EC 102 **Name:** ______________________
Summer 2019
Final Exam
8/7/2019
Time Limit: 120 Minutes

Directions: This exam contains 12 pages. There are three sections to complete. You must answer every question in the Multiple Choice section. For the Short Answer section, you must answer only THREE of the FOUR questions, and in the Long Answer section, you must answer only TWO of the THREE questions. No extra credit will be granted for completing more than the required number of questions. The exam is out of 120 points. Good luck!

Multiple Choice (60 Points)

1. (2 points) The manager of the bank where you work tells you that your bank has $6 million in excess reserves. She also tells you that the bank has $400 million in deposits and $362 million dollars in loans. Given this information you find that the required reserve ratio must be (assuming nothing else enters into balance sheet)
   A. $\frac{44}{400}$
   B. $\frac{6}{362}$
   C. $\frac{32}{400}$
   D. $\frac{38}{400}$

2. (2 points) You put money into an account and earn an after-tax real interest rate of 2.5 percent. If the nominal interest rate on the account is 8 percent and the inflation rate is 2 percent, then what is the tax rate?
   A. 28.00 percent
   B. 36.25 percent
   C. 41.67 percent
   D. 43.75 percent

3. (2 points) Which of the following would cause prices to rise and real GDP to fall in the short run?
   A. an increase in the money supply
   B. an increase in the expected price level
   C. an increase in the capital stock
   D. an increase in income taxes

4. (2 points) Which of the following is an implication of the concept of diminishing marginal returns?
   A. Poor countries grow slower than rich countries.
   B. At low levels of physical capital, all other inputs become more productive.
   C. If we double all inputs, output will rise but by less than a factor of 2.
   D. Continuous economic growth can be secured only through growth of all inputs or by technological progress.

5. (2 points) Suppose that a closed economy's GDP is $\$12,000$, consumption is $\$9,000$, and taxes are $\$1,500$. If the government is running a $500 deficit, then national savings equals
A. $500
B. $\$1,000$
C. $\$2,000$
D. $\$2,500$

6. (2 points) Suppose you took out a one year loan at a 6% nominal interest rate, and both you and the bank expected inflation to be 2%. However, inflation instead ends up being 4%. Who is made better off from the upward surprise in price changes?
A. The bank because the amount repaid at the end of the year is more valuable.
B. You are better off because the amount repaid at the end of the year is more valuable.
C. The bank because the amount repaid at the end of the year is less valuable.
D. You are better off because the amount repaid at the end of the year is less valuable.

7. (2 points) Suppose that the Fed decides to buy government bonds. Which of the following statements is correct?
A. According to the quantity theory of money, money supply decreases.
B. According to the quantity theory of money, if real GDP and the velocity stay constant, we will observe inflation.
C. If, at the same time real GDP and the velocity of money increase by equal amounts, the quantity theory of money predicts that we will observe deflation.
D. According to the quantity theory of money, real GDP will increase.

8. (2 points) Which of the following assets is the **most** liquid
A. a $50 bill
B. a $50 Amazon gift card
C. 100 shares of Microsoft stock
D. an economics textbook

9. (2 points) The present value of a future payment
A. decreases when the interest rate rises
B. decreases when the interest rate falls
C. decreases when the interest rate stays the same
D. never changes regardless of interest rates

10. (2 points) When an individual decides to hold money instead of other assets, that individual
A. is giving up the interest that could have been earned by holding other types of assets.
B. is not affected by unanticipated inflation.
C. becomes more likely to suffer from money illusion.
D. is able to maintain a higher standard of living.

11. (2 points) As the economy strengthens, some discouraged workers re-enter the labor market and begin searching for jobs. Assuming that none of them initially finds jobs, this would cause
A. Unemployment rate to rise and labor force participation to rise
B. Unemployment rate to fall and labor force participation to rise
C. Unemployment rate to rise and labor force participation to fall
D. Unemployment rate to fall and labor force participation to fall

12. (2 points) Suppose that a panel of economists predicts that a nation's real GDP per capital will double in approximately 20 years. Based upon the rule of 70, what must be the predicted annual growth rate of real GDP per capita?
A. 140 percent
B. 3.50 percent
C. 2.85 percent
D. 14 percent

13. (2 points) This year, Alan purchases a home built in the 1950s. Alan's purchase
A. counts as investment spending in this current year
B. counts as consumption spending in this current year.
C. does not count as investment spending in this current year.
D. counts as government spending in this current year.

