Exam version: A

Final Exam - Economics 101b - Fall 2005

You will have 120 minutes to complete this exam. It is divided into 120 points. On multiple choice questions MC#1-MC#38, choose the best answer and mark it on your scantron.

Section 1: (30 points total, 3 points each, write on scantron)

MC#1: Which of the following can be affected by monetary policy in the long run:
   a) real interest rate
   b) consumer price index
   c) real gross domestic product
   d) capital stock

MC#2: Which of the following public policies would tend to lower the U.S. natural rate of unemployment.
   a) increase the legal minimum wage
   b) increase unemployment insurance benefits
   c) increase government retraining programs
   d) increase the money supply

MC#3: According to the Solow growth model with no technological progress or population growth, a rise in the saving rate will:
   a) lower the steady state growth rate in GDP
   b) lower the GDP growth rate temporarily
   c) raise the steady state growth rate in GDP
   d) raise the GDP growth rate temporarily

MC#4: According to the Keynesian Cross model of aggregate expenditure, fiscal policy that cuts taxes will affect output ______ a policy that raises government spending by an equal amount.
   a) more than
   b) less than
   c) the same amount as
   d) in the opposite direction as

MC#5: In the Keynesian IS/LM model, which of the following shocks by itself could explain a recession where consumption and investment expenditures both are falling:
   a) fall in autonomous investment
   b) fall autonomous consumption
   c) cut in government spending
   d) all of the above
   e) none of the above

MC#6: Which of the following can help avoid the ‘time inconsistency’ problem in monetary policy:
   a) central bank discretion
   b) sticky prices
   c) rational expectations
   d) money growth rule

MC#7: Suppose a country has a Phillips curve where the sacrifice ratio is 2, where expectations are adaptive, inflation last year was 5%, and average GDP growth is 3%. If the government of this country wants to bring inflation down to 3%, what GDP growth rate should it target with its monetary policy for this year?
   a) 5%
   b) 2%
   c) 1%
   d) 0%
   e) -1%

MC#8: Which of the following theories of the short run aggregate supply fails to explain why the real wage tends to fall during recessions.
   a) sticky price model.
   b) sticky wage model.
   c) imperfect information model
   d) all of the above.

MC#9: According to the Quantity Theory of Money, which of the following could generate a fall in overall price level:
   a) a rise in GDP
   b) a rise in the velocity of money
   c) a rise in the supply of money
   d) none of the above
MC#10: According to the neoclassical model we studied with constant returns to scale, a rise in the supply of capital would raise:

a) the equilibrium real wage
b) labor demand at any given real wage
c) total payments to labor
d) all of the above

For the next two problems, assume the following usual conditions hold, unless instructed otherwise. Prices are completely fixed in the short run and completely flexible in the long run. Consumption is a function only of current disposable income, with a constant marginal propensity to consume. Investment is a function only of the interest rate. Real money demand is a function of the interest rate and income.

Problem 1: Short Run and Long Run (32 points total, 8 points each section)

Suppose Congress decides to cut taxes (assume this is a permanent tax cut unless stated otherwise). Use the IS-LM / AS-AD model to analyze the implications in the short run and the long run.

a) (Write in blue book) Draw the IS-LM and AS-AD graphs to show the short run and long run equilibria following this policy. Assume that prices are completely fixed in the short run. Be sure to label the axes, curves, use arrows to show shifts in curves, and mark the equilibrium points: 1 for the initial equilibrium, 2 for the short run equilibrium, and 3 for the long-run equilibrium. Explain briefly why the curves are shifting.

b) What happens to the following variables in the short run? (mark on your scantron)

MC#11: output:  a) rise  b) fall  c) no change  d) ambiguous
MC#12: consumption:  a) rise  b) fall  c) no change  d) ambiguous
MC#13: national saving:  a) rise  b) fall  c) no change  d) ambiguous
MC#14: interest rate:  a) rise  b) fall  c) no change  d) ambiguous

c) What happens in the long run? For each of the variables listed in (b) above, state if it’s long run value is the same as its value at the initial equilibrium before the government policy change (point 1 on your graphs), if it is higher in the long run than its initial level, or if it is lower, or ambiguous for the given information. (mark on your scantron)

MC#15: output:  a) initial value  b) higher  c) lower  d) ambiguous
MC#16: consumption:  a) initial value  b) higher  c) lower  d) ambiguous
MC#17: national saving:  a) initial value  b) higher  c) lower  d) ambiguous
MC#18: interest rate:  a) initial value  b) higher  c) lower  d) ambiguous

d) Suppose now a scenario where Ricardian Equivalence holds. That is, consumers live by the Permanent Income Hypothesis where they try to smooth consumption over time. And the government is required to satisfy its intertemporal budget constraint. Now discuss the short run effect on the following variables in this case: (mark on your scantron)

