Economics 102
Introduction to Macroeconomics
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Final Exam

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PART A: Multiple Choice
(2.5 points each: 45 points total)

A1. According to the assigned article in the Wall Street Journal, in March 1999 wages in the United States:

(a) Rose more rapidly than they had the month before, perhaps as a result of the low rate of unemployment.
(b) Rose more rapidly than they had the month before, perhaps due to increased expectations of inflation.
(c) Rose by the same percentage as in February 1999.
(d) Rose less rapidly than they had the month before, perhaps due to reduced bargaining power of workers.
(e) Rose more slowly than they had the month before, perhaps due to the increased rate of unemployment.

A2. Your wealthy neighbor buys a bottle of fancy French wine for $100. How (if at all) is this purchase included in any of the expenditure components of US GDP?

(a) Consumption spending increases by $100.
(b) Consumption spending increases by $100 and net exports decrease by $100.
(c) Consumption spending increases by $100 and net exports increase by $100.
(d) Net exports decrease by $100.
(e) This transaction does not appear in the expenditure breakdown of US GDP.

A3. Which of the following statements is TRUE?

(a) The CPI is a better measure of changes in the prices of domestically produced goods than is the GDP deflator.
(b) The CPI might understate the inflation rate because as the price of a good increases, some consumers switch to a less expensive substitute.
(c) The method used to calculate the CPI gives equal weight to all categories of goods and services included in the basket.
(d) The Boskin Commission report suggested that changes in the CPI underestimate the true inflation rate.
(e) To convert Babe Ruth's 1931 salary to 1995 dollars, one multiplies Ruth's salary in 1931 dollars by the 1995 price level and divides by the 1931 price level.

A4. If inflation is 3% and the real interest rate is 2%, then the nominal interest rate is approximately equal to:

(a) 0.67%
(b) 1.00%
(c) 1.50%
(d) 5.00%
(e) 6.00%

A5. Suppose you want to buy a one-year bond with a principal value of $1,000. You demand a real return of 5% per year and you expect inflation to be 3% per year. A $1000 bond with a $50 interest (coupon) payment that matures one year from now is available for sale. What is the most you are willing to pay for this bond (to the nearest dollar)?

(a) $913
(b) $926
(c) $972
(d) $1000
(e) $1028

A6. Consider an economy in the long run. Money supply is growing at 7% per year, prices are rising 5% per year, and the velocity of money is constant. Approximately how many years will it take for the value of real output to double?

(a) 6 years
(b) 10 years
(c) 14 years
(d) 35 years
(e) 50 years

A7. Which of the following statements is TRUE?

(a) Most people who become unemployed will be out of work for a relatively long time.
(b) At any given time, most unemployed people will be out of work for a relatively long time.
(c) The unemployment rate may be understated because of the influence of government unemployment insurance programs.
(d) The unemployment rate may be overstated because some part-time workers may wish to work full-time but are not allowed to by their employers.
(e) In the long run, the unemployment rate depends on the inflation rate.

A8. Imagine an economy in which banks hold no excess reserves, and in which – unless otherwise specified – individuals do not hold any money as cash. Which of the following will cause the money supply to increase by the MOST?

(a) Jim sells a $100 Treasury bond to the Fed.
(b) Emma takes $100 out of her pocket and deposits it in the bank.
(c) Alick takes $100 out of his pocket and buys a bond from the Fed.
(d) Phil withdraws $100 from an ATM and uses it to buy a fancy bird-feeder.
(e) Alan sells a $100 Treasury bond to his next door neighbor.

A9. Consider the following information about a hypothetical economy.

- The required reserve ratio is currently 10%.
- No individuals hold any cash.
- Banks hold no excess reserves.
- The money supply is currently equal to $6000.

At what level should the Fed set the required reserve ratio in order for Total Loans in the economy to *decrease* by $1000?

(a) 16.6%
(b) 15.0%
(c) 13.6%
(d) 12.0%
(e) There is insufficient information to answer this question.

A10. Which of the following individuals will be made better off by a depreciation of the US dollar?

(a) An Australian importer of processed American cheese.
(b) A British firm which exports baby care products to the US.
(c) An American importer of fine European camera equipment.
(d) An American college student buying Mexican beer during Spring Break in Cancun.
(e) None of the above is better off.

