) U.S. GDP and U.S. national income are unaffected.

Because the production takes place totally outside the U.S. (even the retailing production is in Europe) there is no effect on GDP. But the income of American citizens who own part of Apple will rise, which increases national income.

- _____ 9. Suppose the GDP price index for the first quarter of some future year is 100 and the price index for the second quarter is 103. What is the best estimate of the annualized inflation rate between the first and second quarters?
- (A) 3 percent
 - (B) 11 percent

(C) **13 percent

(D) Unknown, because you are not given the price index in third and fourth quarters.

You need to compound 3% growth over four quarters to annualize this figure. We know that $(1.03)^4$ is greater than 1.12 because of compounding. So, 13% has to be closer to the exact answer than 11 percent. (Indeed, if you take out your calculator you will find that the annualized growth rate is about 12.55%.) Answer D is incorrect; you do not need to know anything about other quarters to annualize a growth rate.

___ 10. In the fourth quarter of 2012, the change in inventories was unusually negative. This fact implies that:

(A) GDP growth in the fourth quarter of 2012 understates the increase in final goods produced.

(B) The investment component of GDP was higher than normal.

(C) **The growth in sales of final goods is stronger than the reported growth of GDP.

(D) GDP growth in the first quarter of 2013 is more likely to be lower than previously forecast.

GDP = Final Sales + Change in Inventories, so if inventories declined final sales expanded faster than GDP. Answer D is incorrect because it goes the wrong way. If sales were stronger than inventories, this suggests that the economy is stronger than it appears so that growth in early 2013 will be higher as firms replace inventory stocks.

___ 11. Which of the following workers is most likely to be counted as structurally unemployed?

(A) A computer technician whose company went bankrupt and is actively seeking a similar job at another computer company.

(B) **A laid-off worker from a steel mill faces greater foreign competition. The worker is trying to find a job in a different industry that pays as well as his previous position.

(C) A car salesperson who loses her job during a recession when car sales are typically low. She is looking for a new car sales job and is optimistic about finding one when the economy recovers.

(D) A farmer whose tobacco crop no longer brings an adequate price and who decides to retire earlier than he had planned.

Alternative B is clear structural unemployment. The farmer in D could be structurally unemployed, but he decides to retire so he is out of the labor force.

Short Answer Questions. Sample answers that would be adequate for full credit are in bold face below.

1. (12 points) Consider this statement: “U.S. real GDP increased by 100% in the 27 years between 1985 and 2012, from \$6.8 trillion to \$13.6 trillion. Because 100% divided by 27 years is 3.7%, the annualized growth rate over this period was about 3.7%.”

a) (7 points) The statement is incorrect. Write down the correct formula to calculate the annualized long-term growth rate between 1985 and 2012. Use the actual numbers from the data given in the question. (You do not need to actually calculate the annualized growth.)

The correct formula is: $(\$13.6 / \$6.8)^{1/27} - 1$. You could also write this as $(2)^{(1/27)} - 1$

b) (5 points) Without doing any calculations, is the correct annualized growth rate between 1985 and 2007 higher or lower than 3.7%? Briefly explain your answer.

Because of compounding in the growth process over time, the correct annualized growth rate is substantially lower than the total growth divided by the number of years.

2. (8 points) This quotation is from a *New York Times* story about economic data on February 1, 2013: “Construction has been one of the more encouraging sectors, adding jobs each of the last four months. The hiring [in the construction sector] was probably stronger because of a combination of rebuilding from Hurricane Sandy, unseasonably warm weather that led to fewer work stoppages, and the nascent housing recovery.” How does this situation illustrate a limitation of GDP as a measure of social economic welfare?

Reconstruction from a natural disaster will add to GDP and jobs, possibly benefitting some businesses and workers. But there was no subtraction for the devastation of the hurricane; no recognition in GDP of the loss of homes, businesses, infrastructure, etc. There is also no recognition in GDP for the personal costs incurred by the victims of the storm.

3. (25 points) There is some ambiguity about how business investment should be treated in GDP accounting. The way in which this ambiguity is resolved would affect the perception of the strength of the U.S. in the late 1990s. Answer the questions below about these issues.

a) (8 points) Explain why it might be sensible to treat business investment as an intermediate good.

Business investment in structures and productive equipment is an *input* into the production of other final goods and services. As such, it seems to be an intermediate good, the value of which is reflected in the value of the goods or services it ultimately produces.

b) (8 points) Now, make the case for treating business investment as a final good.

Investment is viewed as a final good because even if it is ultimately used to produce other things, it is durable. Thus, investment goods produced today will affect production long into the future. It is not used up in the production of other goods and services in the year it is produced.

c) (9 points) In the late 1990s, spending growth was unusually high for business computers and fiber optic cable to transmit internet communication. Considering this fact and your knowledge of the overall performance of the U.S. economy in the late 1990s, how would the perception of this period change depending on the way investment is measured in GDP?

GDP growth was quite strong in the late 1990s. Because spending on business computers and fiber optic cable was treated as a final good and therefore part of GDP, the fast growth rate of this sector raised the overall growth rate of the economy. If investment had been treated as an intermediate good, the perception of the economy would have been weaker.