MC#19: consumption:  a) rise  b) fall  c) no change  d) ambiguous
MC#20: private saving:  a) rise  b) fall  c) no change  d) ambiguous
MC#21: national saving:  a) rise  b) fall  c) no change  d) ambiguous

In a few sentences in your bluebook, explain the reason for any difference from your finding in part (b) above.
Problem 2: IS/LM in the Short Run (20 points total)

Suppose a country experiences a recession caused by a financial market shock in which there is an exogenous rise in real money demand. (That is, a real money demand function as follows: \( (M/P)^d = eY - fr + \text{shock} \).) Use the IS-LM model to analyze the short run implications of this recession.

a) (6 points) Graphically illustrate the short-run effect of this shock in an IS-LM graph. Be sure to label the axes, the curves, and use arrows showing the direction the curves shift. Also mark the initial equilibrium as point ‘1’, and the short-run equilibrium as point ‘2’. Explain briefly the reason for any curve shift.

b) (8 points) What will happen to the levels of the following variables in the short run? (Mark on your scantron.)

- **MC#22**: interest rate: a) rise    b) fall  c) no change  d) ambiguous
- **MC#23**: investment: a) rise  b) fall  c) no change  d) ambiguous
- **MC#24**: consumption: a) rise  b) fall  c) no change  d) ambiguous
- **MC#25**: real money holdings: a) rise  b) fall  c) no change  d) ambiguous

c) (6 points) For each of the following scenarios, state whether the fall in output due to the recession will be worse or not – in other words, whether the short run fall in output will be greater, less, the same or ambiguous in its effect.

- **MC#26**: investment is more responsive to interest rate changes:  
  a) more    b) less  c) same  d) ambiguous
- **MC#27**: money demand is more responsive to interest rate (larger \( f \) parameter in function above):  
  a) more    b) less  c) same  d) ambiguous
- **MC#28**: money demand is more responsive to income (larger \( e \) parameter in function above):  
  a) more    b) less  c) same  d) ambiguous

Problem 3: Growth and Factors Market (30 points total)

Suppose a country has the following production function: \( Y = 2K^{1/2}L^{1/2} \) (Note: this is not yet in per-worker terms). Assume that the saving rate is 20%, the depreciation rate is 15%, population growth is 5%, and that there is no technological progress.

a) (12 points) Using the Solow growth model, compute the steady state values of the following: (show your work)
   - Capital stock per person
   - Consumption per person
   - Real rental rate on capital
   - Real wage rate

b) (6 points) Compute the maximum level of consumption possible for this economy (given its depreciation rate and population growth rate), if public policy could choose any saving rate it wanted. Should this economy be saving more or less? Name one public policy that could help achieve this.
c) (12 points) Suppose the population growth rate falls for this economy. What will happen to the steady state values of the variables in part (a): (mark on your scantron)

**MC#29:** capital stock per person
- (a) rise
- (b) fall
- (c) no change
- (d) insufficient information

**MC#30:** Real rental rate
- (a) rise
- (b) fall
- (c) no change
- (d) insufficient information

**MC#31:** Real wage rate
- (a) rise
- (b) fall
- (c) no change
- (d) insufficient information

**MC#32:** Golden rule capital stock per person
- (a) rise
- (b) fall
- (c) no change
- (d) insufficient information

**MC#33:** steady state growth rate in income per person
- (a) rise
- (b) fall
- (c) no change
- (d) insufficient information

**MC#34:** steady state growth rate in national GDP (not per person)
- (a) rise
- (b) fall
- (c) no change
- (d) insufficient information

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**Problem 4: Consumption Theory** (8 points total, 4 points each part)

Suppose you live by the 2-period Fisher model of consumption, where households choose consumption subject to an intertemporal budget constraint and their indifference curves. Suppose your income and consumption in each period are each equal to $50,000. (Write all answers on your scantron.)

a) Suppose you win a lottery in period 1 that pays off $1000 in period 2. How would the following variables be affected, compared to what they would have been without the lottery?

**MC#35** consumption in period 1
- (a) higher
- (b) lower
- (c) same
- (d) ambiguous

**MC#36** average propensity to consume (APC) in period 2
- (a) higher
- (b) lower
- (c) same
- (d) ambiguous

b) If the interest rate were to rise, how would these variables change?

**MC#37** consumption in period 1
- (a) higher
- (b) lower
- (c) same
- (d) ambiguous

**MC#38** consumption in period 2
- (a) higher
- (b) lower
- (c) same
- (d) ambiguous

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