Multiple Choice (each 3 points)

1. Short-run fluctuations in output and employment are called:
   a. sectoral shifts.
   b. the classical dichotomy.
   c. business cycles.
   d. productivity slowdowns.
   e. liquidity crises.

2. According to the theory of liquidity preference, the supply of nominal money balances:
   a. varies with the price level.
   b. changes as the level of income changes.
   c. depends on the interest rate.
   d. depends on money demand.
   e. is chosen by the central bank.

3. An effective policy to reduce a trade deficit in a small open economy would be to:
   a. increase tariffs on imports
   b. impose stricter quotas on imported goods
   c. increase government spending
   d. increase taxes
   e. implement a tax break to encourage investment

4. Protectionist policies implemented in a small open economy with a trade deficit have the effect of ______ the trade deficit and ______ the quantity of imports and exports.
   a. decreasing; decreasing
   b. not changing; decreasing
   c. decreasing; not changing
   d. not changing; not changing
   e. not changing; increasing

5. Over the business cycle, changes in investment ______ changes in GDP.
   a. are more volatile than
   b. have about the same volatility as
   c. are less volatile than
   d. can be either more or less volatile than
   e. are unrelated to
6. When Paul Volcker tightened the money supply in 1979:
   a. the inflation rate immediately fell.
   b. nominal interest rates fell in the short run.
   c. the inflation rate initially increased.
   d. nominal interest rates increased in the long run
   e. nominal interest rates fell in the long run.

7. When exports exceed imports, all of the following are true except:
   a. Net capital outflow is positive.
   b. Net exports are positive.
   c. Domestic investment exceeds domestic saving.
   d. Domestic output exceeds spending.
   e. Domestic saving does not equal domestic investment.

8. In the Solow model ______ cause(s) the capital stock to rise, while ______ cause(s) the capital stock to fall.
   a. inflation; deflation
   b. interest rates; the discount rate
   c. international trade; depressions
   d. investment; depreciation
   e. investment; inflation

9. An increase in government spending generally shifts the IS curve, drawn with income along the horizontal axis and the interest rate along the vertical axis:
   a. downward and to the left.
   b. downward and to the right.
   c. upward and to the right.
   d. upward and to the left.
   e. none of the above as this will cause a movement along a given IS curve and not a shift.

10. The idea that the amount of any currency that can buy a particular good in one country should be able to buy (after being exchanged for the local currency) the same quantity of the same good anywhere in the world is called:
    a. the theory of the real exchange rate.
    b. equal currency conversion.
    c. international monetary exchange.
    d. international arbitrage.
    e. purchasing-power parity.

11. Which of the following factors in the Solow model can lead to sustained increases in the standard of living?
    a. increase in \( K \)
    b. decrease in \( n \)
    c. increase in \( s \)
    d. increase in \( A \)
    e. decrease in \( \delta \)
12. Analysis of population growth around the world concludes that countries with high population growth tend to:
   a. have high income per worker.
   b. have a lower level of income per worker than other parts of the world.
   c. have the same standard of living as other parts of the world.
   d. tend to be the high-income-producing nations of the world.
   e. have a higher saving rate than other parts of the world.

13. According to the Keynesian-cross analysis, when there is an increase in government-purchases by an amount $\Delta G$ and the planned expenditure increases by an equal amount, then equilibrium income:
   a. rises by one unit.
   b. rises by $\Delta G$.
   c. rises by more than $\Delta G$.
   d. rises by less than $\Delta G$.
   e. stays the same.

14. The $IS$ curve provides combinations of interest rates and income that satisfy equilibrium in the market for ______, and the $LM$ curve provides combinations of interest rates and income that satisfy equilibrium in the market for ______.
   a. saving and investment; planned spending
   b. real-money balances; loanable funds
   c. goods and services; real-money balances
   d. real-money balances; goods and services
   e. saving and investment; loanable funds

15. If the nominal interest rates in the United States and Canada are 8 percent and 12 percent, respectively, the real interest rates are the same, and the real exchange rate is fixed, then the market's expectation about the number of Canadian dollars to be received for a U.S. dollar a year from now will be that it will:
   a. increase by 4 percent.
   b. increase by 5 percent.
   c. decrease by 8 percent.
   d. decrease by 4 percent.
   e. decrease by 5 percent.

