Economics 259  Midterm I  Spring 2016

Name: ________________________________

You have 50 minutes to complete the 100 points worth exam. Make sure you show all your work so you can get partial credit. If you get stuck in a problem, make an assumption (reasonable), indicate it clearly, and continue with the problem. Before beginning the exam, please verify that you have 6 pages with 24 questions in your exam booklet. Good luck!

Multiple Choice (each 3 points)

1. When a firm sells a product out of inventory, GDP:
   a. increases or decreases, depending on the year the product was produced.
   b. increases.
   c. decreases.
   d. is not changed.
   e. first decreases, but then increases.

2. In the national income accounts, all of the following are classified as government purchases except:
   a. purchases of military hardware.
   b. services provided by U.S. senators.
   c. services provided by police officers.
   d. services provided by U.S. military personnel.
   e. payments made to Social Security recipients.

3. Money's liquidity refers to the ease with which:
   a. money can be converted into goods and services.
   b. illegally obtained money can be laundered.
   c. loans can be floated.
   d. coins can be melted down.
   e. the U.S. Treasury can print government bonds.

4. In the long run, the level of national income in an economy is determined by its:
   a. government budget surplus or deficit.
   b. factors of production and production function.
   c. rate of economic and accounting profit.
   d. real and nominal interest rate.
   e. GDP deflator.

5. In fourteenth-century Europe, the bubonic plague:
   a. substantially increased economic output in Europe.
   b. substantially increased real rentals on land in Europe.
   c. substantially increased real wages in Europe.
   d. substantially increased the amount of capital in Europe.
   e. reduced the population of Europe by about one-half.
6. The major source of government revenue in most countries that experience a hyperinflation is:
   a. borrowing
   b. customs duties
   c. personal taxes
   d. seigniorage
   e. capital-gains taxes

7. Unions contribute to structural unemployment when collective bargaining results in wages:
   a. above the level of unemployment compensation.
   b. above the equilibrium level.
   c. below the minimum wage.
   d. below the equilibrium level.
   e. at the equilibrium level.

8. Policies to substantially reduce unemployment should be targeted at:
   a. discouraged workers.
   b. the short-term unemployed.
   c. insiders and outsiders.
   d. people not in the labor force.
   e. the long-term unemployed.

9. When a person purchases a 90-day Treasury bill, he or she cannot know the:
   a. expected rate of inflation.
   b. \textit{ex post} real interest rate.
   c. \textit{ex ante} real interest rate.
   d. nominal interest rate.
   e. real interest rate

10. In 2014, the largest component of GDP was:
    a. consumption
    b. investment
    c. government purchases
    d. imports
    e. exports

11. In the classical model with fixed income, if the demand for goods and services is greater than the supply, the interest rate will:
    a. decrease.
    b. either increase or decrease, depending on whether consumption is greater or less than investment.
    c. increase.
    d. remain unchanged.
    e. first increase, but then decrease
12. If $Y = AK^{0.5}L^{0.5}$ and $A$ is 10, $K$, and $L$ are both 25, the marginal product of capital is:
   a. 25
   b. 1,000.
   c. 250
   d. 6,250
   e. 5

13. According to the quantity theory of money, if money is growing at a 10 percent rate and real output is growing at a 3 percent rate, but velocity is growing at increasingly faster rates over time as a result of financial innovation, the rate of inflation must be:
   a. 7 percent.
   b. constant.
   c. increasing.
   d. decreasing.
   e. 13 percent.

14. The total income of everyone in the economy adjusted for the level of prices is called:
   a. a recession.
   b. an inflation.
   c. a business fluctuation.
   d. real GDP.
   e. nominal GDP.

15. An increase in the price of goods bought by firms and the government will show up in:
   a. neither the CPI nor the GDP deflator.
   b. the GDP deflator but not in the CPI.
   c. both the CPI and the GDP deflator.
   d. the CPI but not in the GDP deflator.
   e. definitely the CPI and possibly in the GDP deflator.

16. The neoclassical theory of distribution explains the allocation of:
   a. income among factors of production.
   b. income between saving and investment.
   c. output among consumption, investment, and government spending.
   d. output between goods and services.
   e. expenditure between goods and services

**Short Answers**

17. **Inflation I (3 points)** What is the Fed’s current inflation target (in percent)?
18. **Components of GDP (10 points)** Explain which expenditure category of GDP changes and the direction of the change that results for each transaction described.
   a. A domestic business purchases a domestically produced computer to use in a business office.

   b. A domestic business produces a computer that is sold to a foreign company.

   c. The federal government purchases a domestically produced computer to use in a court house.

   d. A domestic household purchases a domestically produced computer to use in a home.

   e. A domestic household purchases a computer produced in a foreign country to use in a home.

