

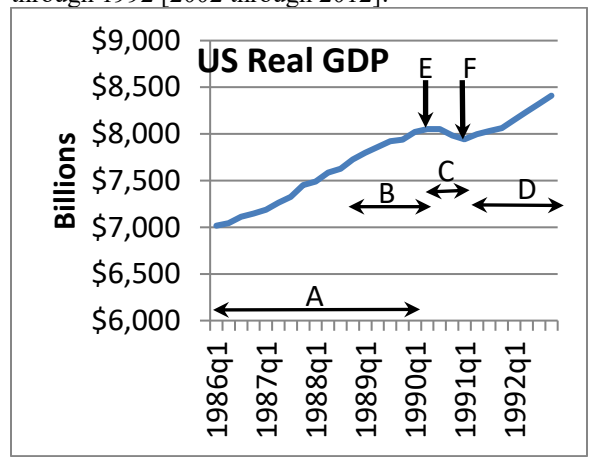
EXAMINATION 2 VERSION A
“Measuring the Economy”
March 10, 2026

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. Please use the margins for scratch work.
[1 pt each, 15 pts total]

- (1) Which of the following shows a strong upward trend for the U.S. over the last century?
- The unemployment rate.
 - Real GDP per capita.
 - The inflation rate.
 - The interest rate.

The next two questions refer to the following graph, which shows a U.S. business cycle from 1986 through 1992 [2002 through 2012].



- (2) A *recession* is marked in the graph above by the letter
- A.
 - B.
 - C.
 - D.
 - E.
 - F.

- (3) A *trough* is marked in the graph above by the letter
- A.
 - B.
 - C.
 - D.
 - E.
 - F.

- (4) At the peak of a business cycle, which is greater?
- Potential GDP.
 - Actual GDP.
 - Actual GDP and potential GDP are equal.
 - cannot be determined from information given.
- (5) In the early 1930s, the price level in the United States dropped by about 20%. This is an example of
- reflation.
 - hyperinflation.
 - disinflation.
 - deflation.

- (6) Suppose a bank pays an interest rate of 4 percent on deposits and the expected inflation rate is 3 percent. The real rate of interest is
- 0 percent.
 - 1 percent.
 - 2 percent.
 - 3 percent.
 - 4 percent.
 - 7 percent.
 - 12 percent.

- (7) Taxes and government spending are components of
- monetary policy.
 - international trade policy.
 - fiscal policy.
 - foreign policy.
- (8) Consumption spending in the national accounts does *not* include
- purchases of necessities like food and clothing.
 - purchases of new houses.
 - spending on internet access.
 - spending on visits to doctors and dentists.
 - purchases of major appliances like dishwashers.
- (9) Investment spending in the national accounts does *not* include purchases of
- trucks and heavy equipment.
 - new factories.
 - land.
 - new homes.
 - business software.
- (10) Government purchases in the national accounts do *not* include
- pay for members of the armed services.
 - spending for social security benefits.
 - spending on national parks.
 - spending on highway construction.
 - salaries of public school teachers.
- (11) The largest share of national income is
- labor income.
 - interest income.
 - dividends.
 - rental income.
- (12) If a country's national savings (S) exceed its investment spending (I), then the country must have
- a trade deficit.
 - a trade surplus.
 - zero net exports.
 - cannot be determined from information given.
- (13) Real GDP is defined as GDP
- divided by population.
 - adjusted for changes in life expectancy.
 - adjusted for inflation.
 - adjusted for statistical errors.
- (14) Over the last 50 years, the price level has risen
- never.
 - rarely.
 - in about half the years.
 - almost every year.
- (15) The exchange rate was 103 Japanese yen per U.S. dollar in 2008, and 79 yen per U.S. dollar in 2012. Clearly, the
- dollar depreciated against the yen.
 - yen depreciated against the dollar.
 - both of the above.
 - none of the above.

II. Problems: Insert your answer to each question in the box provided. Please use the margins and graphs 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) [Spending approach to GDP: 16 pts] Consider each of the following items purchased in 2025. Should the item be counted as part of U.S. GDP for 2025—*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 2025? (YES or NO)</i>	<i>If YES, then which spending component (C, I, G, or X)? If NO, why not?</i>
a. A new truck made in Michigan, purchased by a business in California.		
b. A new tractor made in Illinois, purchased by a farmer in Canada.		
c. A new shirt made in North Carolina, purchased by a consumer in New York.		
d. A Civil-War era house, purchased by a local historical society.		

