**Final Exam Solutions**
Economics 101b - Fall 2005

**Multiple Choice**
Version A & C: 1) b  2) c  3) d  4) b  5) a  6) d  7) e  8) b  9) a  10) d

**Problem 1: Short Run and Long Run**

The cut taxes raises consumption and hence overall demand at any interest rate: this is a rightward shift in the IS curve and AD curve in the short run. In the long run, the rise in price lowers real money supply: this is the leftward shift in the LM curve in the long run.

b) Short run: Y rises, C rises, national saving falls, interest rate rises (a,a,b,a) / (a,a,a,b)

c) Long run: Y original, C higher, national saving lower, interest rate higher (a,b,c,b) / (b,a,b,c)

d) No change in consumption, rise in private saving, no change in national saving. (c,a,c) / (c,c,a)
The consumers save all of the extra income from the tax cut, because they know they have to pay higher taxes in the future. So the tax cut has no effect at all.

**Problem 2: IS/LM**

A rise money demand shifts the LM curve left.

b) This raises interest rates and lowers investment demand. This lowers output and so consumption. There is no change in real money supply so there is no change in real money holdings. (a,b,b,c) / (b,a,c,b)

c) The IS curve is flatter, so Y falls more when r rises.
Since the interest rate is rising here, the demand for money rises less, so the interest rate doesn’t have to rise as much to clear the money market. So the interest rate rises less, and output falls less.
Money demand rises less since it responds more the fall in income, so interest rises less, so output falls less.
(a,b,b) / (b,a,b)

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**Problem 1: Growth:**

a) Steady state condition: \( s f(k) = (\delta+n)k \),  
\[ 2^{k^{1/2}} = (\delta+n)k \]
so \( k^* = (2s /((\delta+n)))^2 = (2^{0.20} /((0.15+0.5)))^2 = 2^2 = 4 \).  
So \( y^* = 2k^{1/2} = 4 \)
And \( c^* = (1-s)y^* = (1-0.2)4 = 3.2 \)
Real rental rate = \( MPK = 2*0.5(L/K)^{1/2} = k^{1/2} = 0.5 \)
Real Wage = \( MPL = 2*0.5(K/L)^{1/2} = k^{1/2} = 0.5 \)

b) To find the optimal capital stock, use golden rule condition: \( MPK = \delta+n \)
\[ 2*0.5(k^*_{gold})^{1/2} = \delta+n = 0.20 \]
so \( (k^*_{gold})^{1/2} = 0.20 \) so \( k^*_{gold} = 25 \).
Find output: \( y = 2*(k^*_{gold})^{1/2} = 2*5 = 10 \).
Use the steady state condition to compute the saving rate to achieve this:
\( s f(k) = (\delta+n)k \) so \( s = (\delta+n)k /f(k) = (0.20)25/10 = 5/10 = 0.5 \)
compute consumption : \((1-s)f(k) = 0.5*10 = 5 \).

Need more saving. Many things could raise national saving, such as cut government deficit, or tax incentives for saving against consumption, such as for IRAs or higher consumption tax.

c) \( K^*\text{gold} \) rises, real rental rate falls, real wage rises, golden rule capital stock rises, growth rate of total GDP falls (equals population growth rate), but no change in growth of GDP per person in steady state.
(a,b,a,a,c,b) / (c,b,a,b,a,a)

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**Problem 4:**

a) Consumption rises in both periods even though income rises only in the second period.
So C1 is higher and APC in period 2 is lower. (a,b) / (b,a)

b) c1 falls and c2 rises. The wealth effect cannot dominate the substitution effect in this case.
(b,a) / (a,b)