

**Exam 1**

Please answer each question. For short answer questions, show the formulas and calculations needed where appropriate. You have one hour and fifteen minutes (1:15). Good Luck!

**Multiple Choice Problems.** (There will be ten problems, worth 6 points each.)

- 1) A trade-off between aggregate output and inflation
  - A) exists in both the short run and the long run.
  - B) may exist in the long run, but not in the short run.
  - C) may exist in the short run, but not in the long run.
  - D) is theoretically possible, but has never been observed in practice.
  
- 2) The business cycle component of the log of real per-capita GNP is equal to
  - A)  $\log$  of actual real GNP  $\div$   $\log$  of trend real GNP.
  - B)  $\log$  of trend real GNP  $\div$   $\log$  of actual real GNP.
  - C)  $\log$  of actual real GNP  $-$   $\log$  of trend real GNP.
  - D)  $\log$  of trend real GNP  $-$   $\log$  of actual real GNP.
  
- 3) The average labor productivity is defined as
  - A) per-capita real GDP divided by employment.
  - B) nominal GDP divided by employment.
  - C) real GDP divided by employment.
  - D) per-capita nominal GDP divided by employment.
  
- 4) The GDP deflator is a broader measure of the price level than the CPI because
  - A) it covers investment.
  - B) it covers rents.
  - C) it factors out fluctuations in seasonal items.
  - D) it covers sales tax.
  
- 5) Value added is equal to the value of a firm's production minus
  - A) all of its costs of production.
  - B) labor costs.
  - C) intermediate goods used in production.
  - D) investment expenditures.
  
- 6) Problems with interpreting the unemployment rate as a measure of labor market tightness include
  - A) variations in how intensively the unemployed search for work and biases in the CPI.
  - B) dissatisfied workers and discouraged workers.
  - C) discouraged workers and variations in how intensively the unemployed search for work.
  - D) biases in the CPI and dissatisfied workers.
  
- 7) In recent years, which of the following has comprised less than 5% of GDP?
  - A) imports
  - B) exports
  - C) net exports
  - D) none of the above

- 8) Assume that in an economy with 200M inhabitants, 90M work, 4M are looking for a job, 3M receive unemployment insurance compensation, and 6M receive unemployment insurance compensation and are looking for a job. What is the participation rate?
- A) 50%                      B) 51.5%                      C) 38.5%                      D) 45%

For the following question(s), suppose an economy produces only bread and computers. Assume that all production is consumed in each year, and that price and quantity data are given in the table below.

Year 1		
Good	Quantity	Price
Bread	30	\$10
Computers	10	\$50

Year 2		
Good	Quantity	Price
Bread	40	\$15
Computers	30	\$60

- 9) If Year 1 is the base year, the CPI for Year 2 is approximately
- A) 131.3.                      B) 100.0.                      C) 126.3.                      D) 181.0.

- 10) You are a baker. You paid \$150K in wages, \$50K for dough, \$20K for power, \$5K in interest for a business loan, \$25K in taxes, and made a profit of \$10K. How much did you contribution to GDP using the product approach?
- A) \$190K                      B) \$260K                      C) \$85K                      D) \$80K

- 11) Additions to inventory are
- A) counted as an intermediate input.  
 B) subtracted from sales revenue in calculating profit income.  
 C) not counted as an expenditure in GDP accounting.  
 D) counted as a component of investment spending.

- 12) GDP and GNP may differ
- A) whenever tariff rates become excessively high.  
 B) because some intermediate good inputs are imported.  
 C) because some income generated by domestic production may be received as income by foreign residents.  
 D) because some workers are illegal aliens.

- 13) Even when measured accurately, GDP may be a misleading measure of economic welfare because it cannot account for
- A) the consequences of an unequal distribution of income and the value of government spending.  
 B) the value of non-market production and the consequences of an unequal distribution of income.  
 C) how efficiently we produce goods and services and the value of non-market production.  
 D) the value of government spending and how efficiently we produce goods and services.

- 14) When there is rapid inflation,

- A) growth in nominal GDP exceeds growth in real GDP.
- B) growth in real GDP and nominal GDP are roughly equal.
- C) growth in real GDP exceeds growth in nominal GDP.
- D) there can never be any growth in nominal GDP.

15) Private disposable income is equal to

- A)  $Y + CA - G$ .
- B)  $Y + NFP + TR + INT - T$ .
- C)  $Y + TR + INT - T$ .
- D)  $Y - TR - INT + T$ .

16) The participation rate equals

- A)  $\frac{\text{labor force}}{\text{number unemployed}}$
- B)  $\frac{\text{number unemployed}}{\text{labor force}}$
- C)  $\frac{\text{labor force}}{\text{total working age population}}$
- D)  $\frac{\text{number unemployed}}{\text{total working age population}}$

17) Average labor productivity is computed as the

- A) ratio of real output in manufacturing to the level of real GDP.
- B) ratio of industrial production to the employment rate.
- C) ratio of real GDP to the level of employment.
- D) ratio of real GDP to the unemployment rate.

18) If deviations from trend in a macroeconomic variable are positively correlated with deviations from trend in real GDP, that variable is said to be

- A) useful in predicting future movements in real GDP.
- B) acyclical.
- C) procyclical.
- D) countercyclical.

19) Which of the following is not a correct characterization of the U.S. business cycle?

- A) Prices are countercyclical.
- B) Money is countercyclical.
- C) Employment is procyclical.
- D) Labor productivity is procyclical.

20) Look at the production schedule of the Widget Company below:

Number of workers	0	1	2	3	4	5
Number of widgets	0	12	22	30	36	40

What is the marginal product of the second worker?

- A) 22
- B) 8
- C) 12
- D) 10

21) When the wage increases, the income effect on the household's choices leads to

- A) a decrease in consumption and an increase in leisure.
- B) a decrease in consumption and leisure.
- C) an increase in consumption and leisure.
- D) an increase in consumption and a decrease in leisure.

**Short Answer Problems.** *(There will be four or five worth 40 pts total.)*

- 22) Pamela's Bakery produces 500 loaves of bread in a given year. Pamela pays \$100 for flour and yeast, pays \$600 in wages, pays \$50 in interest on an existing loan, and pays \$100 in taxes to the government. One of Pamela's bread slicing machines, which cost \$75 each, wears out over the course of the year and must be scrapped. Pamela's profit for the year equals \$75. What is the per-unit price of a loaf of Pamela's bread?
- 23) There are five major categories of expenditure that go into the calculation of GDP (by the expenditure approach). Name these components, and state whether each is roughly pro-cyclical, acyclical, or counter-cyclical. (To get five categories, "NX" must be broken up into two parts.)
- 24) Which shows greater volatility in the data, consumption of durables or consumption of nondurables? Why?
- 25) Suppose that the government deficit is 11, interest on the government debt is 4, taxes are 40, government expenditures are 30, consumption expenditures are 75, net factor payments are 10, the current account surplus is -5, and national savings is 20. Calculate Gross National Product (GNP).
- 26) Place the following in order from least to greatest with respect to the volatility of the cyclical component of each time series: GDP, consumption, investment.