Midterm 2 Exam

This exam is 70 minutes long, and is worth 70 points. Part I is multiple choice, Part II is a short answer/derivation. The points are allocated in proportion to the time you should spend on each problem. PLACE PART I IN BLUEBOOK A; PLACE PART II IN BLUEBOOK B.

START BLUEBOOK A

PART I: Multiple Choice [20 minutes total, 2 points each]. Do NOT explain.

1. One implication of the Lucas critique is that  
   a) the sacrifice ratio should be relatively high.  
   b) it takes a long time for a reduction in money growth to reduce the inflation rate.  
   c) unemployment is always at its natural rate in the short run.  
   d) unemployment will always be above its natural rate in the short run.  
   e) none of the above.

2. Based on our understanding of the labor market model presented in Chapter 6, we know that a reduction in the markup will cause:  
   a) an increase in the equilibrium real wage  
   b) a reduction in the equilibrium real wage  
   c) an increase in the natural rate of unemployment  
   d) a reduction in the natural rate of unemployment and no change in the real wage  
   e) none of the above

3. In the medium run, an acceleration in the growth rate of the money supply  
   a) increases GDP by increasing investment.  
   b) increases inflation.  
   c) decreases GDP by reducing the real wage and thus labor supply.  
   d) increases the real wage.  
   e) both (b) and (c).

4. Suppose a one-year discount bond offers to pay $1000 in one year and currently sells for $950. Given this information, we know that the interest rate on the bond is  
   a) 5.3%.  
   b) 9.5%.  
   c) 10%.  
   d) 90%.  
   e) 110%.

5. Suppose workers and firms expect the overall price level to increase by 5%. Given this information, in the price-setting/wage-setting framework, we would expect that:  
   a) the nominal wage will increase by less than 5%  
   b) the nominal wage will increase by exactly 5%  
   c) the nominal wage will increase by more than 5%  
   d) the real wage will increase by 5%  
   e) the real wage will increase by less than 5%  

(continued on next page)
6. Given the expectations-augmented Phillips curve (where expected inflation equals lagged inflation), a policy designed to maintain actual GDP 5% above potential indefinitely
   a) would produce constant, positive inflation and unemployment below the natural rate.
   b) would produce accelerating inflation with unemployment below the natural rate.
   c) would produce constant disinflation with unemployment above the natural rate.
   d) would produce accelerating disinflation with unemployment above the natural rate.
   e) none of the above.

7. Suppose the central bank wants to reduce inflation by 10%, $u_o = 6\%$, and $\alpha = .5$. How many point-years of excess unemployment will be needed to reduce inflation by 10%?
   a) .5
   b) 5
   c) 10
   d) 20
   e) none of the above

8. Portfolio crowding-out of investment, and hence of income:
   a) possibly makes fiscal policy completely ineffective.
   b) is caused by the increased transactions demand for money associated with higher levels of income.
   c) is caused by higher interest rates due to the increased supply of government bonds associated with a budget deficit.
   d) both (a) and (c) above.
   e) none of the above.

9. For this question, assume that individuals do NOT hold currency (i.e., $c = 0$). The money multiplier is equal to:
   a) $1/(1-c)$
   b) $1/[c + \theta(1-c)]$
   c) $[c + \theta(1-c)]$
   d) $1/\theta$
   e) none of the above

10. Suppose money demand depends on GDP, the interest rate, and real wealth. Starting from budget balance in period 1, the government increases spending in period 2, then in period 3 reduces it back to where it started from. Assuming an upward sloping LM and downward sloping IS curve, then:
    a) Output in period 3 will be lower than in period 1.
    b) Output in period 3 will be higher than in period 1.
    c) Output in period 3 will be the same as that in period 1.
    d) One cannot determine the end result from the given information.
    e) The interest rate in period 3 will be lower than in period 1.

END BLUEBOOK A
1. (28 minutes total) Suppose price adjustment is described by:

\[ P_t = P_t^* (1 + \mu) F \left( 1 - \frac{Y_t}{L}, z \right) \]

Assume for now the labor force is constant. Aggregate demand is given by:

\[ Y_t = \frac{M_t}{P_t} + G_t + T_t \]

1.1. (7 points) Carefully indicating the curve shifts (using IS-LM/AD-AS diagram), show what happens to output, the price level and the interest rate in the short run when autonomous consumption and autonomous investment collapse (in period 1). Which curve has shifted (indicate by how much)? You may assume the initial price level, \( P_0 \), equals 1, the initial income level, \( Y_0 = Y_n \).

1.2. (7 points) Using the IS-LM/AD-AS graphs and words, indicate what path the economy takes to medium run equilibrium in the above model, assuming the government undertakes no actions. Briefly explain why the economy takes this path, describing what happens to output, the price level and the interest rate.

1.3. (7 points) Ignore 1.1-1.2, and assume that oil prices rise for one period. Show what happens in period 1, using both IS-LM/AD-AS graphs.

1.4 (7 minutes) Using the AD-AS graph and words, indicate what path the economy takes to medium run equilibrium in the above model, assuming the government undertakes no further actions. Briefly explain why the economy takes this path.

2. (8 minutes total) Consider an economy described by a CCLM model, where the CC curve, LM curve and the lending rate are given below.

\[ Y = \phi (\Lambda_0 - b_2 i - b_3 \rho) \]  
\[ \rho = \phi_0 + \phi_1 i + \phi_2 Y - \phi_3 \left( \frac{(1/\theta)R(1-\theta)}{P} \right) + \phi_4 Z \]  
\[ i = \frac{\mu_0}{h} - \frac{1}{h} \left( \frac{(1/\theta)R}{P} \right) + \frac{1}{h} Y \]

2.1 (4 points) Now in this economy, suppose the government guarantees loans for the riskiest of investment projects. What does this do to the supply of loans in this economy?

2.2 (4 points) Graphically illustrate what happens to the CC and LM curve? What does this imply for equilibrium \( Y \) and \( i \)?

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3. (14 minutes total) Consider the following model:

\[ \pi_t - \pi_{t-1} = -\alpha (u_t - u_n) \]

\[ u_t - u_{t-1} = -\beta (g_{yt} - \bar{g}_y) \]

\[ g_{yt} = \gamma (g_{mt} - \pi_t) \]

Assume initially (period 0) the unemployment rate equals the natural rate, and actual inflation is zero.

3.1 (6 minutes) Analyze the impact of a one-time increase in the growth rate of money in period 1, on unemployment and inflation. Use a graph.

3.2 (4 minutes) Show what happens in period 2, using a graph.

3.3. (4 minutes) Show what happens to in the medium run assuming the natural rate equals the unemployment rate. Explain, using words.

END BLUEBOOK B