Final Exam Solutions  
Economics 101 - Fall 2001

Multiple Choice
1) d  2) b  3) d  4) b  5) c  6) d  7) c  8) d  9) d  10) c  11) b  12) b  13) a  14) c  15) b or c  16) a  17) d  18) a  19) c  20) d

Problem 1: Neoclassical Model
a) supply: \( Y^s = 9\ 100^{1/2}\ 100^{1/2} = 900 \)
   demand: \( Y^d = C + I + G = 100 + 0.5(900-100) + 300 - 1000r + 200 \)
   equilibrium: \( 900 = 1000 - 1000r, \) so \( r = 0.10 \)
   \( C = 100 + 0.5(900-100) = 500 \)
   \( S^F = T-G = 100-200 = -100 \) (deficit of 100)
   \( S \text{ total} = Y - C - G = 900 - 500 - 200 = 200 \)
   \( W/P = MPL = (9/2) (K/L)^{1/2} = 4.5 \)

b) \( C \) rises because disposable income rises.
   \( S^F \) falls
   \( S \text{ total} \) falls because \( C \) rises.
   \( r \) rises because \( S \) falls.
   \( W/P \) no change because no change in \( K \) or \( L \)

Problem 2: IS/LM
a) A rise in money demand shifts the LM left, raising interest rates and lowering investment demand. This lowers output.
   \( r \) rises,
   \( I \) falls
   \( C \) falls

b) This fiscal policy would shift the IS curve right. If it restores output to \( Y_{bar} \), we will have:
   \( r \) higher than before the recession,
   \( I \) lower,
   \( C \) the same

c) If investment were a positive function of income, the IS curve would be flatter. This means that as output falls, investment falls more, which would in turn make output fall more. This would make the recession more severe.
   The greater fall in income makes consumption fall more.
   The fact the IS is flatter means \( r \) rises less.
Business fixed investment may respond to income because some firms are borrowing constrained. Residential investment may respond to income because people want bigger houses when their income is higher. Inventory investment may respond, because more spare parts are needed or stockouts are a bigger danger when sales are high.

**Problem 3: Short Run and Long Run**

a) The intertemporal budget constraint is:
\[ C_1 + C_2/(1+r) = Y_1 + Y_2/(1+r) \]

\[ $40,000 + $40,000/(1+r) = $10,000 + $76,000/(1+r) \]

\[ r = 0.20 \text{ or } 20\% \]

The cut in money supply shifts the LM and AD curves left. In the long run, prices fall enough to raise the real money supply back to its original level. This shifts LM and AD curves back to their original positions.

b) Short run: Y falls, r rises, I falls, C falls, P no change

c) Long run: All the variables except price level return to their original levels. P is lower.

**Problem 4: Consumption Theory**

a) The intertemporal budget constraint is:
\[ C_1 + C_2/(1+r) = Y_1 + Y_2/(1+r) \]

\[ $40,000 + $40,000/(1+r) = $10,000 + $76,000/(1+r) \]

\[ r = 0.20 \text{ or } 20\% \]

A rise in the interest rate has two effects. Since you are a borrower, it makes you poorer, which makes you consume less this year and next year both. But it also makes consumption this year more expensive in terms of future consumption foregone, so this makes you consume less this year and more next year. The net effect is:

Consumption this year falls.
Consumption next year is ambiguous.
b) A rise in future income induces a rise in consumption this year, because lifetime income is higher. This means there is a fall in saving this year.

In brief, this differs from the earlier consumption functions, which ignored future income and only focused on current income. In that case, there would be no change in this year’s consumption or saving. Here instead, the household smooths consumption over time.