Part 1: Each question is worth 2 points. The whole section is worth 30 points.

1) MPS is 0.1. If, at each income level, taxes are increased by 100 this will
(a) shift the AE function up by 100.
(b) shift the AE function down by 100.
(c) shift the AE function down by 90.
(d) shift the AE curve up by 10.

2) The economy is experiencing widespread unemployment. An economist might suggest that the government
(a) decrease taxes.
(b) decrease government spending.
(c) decrease the government deficit.
(d) increase investment spending.

3) Each of the following might be a specific fiscal policy action EXCEPT
(a) reducing interest rates to stimulate consumer demand.
(b) increasing government spending on military hardware.
(c) increasing transfer payments
(d) imposing a national sales tax.

4) Money’s prime function is as
(a) the standard for credit transactions.
(b) the medium of exchange.
(c) a store of value.
(d) a unit of account.

5) If Kristin deposits $5000 cash into her savings account, then
(a) M1 goes down and M2 goes up.
(b) M1 goes up and M2 goes down.
(c) M1 goes down and M2 stays the same.
(d) M1 stays the same and M2 goes down.

6) The discount rate is the interest rate paid by
(a) the Central Bank to banks who deposit funds with it.
(b) banks when they borrow from the Central Bank.
(c) banks when they borrow from each other.
(d) the Central Bank to the Treasury to buy government securities.

7) Which of the following instruments is not used by the Central Bank to change the money supply?
(a) open market operations
(b) the discount rate
(c) the tax rate on interest earnings
(d) the required reserve ratio

8) Jack is saving money to buy a new game console. Money is functioning as a
(a) medium of exchange.
(b) store of value.
(c) unit of account.
(d) standard of deferred payment.
9) It is assumed that the money supply curve is ______; it ______ affected by changes in the interest rate.
   (a) horizontal; is
   (b) vertical; is
   (c) vertical; is not
   (d) horizontal; is not

10) The value of the money multiplier will be reduced when
    (a) recipients of bank loans redeposit the proceeds of their loans into another bank.
    (b) each bank holds zero excess reserves.
    (c) recipients of bank loans do not keep any of the loan as cash.
    (d) the required reserves of the banking system are less than its total reserves.

11) Peter earns $3000 a month. He deposits $300 in an interest-bearing savings account, and buys
    $200 worth of government securities. The rest he holds in his checking account. What is Peter’s
    money demand?
    (a) $3000  (b) $2800  (c) $2700  (d) $2500

Refer to the information provided in Figure 1 below to answer the questions that follow.

12) Refer to Figure 1. If the aggregate level of output increases, the demand for money curve will
    (a) shift from M^d_1 to M^d_0
    (b) shift from M^d_0 to M^d_1
    (c) remain M^d_1
    (d) remain at M^d_0

13) Refer to Figure 1. If the interest rate remains at 5%, there will be an excess demand for money if the demand for money curve
    (a) shifts from M^d_1 to M^d_0
    (b) shifts from M^d_0 to M^d_1
    (c) remains M^d_1
    (d) falls below M^d_0

14) When market interest rates are lower than normal,
    (a) bond prices are expected to increase.
    (b) bond prices are expected to decrease.
    (c) the demand for bonds is higher than normal.
    (d) the yield on bonds is higher than normal.

15) Each of the following is an example of commodity money EXCEPT
    (a) dollar bills.  (b) gold.  (c) cigarettes.  (d) salt.
Part 2: Answer all of the questions. This section is worth 70 points. Read the questions carefully, and show all your work where asked, otherwise you will not be given full credit for the question.

1. (26 pts) (a) (6 pts) Use the following information to fill in the gaps in the table. MPC is constant, and investment and government spending are determined autonomously. Net taxes are constant at a level of 200. Consumption function is \( C=560+0.8Y_d \).

<table>
<thead>
<tr>
<th>Real GDP Income</th>
<th>Consumption</th>
<th>Planned Investment</th>
<th>Government Spending</th>
<th>Net Taxes</th>
<th>Aggregate Planned Expenditures</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>400</td>
<td>300</td>
<td>500</td>
<td>200</td>
<td>1200</td>
</tr>
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<td>200</td>
<td>3600</td>
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<td>200</td>
<td>6000</td>
</tr>
<tr>
<td>7000</td>
<td>6000</td>
<td>300</td>
<td>500</td>
<td>200</td>
<td>6800</td>
</tr>
</tbody>
</table>

(b) (4 pts) Determine the equilibrium income level for this economy

\[ Y=AE=6000 \]

(c) (4 pts) Draw the graph for the equilibrium level of income. Show your work with graphical illustration (Make sure that you label each axis, and that you show where autonomous spending starts and where the AE function crosses the 45° reference line).

\[ AE=400+0.8Y+500+300=1200+0.8Y \]

(d) (3 pts) If real GDP is 3000, is unplanned inventory investment positive or negative? Predict how businesses will respond.

