Final Exam - Economics 101 - Fall 2002

You will have 120 minutes to complete this exam. It is divided into 150 points. On multiple choice questions MC#1-MC#45, choose the best answer and mark it on your scantron.

Section 1: (60 points total, 3 points each)

1) The consumer price index differs from the GDP deflator in that it:
   a) measures the aggregate price level rather than the aggregate level of output.
   b) tends to understate the level of inflation because of substitution bias.
   c) excludes imported goods.
   d) has weights that don’t change each year.

2) Which of the following would raise both investment and GDP in this year’s U.S. national income accounts?
   a) I buy stock in IBM (a U.S. company).
   b) A Korean firm buys a computer from IBM.
   c) IBM builds a computer to sell next year.
   d) A U.S. company buys a computer from IBM that IBM made last year.

3) According to the neoclassical model, if there is a rise in investment demand at all interest rate levels, and assuming consumption is not a function of the interest rate (r), then in equilibrium
   a) investment rises and r rises.
   b) no change in investment, but r rises.
   c) investment rises with no change in r.
   d) none of the above.

4) According to the neoclassical model, an increase in labor force due to immigration would ___ the real wage rate and ___ the real rental rate on capital.
   a) raise, raise
   b) raise, lower
   c) lower, raise
   d) lower, lower

5) Which of the following might worsen frictional unemployment in the U.S.?
   a) a rise in unemployment insurance benefits
   b) an increase in unionization
   c) the creation of government-funded worker retraining programs
   d) a decrease in the legal minimum wage

6) If the production function for an economy is \( Y = 4K^{0.5}L^{0.5} \), and the saving rate is 0.20, the depreciation rate is 0.20, and there is no population growth, then in the Solow growth model the steady state level of capital per worker is:
   a) 100
   b) 64
   c) 16
   d) 4

7) Given the information in question (6) above, the maximum level of consumption per person that this economy can achieve as a steady state is:
   a) 10
   b) 20
   c) 40
   d) 100

8) According to the Solow growth model, a high population growth rate will tend to:
   a) raise the level of income per person that a country can maintain as a steady state.
   b) raise the level of capital per person that is optimal.
   c) raise the steady state growth rate in total output.
   d) raise the maximum level of consumption per person possible in steady state.

9) Which of the following is implied by the quantity theory of money:
   a) inflation equals the rate of money growth, if output and velocity are constant.
   b) If both money supply and output double, while velocity is constant, price level will also double.
   c) \( M*P = V*Y \)
   d) transactions velocity is defined as price level multiplied by transactions divided by output.

10) In the Keynesian Cross model, if taxes are raised by $100 million, income must
    a) fall by $100 million.
b) fall by less than $100 million.
c) fall by more than $100 million.
d) fall, but it is not clear how much.

11) Which of the following would tend to make the LM curve steeper:
a) investment is very responsive to the interest rate
b) money demand is very responsive to income
c) money demand is very responsive to the interest rate
d) the multiplier is large

12) Which of the following is a reason to avoid active use of monetary policy to prevent recessions?
a) It can take a long time for policy makers to decide on a policy.
b) It can take a long time for a policy action to have an effect on the economy.
c) time inconsistency can be a big problem if expectations are adaptive.
d) all of the above

13) Which of the following might cause a flatter short run aggregate supply curve?
a) A larger share of nominal wages are preset in contracts.
b) The internet makes it easier for producers to get accurate price information.
c) A smaller share of firms preset price.
d) Money demand is less responsive to the level of output.

14) Which of the following is true about the sticky price model of aggregate supply?
a) It helps explain why the real wage is procyclical in actual data.
b) It implies the goods market clears.
c) It implies a vertical SRAS curve.
d) None of the above.

15) Which of the following shocks could generate a recession where interest rates are high:
a) money demand shock
b) change in consumer confidence.
c) pessimism in the business community.
d) none of the above.

16) Assuming people have adaptive expectations, the Phillips curve says high inflation can be caused by:
a) An unusually high rate of unemployment.
b) High inflation in the past.
c) A positive supply shock (fall in price of oil).
d) all of the above.

17) If the Phillips curve is: \( \pi = \pi^e - 2(u-u^*) \), and expectations are adaptive, then the sacrifice ratio in terms of unemployment is:
a) 4
b) 2
c) 0.5
d) 0

18) The permanent income hypothesis of consumption says that the average propensity to consume ____ with a rise in income in the ____.
a) rises, long run
b) falls, long run
c) rises, short run
d) falls, short run

19) Which of the following could cause a rise in the level of net investment:
a) A fall in the depreciation rate.
b) A fall in the marginal product of capital.
c) A rise in the current relative purchase price of capital.
d) A rise in the real interest rate.