A11. Suppose the following are the *only* international investment transactions involving the US:

- US households purchase $100 million of Mexican government bonds.
- Pakistani households purchase $200 million of Disney Corp. (a US company) stock.
- Coca-Cola, a US company, builds a factory worth $50 million in Taiwan.
- Naot, an Israeli shoe company, builds a distribution plant worth $25 million in Florida.

Which of the following statements is TRUE?

(a) US Net Foreign Direct Investment is negative $25 million.
(b) US Net Foreign Portfolio Investment is positive $100 million.
(c) US Net Foreign Portfolio Investment is negative $150 million.
(d) US Net Foreign Investment is negative $125 million.
(e) US Net Foreign Investment is negative $75 million.

A12. Which of the following will have the *immediate* effect of a rightward shift in the SRAS?

(a) OPEC announces higher oil prices.
(b) Congress raises the minimum wage
(c) The Fed increases the money supply.
(d) The price level rises.
(e) None of the above.

A13. Suppose that the real output of the economy is above its natural rate. The government is concerned about the possibility of rising inflation. Which of the following policy alternatives makes sense?

(a) The Fed buys bonds, forcing up interest rates, thus reducing investment.
(b) The Fed lowers the reserve ratio, forcing down interest rates, thus reducing savings.
(c) Congress increases expenditures, crowding out investment and cooling the economy.
(d) The Fed raises the discount rate, forcing up interest rates and increasing savings.
(e) Congress increases unemployment benefits, increasing the natural rate of unemployment.

A14. Suppose that the only effect of technological progress is the one identified in the assigned reading by Baumol and Wolf relating progress to the natural rate of unemployment, and suppose also that theirs is the same natural rate of unemployment that enters our theory of the complete short-run Phillips curve. Then if the actual unemployment rate and the expected inflation rate both remain constant over time while there is an increase in the rate of technological progress, we should observe:

(a) No shift of the Phillips curve.
(b) No change in the rate of inflation.
(c) An increase in the rate of inflation.
(d) A decrease in the rate of inflation.
(e) A decrease in the rate of inflation only if the actual unemployment rate is greater than the natural rate.

A15. After the economy has experienced a negative demand shock shifting the AD curve to the left, in the absence of stabilization policy, the PRIMARY mechanism that returns the economy back to a long run equilibrium is:

(a) Consumption rises shifting the AD curve back to the right.
(b) People raise their expectations of inflation, shifting the SRAS curve to the right.
(c) The recession causes downward pressure on wages and other factor prices, shifting the SRAS curve to the right.
(d) The recession causes a higher cyclical unemployment rate, shifting the LRAS curve to the left.
(e) The recession causes a major decrease in the capital stock, shifting the LRAS curve to the left.

A16. Based on an assigned article in the Wall Street Journal about the change in orders for durable goods in February, most commentators seem to agree that:

(a) The drop in orders will most likely be a death blow to manufacturing's recent rebound.
(b) The reported drop in orders may well be misleading, and recent improvement in manufacturing output could well continue.
(c) The fact that durable goods orders have remained stationary is a sign of growing stability in the economy.
(d) The February increase in orders for durable goods was welcome, since it will offset other signs of weakness in the economy.
(e) The reported increase in orders won't mean much for the overall economy, since durable goods are such a small part of it.

A17. Suppose that inflation in the year 2000 is expected to be 10% by every agent in the economy, and all contracts signed for the year 2000 are based on this expectation. If actual inflation turns out to be 5% then:

(a) Individuals receiving fixed incomes are worse off in the year 2000 than they thought they would be.
(b) Lenders are better off than expected, as the real value of their interest income increases.
(c) The Phillip's curve shifts causing unemployment to fall below the natural rate in the short run.
(d) Individuals receiving annual incomes that are indexed to the CPI will be better off than they thought they would be.
(e) Money supply decreases as the lower inflation rate reduces money demand.

A18. Which of the following policies is most likely to increase the level of real GDP in the long run?

(a) Encourage young people to drop out of school and get jobs producing goods and services for the economy.
(b) Prohibit families from having more than one child.
(c) Expand government purchases of weapons for national defense without increasing taxes.
(d) Increase taxes on domestic investment.
(e) Facilitate the exchange of information over the internet.

PART B: Written Answer
(53 points total)

B1. (16 points) Use the information below about a hypothetical economy to answer the following questions.

