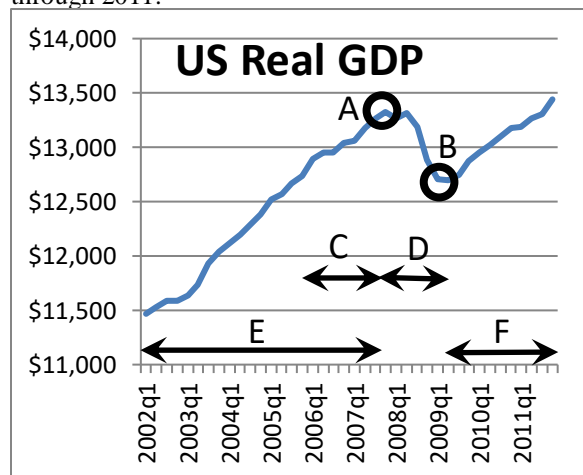


**EXAMINATION #2 VERSION B**  
**"National Income and Product Accounts"**  
**October 4, 2013**

INSTRUCTIONS: This exam is closed-book, closed-notes. Simple calculators are permitted, but graphing calculators or calculators with alphabetical keyboards are NOT permitted. Cell phones or other wireless devices are NOT permitted. Point values for each question are noted in brackets. Points will be subtracted for illegible writing or incorrect rounding. Maximum total points are 100.

**I. Multiple choice:** Circle the one best answer to each question. [1 pt each, 10 pts total]

The next two questions refer to the following graph, which shows a U.S. business cycle from 2002 through 2011.



(1) A *trough* is marked in the graph above by the letter

- a. A.
- b. B.
- c. C.
- d. D.
- e. E.
- f. F.

(2) A *recovery* is marked in the graph above by the letter

- a. A.
- b. B.
- c. C.
- d. D.
- e. E.
- f. F.

(3) At the peak of a business cycle, actual GDP is

- a. above potential GDP.
- b. below potential GDP.
- c. equal to potential GDP.
- d. cannot be determined from information given.

(4) In the early 1980s, the inflation rate in the U.S. decreased from about 10 percent to about 4 percent per year. This is an example of

- a. deflation.
- b. reflation.
- c. hyperinflation.
- d. disinflation.

(5) Suppose the interest rate on loans is 6 percent and the inflation rate is expected to be 2 percent. Then the real rate of interest is

- a. 2 percent.
- b. 4 percent.
- c. 6 percent.
- d. 8 percent.
- e. 12 percent.

(6) Fiscal policy does *not* include

- a. government borrowing.
- b. taxes.
- c. government spending.
- d. the money supply.
- e. All of the above are part of fiscal policy.

(7) Investment spending in the national accounts does *not* include purchases of new

- a. business software.
- b. trucks and heavy equipment.
- c. factories.
- d. bonds.
- e. homes.

(8) If a country's national savings (S) are greater than its investment spending (I), then the country must have

- a. a trade surplus.
- b. a trade deficit.
- c. zero net exports.
- d. cannot be determined from information given.

(9) If nominal GDP increases by 4 percent from one year to the next, while real GDP increases by 3 percent, then the rate of inflation measured by the GDP price index is about

- a. negative 1 percent.
- b. 1 percent.
- c. 3 percent.
- d. 4 percent.
- e. 7 percent.
- f. 12 percent.

(10) The exchange rate for South African currency changed from 8.3 rands per U.S. dollar in a year ago to 9.9 rands per U.S. dollar now. Clearly, the

- a. U.S. dollar has depreciated against the South African rand.
- b. South African rand has depreciated against the U.S. dollar.
- c. both of the above.
- d. none of the above.

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**II. Problems:** Insert your answer to each question in the box provided. Use graphs and margins for scratch work. Only the answers in the boxes will be graded. Work carefully: partial credit is not normally given for questions in this section.