14. (2 points) Consider countries A and B. If country A has stronger laws protecting unions compared to country B, and these countries are otherwise identical, then
A. cyclical unemployment is lower in country A.
B. the natural rate of unemployment is lower in country B.
C. structural unemployment is lower in country A
D. frictional unemployment is lower in country B

15. (2 points) Which of the following supports the efficient market hypothesis
A. The best prediction of stock prices today is stock prices yesterday.
B. Reliance on experts to choose your portfolio is costly, but provides you with a higher return in the long run.
C. There exists private information that is not reflected in asset prices
D. The returns of more volatile assets are easier to predict.

16. (2 points) Advocates of the theory of rational expectations believe that
A. the sacrifice ratio can be much smaller if policymakers make a credible commitment to low inflation.
B. if disinflation catches people by surprise, it will have minimal impact on unemployment.
C. wage and price setters never expect the central bank to follow through on its announcements.
D. expected inflation depends on the rates of inflation that people have recently observed.

17. (2 points) An increase in the money supply causes ____ in output in the short run, and ____ in output in the long run
A. an increase; no change
B. an increase; an increase
C. no change; an increase
D. no change; no change

18. (2 points) Which of the following is **false**?
A. When there is an increase in the government budget deficit, the amount of loanable funds increases.
B. When there is an increase in private savings, the interest rate decreases.
C. When there is an increase in the government budget deficit, private investment is crowded out.
D. When there is an increase in private savings, the total amount of loanable funds increases.

19. (2 points) If price levels rise, the aggregate quantity demanded will fall. The exchange rate effect suggests that this occurs because
A. the domestic currency will depreciate, making imports relatively more expensive while making exports more competitive.
B. the domestic currency will depreciate, forcing employers in the export sector to reduce wages.
C. the domestic currency will appreciate, making imports relatively more expensive while making exports more competitive.
D. the domestic currency will appreciate, making imports relatively less expensive while making exports less competitive

20. (2 points) In which of the following instances is the present value of the future payment the largest?
A. You receive $\$1,000$ in 5 years and the annual interest rate is 5 percent
B. You receive $\$1,000$ in 10 years and the annual interest rate is 3 percent
C. You receive $\$2,000$ in 10 years and the annual interest rate is 10 percent
D. You receive $\$2,000$ in 15 years and the annual interest rate is 8 percent

21. (2 points) If the best educated and most-skilled individuals leave a country, then in the short run this country's human capital per worker
A. and physical capital per worker will increase
B. and physical capital per worker will decrease
C. will increase, but physical capital per worker will decrease
D. will decrease, but physical capital per worker will increase

22. (2 points) In 2012, the imaginary nation of Dorados had a population of 8,000 and real GDP of 3,000,000. During the year, its real GDP per person grew by about 3% Which of the following sets of growth rates is consistent with this growth in real GDP per person?
A. 2% population growth and 6% real GDP growth
B. 6% population growth and 2% real GDP growth
C. 4% population growth and 7% real GDP growth
D. 7% population growth and 4% real GDP growth

23. (2 points) Kyle puts a greater proportion of his portfolio into government bonds. Kyle's action
A. increases both risk and the average rate of return.
B. decreases both risk and the average rate of return
C. increases risk, but decreases the average rate of return.
D. decreases risk, but increases the average rate of return.

24. (2 points) The catch-up effect refers to the idea that
A. saving will always catch-up with investment spending.
B. it is easier for a country to grow fast and so catch-up if it starts out relatively poor.
C. population eventually catches-up with increased output.
D. if investment spending is low, increased saving will help investment to "catch-up."

25. (2 points) When prisoners use cigarettes or some other good as money, cigarettes become
A. commodity money, but do not function as a unit of account.
B. commodity money and function as a unit of account.
C. fiat money, but do not function as a unit of account.
D. fiat money and function as a unit of account.

26. (2 points) Suppose that the adult population is 6 million, the number of employed is 3.8 million, and the labor-force participation rate is 70%. What is the unemployment rate?
    A. 9.5%
    B. 6.7%
    C. 28%
    D. 10.5%

27. (2 points) Suppose there are constant returns to scale. Now suppose that over time a country doubles its workers, its natural resources, its physical capital, and its human capital, but its technology is unchanged. Which of the following would double?
    A. output, but not productivity
    B. both output and productivity
    C. productivity, but not output
    D. neither productivity nor output

28. (2 points) When a union raises the wage above the equilibrium level,
    A. both the quantity of labor supplied and unemployment rise.
    B. both the quantity of labor supplied and unemployment fall.
    C. the quantity of labor supplied rises and unemployment falls.
    D. the quantity of labor supplied falls and unemployment rises.