19. **Unemployment I (6 points)** Suppose that the rate of separation is 0.02 and the rate of job finding is 0.08.
   a. What is the steady-state value of unemployment?

   b. If the current unemployment rate is 0.10, what will happen to the rate of unemployment in the next period?

20. **Inflation II (6 points)** State and explain two social costs of expected inflation.
21. **Taxes** *(7 points)* Suppose the government decides to increase taxes in an effort to decrease the budget deficit and, at the same time, increase investment in the economy.
   a. *(4 points)* Will this plan succeed in accomplishing both goals?
   
   b. *(3 points)* Use the long-run model of the economy to graphically illustrate the impact of increased taxes.

22. **Unemployment II** *(6 points)* Changes in economic policies will frequently have an impact on the unemployment rate. Explain whether each of the policy changes described is likely to: 1) affect frictional or structural unemployment and 2) increase or decrease the measured unemployment rate.
   a. The government increases funding for employment agencies.
   
   b. The government abolishes the minimum wage.
   
   c. The supreme court outlaws labor unions.
23. **Migration** *(8 points)* Assume that a competitive economy can be described by a constant returns to scale (Cobb-Douglas) production function and all factors of production are fully employed. Holding other factors constant, including the quantity of labor and technology, carefully explain how a one-time, 10 percent increase in the quantity of labor (perhaps the result of a massive inflow of migrants) will change each of the following *(Hint: include both direction and magnitude of change)*

   a. the level of output produced;

   b. the real wage of labor;

   c. the real rental price of capital;

   d. labor’s share of total income.

24. **Quantity Theory of Money** *(6 points)* A classical economist wears a t-shirt printed with the slogan “Fast Money Raises My Interest!” Use the quantity theory of money and the Fisher equation to explain the slogan.

**Extra Credit**
If you have not missed more than one class since the beginning of the semester, you can answer the question below and earn 3 points extra credit.

25. GDP is the market value of all ______ goods and services produced within an economy in a given period of time.
   a. consumer
   b. final
   c. intermediate
   d. used
   e. final and intermediate
KEY

1. D
2. E
3. A
4. B
5. C
6. D
7. B
8. E
9. B
10. A
11. C
12. E
13. C
14. D
15. B
16. A

17. Around 2 percent

18.a. Investment spending increases by the price of the computer.
18.b. Exports (and net exports) increase by the price of the computer.
18.c. Government spending increases by the price of the computer.
18.d. Consumption spending increases by the price of the computer.
18.e. Consumption spending increases by the price of the computer, but imports also increase by the price of the computer, so that net exports decrease by the price of the computer and there will be no net change in GDP.

19.a. \( \frac{U}{L} = \frac{\bar{s}}{(s+f)} = \frac{0.02}{0.02+0.08} = \frac{0.02}{0.1} = 0.2 \) or 20%
19.b. Since the current rate of unemployment is below the steady state, the rate of unemployment will increase in the next period. And, it will keep increasing until it hits 20%.

20. See lecture notes

21.a. If taxes are increased, budget deficit (T-G) will definitely decrease: \( \uparrow T \rightarrow \uparrow (T-G) \)
If taxes are increased, national saving will increase as disposable income and consumption decrease. As saving increases, investment will increase as well: \( \uparrow T \rightarrow \downarrow Y-T \rightarrow \downarrow C \rightarrow \uparrow S = Y-C-G \rightarrow \uparrow I \)
21.b.

22.a. Frictional unemployment is likely to be reduced as employment agencies reduce the time of
a job search. This process is likely to reduce the measured unemployment rate.
22.b. Structural unemployment will probably decrease for those workers with marginal product
valued just below the previous minimum wage. This policy change is likely to decrease the
measured unemployment rate.
22.c. Structural unemployment is likely to decrease as labor unions will not be able to demand
high wages. This policy is likely to decrease the measured unemployment rate.

23.a. Output increases by less than 10 percent because of diminishing returns to labor.
23.b. The real wage decreases because the average productivity of labor decreases \((Y/L)\)
decreases, as \(Y\) increases and \(L\) increases by even more), so the MPL, which equals \((1 – \alpha)Y/L\),
decreases.
23.c. The real rental price of capital increases because the average productivity of capital
increases \((Y/K)\) increases, as \(Y\) increases, but \(K\) does not), so the MPK, \((\alpha)Y/K\) increases.
23.d. Labor’s share of income is unchanged since it depends only on the parameter \((1-\alpha)\) from
the production function, which does not change.

24. According to the quantity theory, if velocity and real output are constant, then increases in
the rate of money growth increase the rate of inflation. Fast money increases inflation. Based on
the Fisher equation, the nominal interest rate equals the real interest rate plus the rate of inflation.
If the real interest rate is constant, the higher inflation (from the faster money growth rate) raises
the nominal interest rate.

25. B