(1) [Macroeconomic record: 8 pts] Which of the following show an upward trend in the U.S. over the last 50 years? Which show no particular long-run trend? Write "TRENDED" for items with a long-run upward trend. Write "NOT TRENDED" for other items.

a. The inflation rate.


b. The Consumer Price Index.

c. Population.

d. The unemployment rate.

e. Productivity.

f. The interest rate.

g. Nominal GDP.

h. Real GDP per capita.


(2) [Inflation: 2 pts] According to the U.S. Bureau of Labor Statistics, the CPI was 225.922 in July 2011, and was 229.104 in July 2012. Compute the annual rate of inflation over this period to the nearest tenth of a percentage point.

	%
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(3) [Spending approach to GDP: 16 pts] Consider each of the following items sold in 2013. Should the item be counted as part of U.S. GDP for 2013—*YES* or *NO*? If *YES*, in which spending component of GDP—consumption (C), investment (I), government purchases (G), or net exports (X)—does it belong? If *NO*, explain why not.

	<i>Part of U.S. GDP for 2013? (YES or NO)</i>	<i>If YES, then which spending component (C, I, G, or X)? If NO, why not?</i>
a. A 1967 Chevrolet Corvette, made in Michigan, purchased by a collector in West Des Moines.		
b. A Boeing passenger jet, made in Washington State, purchased by an Asian airline.		
c. A bulldozer, made in Illinois, purchased by a construction company in Des Moines.		
d. A new high school, built by a school district in eastern Iowa.		

(4) [Components of GDP: 16 pts] The imaginary country of Concrete Land has just four industries: the Raw Concrete Industry, the Building Construction Industry, the Road Construction Industry, and the Birdbath Industry. There are no other goods and no foreign trade. In a recent year:

- The Raw Concrete Industry produced and sold \$50 billion to the Road Construction Industry, \$50 billion to the Birdbath Industry, and \$10 billion of raw concrete to the Building Industry, for a total of \$110 billion in sales.
- The Road Construction Industry produced \$100 billion of roads for the government.
- The Birdbath Industry produced and sold \$300 billion of birdbaths to consumers.
- The Building Industry produced and sold \$10 billion of buildings (a capital good) to each industry (including itself) for a total of \$40 billion in sales.

a. Compute the spending components of Concrete Land's GDP.

Consumption (C)	\$	billion
Investment (I)	\$	billion
Government purchases (G)	\$	billion
Total GDP (Y)	\$	billion

b. Compute value added by each industry in Concrete Land.

Raw Concrete Industry	\$	billion
Building Industry	\$	billion
Road Construction Industry	\$	billion
Birdbath Industry	\$	billion

(5) [Spending approach to GDP: 12 pts] The table below shows data for the United States as reported by the Bureau of Economic Analysis in trillions. [Hint: Some of the data are extraneous and not needed for solving this problem.]

	2010
Consumption of durable goods	\$1.1
Depreciation (capital consumption of domestic business)	\$1.5
Consumption of nondurable goods	\$2.3
Consumption of services	\$6.8
Business fixed investment	\$1.7
Personal dividend income	\$0.5
Residential investment	\$0.4
Change in inventories	\$0.1
Exports	\$1.8
Personal interest income	\$1.2
Imports	\$2.4
National defense purchases	\$0.8
Corporate profits	\$1.7
National nondefense purchases	\$0.5
State and local purchases	\$1.9
Compensation of employees	\$8.1
Transfer payments	\$2.3

- a. Compute consumption (C).
- b. Compute gross investment (I).
- c. Compute net investment.
- d. Compute government purchases (G).
- e. Does the U.S. have a trade surplus or a trade deficit ?
- f. Compute net exports (X).

\$	trillion
\$	trillion
\$	trillion
\$	trillion
\$	trillion

(6) [GDP, saving, GDP per capita: 6 pts] The table below shows data for the United States as reported by the Bureau of Economic Analysis in *trillions*. [Hint: Some of the data are extraneous and not needed for solving this problem.]