29. (2 points) Which of the following statements regarding the Federal Open Market Committee is correct?
    A. All governors attend the meetings, but only five get to vote.
    B. All regional Fed presidents attend and vote at the meetings.
    C. All regional Fed presidents attend the meetings, but only five get to vote.
    D. Regional Fed presidents may neither attend nor vote the meetings.

30. (2 points) A change in prices will
    A. shift money demand and aggregate demand in the same direction
    B. shift money demand and aggregate demand in different directions
    C. shift money demand but not aggregate demand
    D. not shift money demand but will shift aggregate demand

Short Answer Questions (30 Points)

Please answer <u>THREE</u> of the following FOUR questions

1. (10 points) Consider the AD-AS model. For each of the following, determine what happens (if anything) to aggregate demand, short-run aggregate supply, and long-run aggregate supply. Justify your reasoning.

   (a) An increase in educational attainment.

   (b) OPEC temporarily increases the price of oil.

   (c) A reduction in menu costs.

2. (10 points) Suppose Steve has won a small lottery. He can take \$100 today or \$50 payments over the next 3 years, including this year. Determine which option he would choose with the following interest rates: 50%, 70%

3. (10 points) Suppose government deficit spending increases. Would the effect on aggregate demand be larger if the Federal Reserve held the money supply constant in response, or if the Fed were committed to maintaining a fixed interest rate? Explain.

4. (10 points) Recent studies have uncovered the following empirical finding: A surge of immigration does not have a big immediate negative impact on equilibrium wages

   (a) Draw out the effect of a surge of immigration on the labor market equilibrium

   (b) What must be true about the elasticities of supply and/or demand for labor in order for the empirical finding above to be true? Explain your reasoning.

Longer Questions (30 Points)

Please answer TWO of the following THREE questions

1. (15 points) In the wake of the Great Recession, many central banks set their interest rates at around zero. Suppose that the money market is in such a scenario. That is, suppose that the equilibrium interest rate in the money market is negative $i^* < 0$, but the Federal Reserve sets a rate equal to zero, $\bar{i} = 0$. This is a "liquidity trap".

   (a) Draw out the money market in this scenario. Identify a possible source of a liquidity trap.

   (b) Suppose that the Fed wishes to conduct expansionary monetary policy via an open market purchase of bonds. What affect does this have in the short run when the economy is already in a liquidity trap?

   (c) Suppose instead that the government conducts expansionary fiscal policy by increasing government spending (via deficit spending). Should the government be more or less concerned about a crowding-out effect? Why?

   (d) What sorts of expansionary policies would you suggest that the government adopt in a liquidity trap: fiscal or monetary? Explain.

2. (15 points) Consider a labor market faced with a binding minimum wage

   (a) Draw this initial outcome. Is there a shortage or surplus of labor?

   (b) Suppose that firms face an "elasticity shock" so that labor demand is suddenly more elastic than before. Suppose that the labor supply curve remains unchanged. What are the implications of this on the labor market as your have drawn it in part (a)?

   (c) How does this affect inflation and unemployment? Explain your reasoning with a diagram of the Phillips curve.

   (d) Propose a policy that the government can pursue in an effort to keep unemployment from changing.

3. (15 points) Refer to the following balance sheet to answer this question. Here, we assume that banks face a reserve requirement of 10%.

Assets		Liabilities	
Required Reserves	$200	Deposits	$2,000
Excess Reserves		Capital	$500
Loans			

(a) Suppose that First National Bank keeps an additional 5% of its total deposits in excess reserves. What is the dollar value of loans that First National Bank can make?

(b) If all banks do the same, then what is the money multiplier for the economy?

(c) Suppose that the economy falls into recession causing 10 percent of the bank's borrowers default on their loans (i.e. suppose that the bank loans associated with these borrowers are now worthless). What is the leverage ratio in this case?

(d) Would the leverage ratio differ if the bank decides to deplete its excess reserves and instead loan this amount out after observing these defaults? Why?