- The money supply has been growing by 10% each year for the past ten years.
- The annual rate of inflation has been 10% for the past ten years.
- Nominal wages have been increasing by 10% each year for the past ten years.
- The economy has experienced no growth in productivity for the past ten years.
- The required reserve ratio in this economy is equal to 20%.
- No individuals in this economy hold any money as cash.
- Banks never hold excess reserves.
- The real interest rate is 5%.
- At the beginning of the year 2000, the total money supply was $20,000.

(a) What is the nominal rate of interest in this economy? (1 point)

(b) Do you think that this economy is producing at the natural rate (or full employment level) of GDP? Carefully explain your reasoning. Draw a diagram if you think it will help your explanation. (3 points)

(c) What are the levels of (3 points)

- (i) Total Reserves;
- (ii) Total Loans; and
- (iii) Total Demand Deposits (i.e. the total amount of money in checking accounts in this economy)?

(d) At the beginning of the year 2001, the central bank in this economy (i.e. the Fed) increases the required reserve ratio to 25%. By how much, and in what direction, does the money supply change? (4 points)

(e) If the economy moves *immediately* to a long run equilibrium following this decrease in the required reserve ratio (that is, do *not* assume we have an upward sloping Short Run Aggregate Supply curve), what will the rate of inflation be for the year 2001? (2 points)

(f) Suppose that this change does *not* affect the nominal rate of interest. That is, assume that the nominal interest rate remains at the level you calculated in part (a). Suppose you had taken out a loan at the beginning of the year 2001 at this fixed interest rate, prior to the change in monetary policy. After the increase in the required reserve ratio, would you be better off or worse off than you had anticipated? Explain! (3 points)

B2. (19 points) Imagine that the economy of Michigan (think of Michigan as a country) is initially in a long-run equilibrium. Then the Michigan State Legislature announces a new program of road construction that will cost an extra $500 million dollars each year. All Michigan residents were under the impression that their State representatives cared nothing for the quality of their roads, and so were initially taken by surprise at the announcement of this new expenditure.

(a) Draw an AS/AD diagram in the space below illustrating the *short-run* effects of this new road construction policy on

- the price level,
- equilibrium GDP, and
- the level of unemployment

in Michigan. You must also provide a brief explanation of your diagram. Your explanation must include reasons why you shift any curves in your diagram! (4 points)

(b) Now use words and a diagram to analyze the *long-run* effects of this policy on

- the price level,
- equilibrium GDP, and
- unemployment.

Your diagram and your explanation must make clear how the economy moves from a short-run equilibrium to a long-run equilibrium. Again, any curve shifts must be fully explained! (5 points)

(c) Now draw two diagrams below, one illustrating what will happen to the interest rate in the short run as a result of this policy, the other illustrating the long-run effects of this policy on the interest rate. Again, your diagrams *must* be accompanied by an explanation. (5 points)

(d) In the space below draw a Phillips Curve diagram and use it to illustrate the effects of this policy. Show *both*

- the short-run equilibrium and
- the long-run equilibrium

corresponding to parts (a) and (b). You do *not* need to worry about showing the transition from the short-run equilibrium to the long-run equilibrium. You may assume either that the money supply is constant throughout, or that it grows over time at a constant annual rate. Briefly explain what is going on in your diagram. Once more, fully explain any curve shifts! (5 points)

B3. (18 points) This question is comprised of four statements. You must say whether these are true, false or uncertain and EXPLAIN WHY. Your explanation alone will determine the grade you receive. *If you simply write true, false, or uncertain without an explanation you will receive* ***NO CREDIT.***

(a) In a closed economy National Savings must always be equal to domestic Investment, while in an open economy, National Savings is always greater than domestic Investment, with the difference between the two being Net Foreign Investment. (4 points)

(b) The Aggregate Demand curve will be steeper if the demand for money does not depend upon the price level than if it does depend upon the price level. (5 points)

(c) If government spending increases by $100, then the Aggregate Demand curve shifts horizontally by *more* than $100, but the short-run change in equilibrium output will be *less* than $100. (5 points)

(d) If the US restricts imports from Europe, then this will cause an increase in Net Exports at every Real Exchange Rate, but the Real Exchange Rate will appreciate so that in the long run Net Exports do not change in equilibrium. (4 points)