	2012
Consumption	\$11.1
Investment	\$2.5
Net exports	\$-0.5
Government purchases	\$3.2
Indirect business taxes	\$1.1
Personal taxes	\$1.5
Population in millions	314

- a. Compute GDP.
- b. Compute national saving (S).
- c. Compute GDP per capita to the nearest dollar.

\$	trillion
\$	trillion
\$	

(7) [Stocks v. flows: 4 pts] Are the following quantities stocks or flows? Write "STOCK" or "FLOW" in each box.

- a. The number of computers that Drake owns as of today.
- b. The number of computers purchased by Drake in 2008.
- c. The amount of investment spending per year.
- d. The amount of economic capital currently available in the economy.


(8) [Value added: 2 pts] Suppose a restaurant has sales of \$400,000 in a year. Over the same year, it pays its employees \$200,000, it leases the shop for \$30,000, and it purchases \$150,000 in ingredients and supplies. Compute the value added by the restaurant.

\$	
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(9) [GDP and real GDP: 8 pts] In an imaginary country, only two final goods are produced, as shown in the following table.

Year	Food		Clothing	
	Price	Quantity	Price	Quantity
2011	\$5	20	\$4	25
2012	\$10	20	\$4	28

- a. Compute the growth rate of *nominal GDP* (also called "current-dollar GDP") from 2011 to 2012.
- b. Compute the growth rate of GDP from 2011 to 2012 *in constant 2011 prices*.
- c. Compute the growth rate of GDP from 2011 to 2012 *in constant 2012 prices*.
- d. Compute the growth rate of *real GDP* from 2011 to 2012, as it would be computed by the U.S. Bureau of Economic Analysis.

	%
	%
	%
	%

(10) [Nominal GDP, real GDP, and inflation: 7 pts] The following table shows data for India, in trillions of *rupees*, the Indian currency.

Year	Nominal GDP	Real GDP	GDP price index or price deflator (to the nearest tenth)	Rate of inflation (to the nearest tenth of a percentage point)
2003	27.5	29.4		
2004	31.2	31.2		%
2005	35.6	34.5		%

- a. [2 pts] Which is the base year for real GDP?
- b. [3 pts] Compute the GDP price index for each year, to the nearest tenth, and insert it in the table above. [Hint: The price index should equal 100.0 in the base year.]
- c. [2 pts] Compute the rate of inflation for the last two years, to the nearest tenth of a percentage point, and insert in in the table above.

(11) [Using the CPI: 2 pts] Texas Instruments introduced the TI-30 pocket calculator in 1973 at a price of \$150. In that year, the CPI was about 45. The CPI is now about 233. Compute the 1973 price of the TI-30 in today's dollars, to the nearest whole dollar.

\$

(12) [PPP exchange rate: 2 pts] Suppose a basket of goods bought by a typical consumer that costs 1000 bolivars in Venezuela would cost 180 US dollars in the United States. What is the purchasing-power-parity exchange rate to the nearest hundredth?

bolivars  
per US dollar

(13) [Using market exchange rate: 2 pts] Suppose the exchange rate for euros is 0.75 euros per U.S. dollar. Then a laptop computer that costs 450 euros in Germany will cost how much in U.S. dollars, to the nearest whole dollar?

\$

**III. Critical thinking:** Write a one-paragraph essay answering one question below (your choice). [3 pts]

- (1) Could an economy experience a recession while nominal GDP continues to grow? Explain why or why not.
- (2) Suppose the value of final goods and services produced annually in Country X is identical to that in Country Y: \$2 trillion. However, in Country X, almost everyone has graduated from high school, while in Country Y, most people have only a primary-school education. On the other hand, due to poor health care, Country X has a life expectancy of only 55 years, while Country Y has a life expectancy of 75 years. Which country has higher GDP? Justify your answer.

Please circle the question you are answering and write your answer below. Full credit requires correct economic reasoning, legible writing, good grammar including complete sentences, and accurate spelling.

[end of exam]