(2) [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 \$1.5 trillion to the Birdbath Industry, \$0.5 trillion to the Road Construction Industry, and \$0.5 trillion of raw concrete to the Building Industry, for a total of \$2.5 trillion in sales.
- The Birdbath Industry produced and sold \$5 trillion of birdbaths to consumers.
- The Road Construction Industry produced \$1.5 trillion of roads for the government.
- The Building Industry produced and sold \$0.5 trillion of buildings (a capital good) to each industry (including itself) for a total of \$2 trillion in sales.

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

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

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

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

(3) [GDP, saving, GDP per capita: 6 pts] The table below shows data for the United States in a recent year as reported by the Bureau of Economic Analysis in *trillions*. The U.S. population in that year was **332 million**. [Hint: Some of the data are extraneous and not needed for solving this problem.]

Transfers	\$4.2
Government purchases	\$4.0
Consumption	\$14.2
Personal saving	\$2.7
Investment	\$3.7
Personal taxes	\$2.3
Net exports	-\$0.6

a. Compute GDP.

\$	trillion
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b. Compute national saving (S).

\$	trillion
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c. Compute GDP per capita to the nearest dollar.

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

Residential investment	\$1.2
Consumption of durable goods	\$2.1
Corporate profits	\$3.2
Consumption of nondurable goods	\$3.9
Personal dividend income	\$1.8
Imports	\$4.0
National defense purchases	\$0.9
Federal nondefense purchases	\$0.7
Depreciation (capital consumption of domestic business)	\$2.8
Personal interest income	\$1.6
Change in inventories	\$0.2
Exports	\$3.0
State and local purchases	\$2.8
Compensation of employees	\$13.4
Transfer payments	\$4.0
Consumption of services	\$11.5
Business fixed investment	\$3.4

a. Compute consumption (C).

\$	trillion
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b. Compute gross investment (I).

\$	trillion
----	----------

c. Compute net investment.

\$	trillion
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d. Compute government purchases (G).

\$	trillion
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e. Does the U.S. have a trade surplus or a trade deficit ?

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f. Compute net exports (X).

\$	trillion
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(5) [Stocks v. flows: 8 pts] Are the following quantities stocks or flows? Write "STOCK" or "FLOW" in each box.

- The amount of investment spending in the U.S. in 2025.
- The amount of economic capital in the U.S. on January 1, 2026.
- The number of people living in Des Moines on January 1, 2026.
- The number of people who moved to Des Moines in 2025.

(6) [Value added: 2 pts] Suppose a bookstore sells \$1,000,000 of books in a year. Over the same year, it pays its employees \$300,000, it leases the storefront for \$50,000, and it spends \$600,000 on wholesale books. Compute the value added by the bookstore.

\$

(7) [GDP and real GDP: 8 pts] In an imaginary country, only two final goods are produced, as shown in the following table. (You can use the boxes at right for scratch work.)

Year	Food		Clothing		2024 prices	2025 prices
	Price	Quantity	Price	Quantity		
2024	\$3	100	\$4	50		
2025	\$6	100	\$4	60		

- Compute the growth rate of *nominal GDP* (also called “current-dollar GDP”) from 2024 to 2025.
- Compute the growth rate of GDP from 2024 to 2025 *in constant 2024 prices*.
- Compute the growth rate of GDP from 2024 to 2025 *in constant 2025 prices*.
- Compute the growth rate of *real GDP* from 2024 to 2025, as it would be computed by the U.S. Bureau of Economic Analysis.

	%
	%
	%
	%

(8) [Nominal GDP, real GDP, and inflation: 7 pts] The following table shows data for Mexico, in billions of *pesos*, the Mexican 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)
2016	20.8	23.3		
2017	22.5	23.7		%
2018	24.2	24.2		%

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 the table above.

(9) [Using the CPI: 2 pts] According to the Bureau of Labor Statistics, the price of a gallon of unleaded regular gasoline was \$0.62 in 1976. In that year, the CPI was about 56.9. The CPI is now about 330. Compute the 1976 price of gasoline in today's dollars to the nearest cent.

(10) [Using market exchange rate: 2 pts] The exchange rate for British pounds is about 0.74 pounds per U.S. dollar. Then a wool sweater that costs 30 pounds will cost how much in U.S. dollars, to the nearest cent?

(11) [PPP exchange rate: 2 pts] Suppose a basket of goods bought by a typical consumer that costs 100 Swiss francs in Switzerland would cost \$110 US dollars in the United States. What is the purchasing-power-parity exchange rate to the nearest hundredth?

III. Critical thinking: Write a one-paragraph essay answering *one* question below (your choice). [4 pts]

- (1) Which usually grows faster in a country—real GDP or real GDP per capita? Explain your reasoning.
- (2) Which spending component of GDP is most important for *future* economic growth? Justify your answer.

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

[end of exam]