ECONOMICS 136

SAMPLE MIDTERM 1

[20] 1. Money as liquidity

a. Briefly describe what is meant by the two complementary images of money, “money sitting” and “money on the wing.” Illustrate your answer using two (connected) circles of exchange.

b. When money is sitting, it is sometimes referred to as “generalized purchasing power.” Why is it called generalized (rather than specific) purchasing power?

c. Briefly explain what happens to people’s desire for liquidity when they become more uncertain about the future. (Don’t just say up or down, but also briefly tell me why.)

[30] 2. Velocity basics

a. Starting from the definition of \( V \), derive the formula
\[
V = \frac{X}{Md}.
\]
Be sure to state the assumption you need for your derivation.

b. Using your formula, briefly explain what will happen to \( V \) in each of the following cases. For simplicity, assume \( X \) remains unchanged.

i. The opportunity cost of holding money \((r)\) increases.

ii. People use credit cards more (i.e., more credit exchange).

iii. People decide to hold more asset balances. Please explain this one two ways: using the formula from above, and also using Mr. Keynes’s distinction between active and idle balances.

c. Give two reasons why money demand may not be very sensitive to small changes in \( r \) — one reason for households and one reason for firms.

d. For big-ticket items, the turnover of money is very fast (like a hot potato). Briefly explain why using the example of an individual who plans to buy a new car at the beginning of month \( t \) and must give the dealer a downpayment of \$4,000 to obtain the car. (Be sure to include what the car dealer does with the \$4,000 check.)


Consider a closed Island Economy in which, at full employment, the nominal monthly flows are:
\[
C_{\text{non-durables}} = 500m, \quad C_{\text{durables}} = 250m, \quad I = 250m, \quad \text{and} \quad G = T = 0.
\]

a. The economy is initially operating at full employment. What does total consumption \( C \) equal each month? What does nominal income \( X \) equal each month? Draw a Circular Flow Diagram showing the monthly money flows between the sectors (give numerical values). Be sure to include saving \( S \) and borrowing in your picture. Also include THREE barrels in your picture, showing the stocks that the three flows \( S, C_{\text{durables}} \) and \( I \) go into. Be sure to label your three stock barrels (hint: one should be labeled the stock of consumer durables).

b. Suppose all final transactions are monetary, with \( C_{\text{non-durables}} \) involving slow-money transactions, while \( C_{\text{durables}} \) and \( I \) involving fast-money transactions. Also assume no one holds any asset balances. Draw two sawtooth pictures showing (i) all buyers money held through each month and (ii) all sellers money held through each month. At full employment, what does total \( Md \) equal? What must the \( M^s \) equal? What does \( V \) equal?

c. ...and recession

Now suppose that terrorist rumors lead to severe uncertainty among the simple islander people; they completely stop buying big-ticket items. That is, \( C_{\text{durables}} \) and \( I \) both fall to 0, while \( C_{\text{non-durables}} \) remains at 500m. So the island goes into a big recession. Briefly explain how your answer to part b. changes during the island’s recession. That is, during the recession,
what happens in terms of your saw-tooth pictures? in terms of \( M^d \)? in terms of \( V \)?

[20] 4. Velocity during hyperinflations During times of extreme inflation ("hyperinflations"), the opportunity cost of holding money increases dramatically because money’s purchasing power falls dramatically. Households adapt by insisting on being paid more frequently, for example, weekly or even daily, instead of monthly. Let’s see what this implies for \( V \).

a. Suppose initially on the island, \( P = 2 \) and \( Y = 250m \) per month (so \( X = 500m \) per month). Also suppose—like in Scenario I in Question 2c—there is 100% monetary exchange, no short term cash management, and no fast money transactions. Assuming people are paid at the beginning of each month, illustrate “all buyers’” and “all sellers’” transaction balances through a month using two saw-tooth diagrams. Be sure to label buyers’ and sellers’ \( M^d \). Assuming people hold no asset balances and \( M^s = M^d \), what must the money supply equal? What does \( V \) equal?

b. Now suppose, because of severe inflation, \( P \) increases to 20, while \( Y \) stays at $250m. If nothing else changes relative to part a. (hence assuming no asset balances), what does total \( M^d \) now equal? Comparing your answer with part a., is this change in nominal \( M^d \)—caused by the inflation—consistent with a Classical Money Demand function? (Briefly explain, rather than just saying yes or no.) Assuming \( M^s = M^d \), what does the money supply equal now? What does \( V \) equal now?

c. Now continue to suppose, as in part b., that \( P = 20 \) and \( Y = 250m \). But now also suppose people insist on being paid once a week rather than once a month. (So they are paid \( PY/4 = 1,250m \) at the beginning of each week, rather than \( 5,000m \) at the beginning of each month.) Assuming people are paid at the beginning of each week, illustrate “all buyers’” and “all sellers’” transaction balances through a month using two saw-tooth diagrams. Be sure to indicate buyers’ and sellers’ \( M^d \). Continuing to assume people hold no asset balances, what does total \( M^d \) now equal? Comparing your answer with part a., is this change in nominal \( M^d \)—caused by the inflation—consistent with a Classical Money Demand function? (Briefly explain, rather than just saying yes or no.) Assuming \( M^s = M^d \), what does the money supply equal now? What does \( V \) equal now?

d. Based on your answer to part c., explain the following well-documented fact about hyperinflations: During hyperinflations, the money supply grows vigorously, but prices grow even more vigorously. (HINT: You may want to use the equation of exchange, to make your explanation crystal clear.)