Unplanned Inventory Investment = \( Y-\text{AE} \) = 3000 - 3600 = -600. It is negative. Businesses respond to the fall in unplanned inventories by increasing output.

(d) (3 pts) At which output level is saving zero?

\[ C=560+0.8Y_d=400+0.8Y \]
\[ Y_d=C+ S, \ Y=C+S+T, \ \text{when} \ S=0 \]
\[ Y-200=C, \ 400+0.8Y=Y-200, \ Y=3000 \]

(e) (6 pts) If government spending falls by 200, by how much would the equilibrium income fall? What would be the new equilibrium level of income? What is the government spending multiplier?

\[ \Delta Y = \Delta G \times \text{gov. spending multiplier} \]
\[ \text{gov. spending multiplier} = \frac{1}{1-0.8} = \frac{1}{0.2} = 5 \]
\[ \Delta Y = 200 \times 5 = 1000 \]
\[ Y' = 6000 - 1000 = 5000 \]
(a) (15 pts) You are given the following account for a bank.

<table>
<thead>
<tr>
<th>Bank 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assets</strong></td>
</tr>
<tr>
<td>Reserves</td>
</tr>
<tr>
<td>$500</td>
</tr>
<tr>
<td>Loans</td>
</tr>
<tr>
<td>$3500</td>
</tr>
</tbody>
</table>

The required reserve ratio is 10 percent.

(a) (3 pts) How much is the bank required to hold as reserves given its deposits of $4000?

\[
\text{Required reserves} = 4000 \times 10\% = 400
\]

(b) (3 pts) How much are its excess reserves?

\[
\text{Excess Reserves} = 500 - 400 = 100
\]

(c) (3 pts) By how much can the bank increase its loans?

The bank can increase its loans by the amount of its excess reserves, which is $100.

(d) (6 pts) Suppose a depositor comes and withdraws $200 in cash. Show the bank’s new balance sheet, assuming the bank obtains the cash by drawing down its reserves. Is it now meeting the required reserve ratio? If not, what can it do?

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<td>$3500</td>
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\[
\text{Required reserves} = 3800 \times 10\% = 380
\]

The bank does not meet the reserve requirement since its actual reserves are less than its required reserves. Therefore, it must call in loans.

2. (9 pts, 3 pts each) Cupro the copper miner earns $1200 per month and his expenditures (which equal $1200) proceed at a constant daily rate. Given transactions costs and interest he can earn on savings, he makes 4 trips to the bank each month.

(a) Calculate his average money demand ($M_d$).

\[
M_d = \frac{1}{2} \times \frac{1200}{4} = 150
\]

(b) Now suppose that the interest rate on Cupro’s savings account increases. Predict what will happen to his average money demand. Will it increase, decrease, or remain the same? Explain.

Cupro’s average money demand will fall because he has more incentive to leave idle balances in the form of savings deposits rather than cash.
(c) Now suppose that the bank announces that the withdrawal forms for savings accounts must be notarized (an expensive and time-consuming business). Predict what will happen to Cupro’s average money demand. Will it increase, decrease, or remain the same? Explain.

With notarization of withdrawal forms, the cost involved in converting deposits into cash has increased. Cupro will reduce the number of withdrawals he makes. His average money balance will increase.

3. (20 pts, 5 pts each) What happens to the amount of money demanded or supplied in each of the following cases? Draw a separate money demand and money supply graph for each part of this question, label the axes, and show how the change will shift the money demand and/or the money supply curve. Explain any curve shifts in each case. Show initial and final equilibrium interest rate and quantity of money.

(a) The Central Bank sells securities in the open market while the economy is experiencing high inflation.

The Central Bank sale reduces the money supply; the rising aggregate price level will increase money demand. The two changes will drive the interest rate higher.

(b) During a deep recession, the Central Bank moves to hold the interest rate constant.

During a deep recession, money demand will shift left (decrease); this will decrease the interest rate. The Central Bank must reduce the money supply to hold the interest rate constant.

(c) A rise in nominal GDP is accompanied by an increase in the discount rate.

The open market purchase of securities will increase the money supply. The $50 bank charge will either encourage individuals to use cash more or to keep more funds in their (M1) checking accounts. The effect on the interest rate is ambiguous.

(d) The economy moves into a downturn, and the commercial banks become more cautious in their lending policies.

The downturn in the economy will decrease the demand for money; the new caution in lending will increase excess reserves, decrease the money multiplier, and reduce the money supply. The effect on the interest rate is ambiguous.