ECON 001 - Principles of Macroeconomics
Drake University, Fall 2013
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Signature: _____

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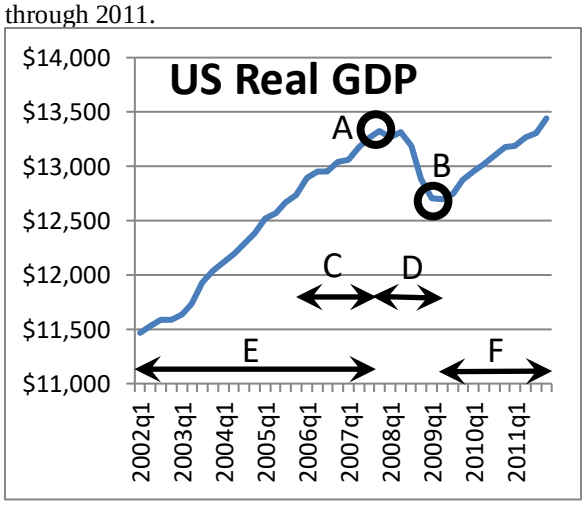
EXAMINATION #2 VERSION A
"National Income and Product Accounts"
October 4, 2013

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 *recession* is marked in the graph above by the letter
a. A.
b. B.
c. C.
d. D.
e. E.
f. F.

(2) A *peak* is marked in the graph above by the letter
a. A.
b. B.
c. C.
d. D.
e. E.
f. F.

(3) At the trough 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 1990s, the price level in Japan decreased. That is, the inflation rate was negative. This is an example of
a. deflation.
b. reflation.
c. hyperinflation.
d. disinflation.

(5) Suppose the interest rate on loans is 5 percent and the inflation rate is expected to be 3 percent. Then the real rate of interest is
a. negative 2 percent.
b. 2 percent.
c. 3 percent.
d. 5 percent.
e. 8 percent.

(6) Monetary policy concerns
a. taxes.
b. government spending.
c. the money supply.
d. government borrowing.
e. All of the above are part of monetary policy.

(7) Investment spending in the national accounts does *not* include purchases of
a. trucks and heavy equipment.
b. new factories.
c. land.
d. new homes.
e. business software.

(8) If a country's national savings (S) are less 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 7 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 4 percent.
b. 3 percent.
c. 4 percent.
d. 7 percent.
e. 10 percent.
f. 21 percent.

(10) The exchange rate for Japanese currency changed from 83 yen per U.S. dollar in December 2012 to 99 yen per U.S. dollar now. Clearly, the
a. dollar has appreciated against the yen.
b. yen has depreciated against the dollar.
c. both of the above.
d. none of the above.

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 Consumer Price Index.		e. The interest rate.	
b. Population.		f. Nominal GDP.	
c. The unemployment rate.		g. Real GDP per capita.	
d. Productivity.		h. The inflation rate.	

(2) [Inflation: 2 pts] According the U.S. Bureau of Labor Statistics, the CPI was 218.011 in July 2010, and was 225.922 in July 2011. Compute the annual rate of inflation over this period to the nearest tenth of a percentage point.

%

(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.

	Part of U.S. GDP for 2013? (YES or NO)	*If YES, then which spending component (C, I, G, or X)? If NO, why not?*
a. A ton of soybeans grown in Iowa, purchased by a food processor in China.		
b. A tractor-trailer truck, purchased by Walmart.		
c. A new house, purchased by a family in Minneapolis.		
d. A painting by Andy Warhol (1928-1987) purchased by an art collector in New York.		

(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 $100 billion to the Road Construction Industry, $200 billion to the Birdbath Industry, and $300 billion of raw concrete to the Building Industry, for a total of $600 billion in sales.
- The Road Construction Industry produced $300 billion of roads for the government.
- The Birdbath Industry produced and sold $800 billion of birdbaths to consumers.
- The Building Industry produced and sold $100 billion of buildings (a capital good) to each industry (including itself) for a total of $400 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.]

	2008
Consumption of durable goods	$1.1
Corporate profits	$1.3
Consumption of nondurable goods	$2.3
Consumption of services	$6.6
Business fixed investment	$1.9
Residential investment	$0.5
Personal interest income	$1.4
Change in inventories	$ - 0.1
Exports	$1.8
Personal dividend income	$0.8
Imports	$2.6
National defense purchases	$0.8
National nondefense purchases	$0.4
Depreciation (capital consumption of domestic business)	$1.5
State and local purchases	$1.8
Compensation of employees	$8.1
Transfer payments	$1.9

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

	2010
Consumption	$10.2
Population in millions	310
Investment	$2.1
Personal taxes	$1.2
Net exports	$-0.5
Indirect business taxes	$1.0
Government purchases	$3.2

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

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

a. The number of cars entering a parking lot between 8 AM and 9 AM. ____

b. The number of cars in a parking lot at 10 AM. ____

c. The amount of economic capital currently available in the economy. ____

d. The amount of investment spending per year. ____

(8) [Value added: 2 pts] Suppose a restaurant has sales of $500,000 in a year. Over the same year, it pays its employees $300,000, it leases the shop for $50,000, and it purchases $80,000 in ingredients and supplies. Compute the value added by the restaurant.

$ ____

(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	$4	20	$3	40
2012	$6	21	$3	50

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 Brazil, in billions of *reals*, the Brazilian 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)
1995	706	706		
1996	844	721		%
1997	939	745		%

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] Hewlett-Packard introduced the HP-35 pocket calculator in 1972 at a price of $395. In that year, the CPI was about 42. The CPI is now about 233. Compute the 1972 price of the HP-35 in today's dollars, to the nearest whole dollar.

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(12) [PPP exchange rate: 2 pts] Suppose a basket of goods bought by a typical consumer that costs 1000 Taiwan dollars would cost 39 US dollars in the United States. What is the purchasing-power-parity exchange rate to the nearest hundredth?

Taiwan dollars per US dollar

(13) [Using market exchange rate: 2 pts] Suppose the exchange rate for Japanese yen is 98 yen per U.S. dollar. Then a laptop computer that costs 60,000 yen in Japan will cost how much in U.S. dollars, to the nearest whole dollar?

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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]