16. Assume that a war reduces a country's labor force but does not directly affect its capital stock. Then the immediate impact will be that:
   a. total output will rise, but output per worker will fall.
   b. both total output and output per worker will fall.
   c. both total output and output per worker will rise.
   d. total output will fall, but output per worker will rise.
   e. None of the above.
Short Answers

17. **Depreciation** (9 points) It rains so much in the country of Tropicana that capital equipment rusts out (depreciates) at a much faster rate than it does in the country of Sahara. If the countries are otherwise identical, in which country will the standard of living be higher? Illustrate graphically.

The standard of living will be higher in ____________.

18. **Liquidity Preference** (9 points) Suppose a wave of credit card fraud causes consumers to use cash more frequently in transactions. Use the liquidity preference model to show how these events shift the $LM$ curve. **Explain in words as well.**
19. **Policy and a small-open economy I** (8 points) Suppose a new technology is developed that increases investment demand in both a closed economy and in a small open economy that are in other ways identical. Holding other factors constant, will the quantity of investment spending increase more in the closed economy or in the small open economy? Explain. Assume prices are flexible and that factors of production are fully employed in both economies. Assume there is perfect capital mobility for the small open economy.

20. **FDI Flow** (8 points) Solow model predicts that capital will flow from countries that are abundant with capital to countries where capital is scarce. The United States is a country with one of the highest stocks of capital per worker. Given what the Solow model predicts, how can you explain the graph from the Economist?
21. Policy and a small-open economy II (10 points)

Above are graphs of exchange rates and net exports in Tunisia, a small open economy. Match policies below with the above graphs.

_____ 1. Tunisia imposes tariffs on importation of foreign steel.

_____ 2. US, a large open economy, reduces its budget deficit.

_____ 3. Tunisian government decreases its spending.

_____ 4. Tunisian government encourages investment by providing tax breaks for research and development.

_____ 5. Tunisian people decide to consume less overall and lower their MPC.

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.

22. If the number of dollars per yen rises, this is called a(n):
   a. appreciation of the dollar.
   b. appreciation of the yen.
   c. depreciation of the yen.
   d. increase in the terms of trade.
   e. decrease in the terms of trade.
Key

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

17. The standard of living will be higher in Sahara ($y_s > y_T$)

![Diagram showing output per worker and critical points $k^*_Tropicana$ and $k^*_Sahara$.]
If a wave of credit card fraud causes consumers to use cash more frequently in transactions, then the demand for money will be higher for the same interest rate. Hence, the demand for money function \( L_1(r, Y) \) shifts up and to the right to \( L_2(r, Y) \). At the income level \( Y_1 \), there is now

Use the liquidity preference model to show how these events shift the \( LM \) curve.

Investment spending will not change in the closed economy, but will increase in the small open economy. In the closed economy, there is no change in domestic saving, so the domestic interest rate must rise to keep investment spending equal to the unchanged domestic saving. In the small open economy, the increase in investment demand is financed by net capital inflows (a decrease in net capital outflows) at the unchanged world interest rate. The decrease in net capital outflows raises the real exchange rate and reduces net exports in the small open economy.

Solow model predicts that capital will flow from countries that are abundant with capital to countries where capital is scarce. As the United States is a country with one of the highest stocks of capital per worker, capital should flow from the US to countries that are capital scarce. However, for this to be true, \( MPK \) needs to be larger in countries that are scarce with capital. If the US and some other capital scarce country were exactly the same except that capital is more abundant in the US, \( MPK \) in the US would be lower and capital would flow to the country that is capital scarce. But, we know that if \( Y = AK^\alpha L^{1-\alpha} = AK^\alpha \) then \( MPK = \alpha AK^{\alpha-1} = \alpha A/k^{1-\alpha} \). Hence, if \( k \) is higher, \( MPK \) is lower, everything else constant. But, if \( A \) is lower in a capital scarce country, it could be that \( MPK \) is still higher in a capital abundant country. Some estimates suggest that \( A \) in capital scarce countries is indeed much lower than in the US, which would mean that although the US is a capital abundant country, its \( MPK \) is still high, which means that capital will flow to the US. The question is why \( A \) would be lower in capital scarce countries and many answers point to the composition of institutions in capital scarce (poorer) countries is very weak so that the return on capital (\( MPK \)) turns out to be very low.

1. D; 2. B; 3. A; 4. C; 5. A

22. B