1. A student said: “It’s obvious that idle balances are building up right now because, with the increase in people’s uncertainty about the future, they are saving more.” Why is it not so obvious — even if it is true that people are saving more? Be brief. HINT: Are deposits in savings accounts really idle?

2. Short-term and long-term lending

a. Briefly explain the idea of a lender having “inelastic interest rate expectations.”

b. Starting from the definition of $g_b^c$, show that for perpetuities:

$$g_b^c = \frac{r_{LT}}{r_{LT}^c} - 1.$$  

C. Suppose currently $r_{ST} = 1\%$ and $r_{LT} = 5\%$ (which incidentally are pretty realistic numbers for the U.S. economy right now). Suppose a risk neutral lender is optimistic about the future long rate: his $r_{LT}^c = 6\%$. Calculate the individual’s $g_b^c$, and use it to explain why he will hold no bonds in his portfolio this year. Illustrate your answer using 2 barrels, $T$ and $b$. 
3. Mr. Keynes’s escape from CQT  This question relates to the FIGURE above. Suppose—because of a big drop in the IS from IS₁ to IS₂—the economy is currently in a liquidity trap recession at point B. Everyone has the same expectations: \( r_{LT}^e = 5\% \). The following formula may be helpful:

\[
r_{LT}^* = \frac{r_{LT}^e}{1 + r_{LT}^e} \times (1 + r_{ST}^e).
\]

a. Calculate \( r_{min}^0 \). From the Figure you can see that a recession would not occur if lenders allowed \( r_{LT} \) to fall to 1%. Briefly explain why lenders don’t let \( r_{LT} \) fall enough given their inelastic interest rate expectations; illustrate your explanation using 2 barrels, \( T \) and \( b \). Begin your explanation like this: “Even with \( r_{ST} = 0\% \), if lenders lent money long-term for any interest rate below \( r_{min}^0 \) ....”

b. Suppose \( (\frac{M^d}{P})_{tr} = \frac{1}{4}Y \), and people hold no precautionary balances. Calculate the economy’s real money supply \( \frac{M}{P} \), briefly explain your work as you go along. Also calculate the amount of idle speculative balances at \( B \); again briefly explain your work. What are lenders “speculating on” at \( B \)?

4. Mr. Keynes meets fast money

a. Suppose \( Y = C + I \). Starting from the Keynesian consumption function \( C = C_a + cY \), explain mathematically why \( C/Y \) goes up when \( Y \) goes down. What is the significance of this fact for an economy in which only Consumption expenditures are slow-money transactions?

b. Briefly explain why it is reasonable to assume \( c \) is small, hence \( C_a \) and \( C \) are almost equal.

c. Now assume that

\[
(M^d/P)_{tr} = \frac{1}{4}C \quad \text{and} \quad C = 1000 + .1Y.
\]

Returning to the economy in the FIGURE above, calculate the economy’s real money supply \( \frac{M}{P} \) now that only Consumption is a slow-money transaction; briefly explain your calculations as you go along. Also calculate the amount of idle speculative balances at \( B \) now that there are fast money transactions; again briefly explain your work. Relative to your answers to Question 3b, explain any changes to \( \frac{M}{P} \) and to the amount of idle balances at \( B \) now that there is fast money.

5. Uncertainty

a. In a single sentence, define a situation involving uncertainty, as we used the term in class.

b. Briefly explain why, when investors’ uncertainty is high, lenders will rationally have inelastic interest rate expectations. Illustrate your answer using IS-LM.