20) The classical dichotomy:
a) says changes in real variables do not affect nominal variables
b) says changes in nominal variables do not affect real variables
c) holds mainly in the short run
d) all of the above
**Problem 1: Short Run and Long Run** (40 points total, 10 points each section)

Consider the following experiment: Congress is cutting taxes on a permanent basis. Use the IS-LM / AS-AD tools to analyze the implications in the short run and the long run. (Assume the following. Prices are completely fixed in the short run and completely flexible in the long run. Assume there is no change in government spending. Consumption is a function only of disposable income, with a constant marginal propensity to consume. Investment is a function only of the interest rate.)

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?

- MC#21) output: a) rise    b) fall  c) no change d) ambiguous
- 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) total national saving: 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 returns in the long run to its initial equilibrium value (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.

- MC#26) output: a) initial value   b) higher  c) lower  d) ambiguous
- MC#27) interest rate: a) initial value  b) higher c) lower  d) ambiguous
- MC#28) investment: a) initial value b) higher c) lower  d) ambiguous
- MC#29) consumption: a) initial value b) higher c) lower  d) ambiguous
- MC#30) total national saving: a) initial value b) higher c) lower  d) ambiguous

d) (Write in blue book) In a paragraph of 3-4 sentences, discuss how your analysis of the long run here compares to the analysis of the standard Neoclassical model. Explain what role the interest rate plays here in economic allocation.

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**Problem 2: IS/LM in the Short Run** (30 points total, 3 points each item)

Suppose the Federal Reserve cuts the money supply. Use the IS-LM apparatus to analyze the short run implications of this policy. No graph necessary here. (Assume the following unless otherwise stated: prices are completely fixed. Investment is just the usual function of the interest rate alone; consumption is a function of disposable income alone, with a constant marginal propensity to consume.)

- MC#31) What happens to output? a) rise    b) fall  c) no change d) ambiguous
- MC#32) What happens to the interest rate? a) rise    b) fall  c) no change d) ambiguous
Suppose that investment is less responsive to changes in the interest rate than assumed above. How would this change your answers to the questions above?

MC#33) Output changes:  a) more  b) less  c) the same  d) ambiguous
MC#34) Interest rate changes:  a) more  b) less  c) the same  d) ambiguous

Suppose that investment were a positive function of income as well as a negative function of the interest rate. How would this affect your answers?

MC#35) Output changes:  a) more  b) less  c) the same  d) ambiguous
MC#36) Interest rate changes:  a) more  b) less  c) the same  d) ambiguous

Suppose that money demand is more responsive to changes in income than you assumed above. How will this affect your answers?

MC#37) Output changes: a) more b) less c) the same d) ambiguous
MC#38) Interest rate changes: a) more b) less c) the same d) ambiguous

Suppose that consumption responds to the interest rate as suggested by the substitution effect in the Fisher model. How will this affect your answers?

MC#39) Output changes: a) more b) less c) the same d) ambiguous
MC#40) Interest rate changes: a) more b) less c) the same d) ambiguous

**Problem 3: Consumption theory and theory of government debt**  (30 points total)

Assume the two-period Fisher model, where the government and the household both have to abide by two-period budget constraints, and where there is no investment expenditure. Suppose you have the following information:

<table>
<thead>
<tr>
<th></th>
<th>Period 1</th>
<th>Period 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumption</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Income</td>
<td>145</td>
<td>145</td>
</tr>
<tr>
<td>Taxes</td>
<td>65</td>
<td>20</td>
</tr>
</tbody>
</table>

a)  (Write in blue book) Compute what the interest rate must be here. (5 points)

b)  Suppose that the government cuts the level of taxes in period 1 (with no change in government spending). What is the effect on the following variables in period 1: (3 points each)

  MC#41) consumption  a) rise  b) fall  c) no change  d) ambiguous
  MC#42) private saving  a) rise  b) fall  c) no change  d) ambiguous
  MC#43) total national saving  a) rise  b) fall  c) no change  d) ambiguous

c)  (Write in blue book) Explain in 4-5 sentences how and why your result in part (b) here differs from what you concluded about the short-run effects of a tax cut in a standard Keynesian model in part (b) of problem #1. List and explain 2 of the 3 reasons given in class why the intertemporal model here may not apply well in reality. (10 points)

d)  Suppose that there is a rise in the level of the interest rate you computed in part (a). How will this affect the following variables? (3 points each)

  MC#44) consumption in period 1  a) rise  b) fall  c) no change  d) ambiguous
  MC#45) consumption in period 2  a) rise  b) fall  c) no change  d) ambiguous