100 points. Please write answers in **ink**. Allocate your time efficiently. Good luck.

1. Suppose that the T-account for the First Terrier Bank (FTB) is as follows:

<table>
<thead>
<tr>
<th>Assets</th>
<th>Liabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reserves</td>
<td>$50,000</td>
</tr>
<tr>
<td>Treasury Bills</td>
<td>$100,000</td>
</tr>
<tr>
<td>Loans</td>
<td>$350,000</td>
</tr>
<tr>
<td>Checkable Deps</td>
<td>$500,000</td>
</tr>
<tr>
<td>$60,000</td>
<td>$90,000</td>
</tr>
</tbody>
</table>

a. Complete the T-account by writing in the new entries as they would appear as the result of the Fed's purchase of a $10,000 Treasury bill from FTB. Note: Not all items in the balance sheet above must change in value.

b. If the Fed requires banks to hold 10 percent of deposits as reserves, how much in excess reserves does FTB now hold?

\[ ER = R - RR = 60,000 - (0.10)500,000 = 60,000 - 50,000 = $10,000 \]

c. Assume that all other banks hold only the required amount of reserves. If First Terrier decides to reduce its reserves to only the required amount, by how much can it increase lending?

$10,000

d. As a result of this injection of reserves by the Federal Reserve System, what is the potential increase in the economy's money supply? Is it likely that the money supply will increase by this potential amount? Explain.

\[ \Delta D = (1/r_D) \Delta R = 10 \times ($10,000) = $100,000 \]  
Because people will want to hold currency, the money supply will not increase by this potential amount.

2. Purchasing power parity (PPP) is a theory about how nominal exchange rates are determined.

a. What is the logic behind PPP?

The logic behind purchasing-power parity is the law of one price, which asserts that a good must sell for the same price in all locations. If the price for a good is higher in one market than in another, someone can make a profit by purchasing the good where it is relatively cheap, and selling the good where it is relatively expensive. This process of arbitrage leads to an equalization of prices for the good in all locations.
b. According to PPP, what is the relationship between changes in price levels between two countries and changes in nominal exchange rates?

Purchasing-power parity asserts that the nominal exchange rate is equal to the foreign price level divided by the domestic price level. If the domestic price level rises more than the foreign price level, domestic currency depreciates. If the foreign price level rises more than the domestic price level, domestic currency appreciates.

c. Under what circumstances does PPP explain reasonably well how exchange rates are determined, and when is PPP not very accurate at predicting exchange rates?

Purchasing-power parity works well in helping us explain long-term trends in exchange rates, and in explaining what happens to exchange rates during hyperinflation. It is not completely accurate because (1) not all goods are easily traded, and (2) even tradable goods are not always perfect substitutes when they are produced in different countries.

3. In recent years Bolivia, Russia, and Turkey have had much higher nominal interest rates than the United States while Japan has had lower nominal interest rates. What would you predict is true about money growth in these other countries? Why?

The Fisher effect says that increases in the inflation rate lead to one-to-one increases in nominal interest rates. The quantity theory says that in the long run, inflation increases one-to-one with money supply growth. It follows that differences in nominal interest rates may be due to differences in inflation rates. There may be some difference in real interest rates, but if we suppose these are small, then we predict that Bolivia, Russia, and Turkey have higher inflation, and Japan has lower inflation than the United States.

4. List and define any three of the costs of inflation.

*Shoeleather costs:* the resources wasted when inflation induces people to reduce their money holdings

*Menu costs:* the cost of more frequent price changes at higher inflation rates

*Relative Price Variability:* higher inflation causes relative prices to vary more since prices change infrequently. Decisions based on relative prices are then distorted

*Inflation Induced Tax Distortions:* the income tax is not completely indexed for inflation; an increase in nominal income created by inflation results in higher real tax rates that discourage savings

*Confusion and Inconvenience:* inflation decreases the reliability of the unit of account making it more complicated to differentiate successful and unsuccessful firms thereby impeding the efficient allocation of funds to alternative investments

*Unexpected Inflation:* inflation decreases the real value of debt thereby transferring wealth from creditors to debtors
100 points. Please write answers in **ink**. Allocate your time efficiently. Good luck.

1. Suppose that the T-account for the First Panther Bank (FPB) is as follows:

<table>
<thead>
<tr>
<th>First Panther Bank</th>
<th>Assets</th>
<th>Liabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reserves</td>
<td>$75,000</td>
<td>Checkable Deposits</td>
</tr>
<tr>
<td>Treasury Bills</td>
<td>$75,000</td>
<td></td>
</tr>
<tr>
<td>Loans</td>
<td>$600,000</td>
<td></td>
</tr>
</tbody>
</table>

a. Complete the T-account by writing in the new entries as they would appear as the result of the Fed's purchase of a $5,000 Treasury bill from FPB. Note: Not all items in the balance sheet above must change in value.

b. If the Fed requires banks to hold 10 percent of deposits as reserves, how much in excess reserves does FPB now hold?

\[
ER = R - RR = 80,000 - (0.10)750,000 = 80,000 - 75,000 = 5,000
\]

c. Assume that all other banks hold only the required amount of reserves. If First Panther decides to reduce its reserves to only the required amount, by how much can it increase lending?

$5,000

d. As a result of this injection of reserves by the Federal Reserve System, what is the potential increase in the economy's money supply? Is it likely that the money supply will increase by this potential amount? Explain.

\[
\Delta D = (1/r_D) \times \Delta R = 10 \times (5,000) = 50,000.
\]

Because people will want to hold currency, the money supply will not increase by this potential amount.

2. Suppose the Federal Reserve buys U.S. Treasury bills. Use a graph of the money market to show what this does to the value of money and the price level. **Explain** the adjustment process that creates a change in the price level and the value of money. When the money supply increases, there is an excess supply of money until the value of money falls and the price level rises. After the money supply increases, people have more money than they want to hold in their wallets and checking accounts. They use this excess money to buy goods and services or lend it out to other people to buy goods and services. The increase in expenditures causes prices to rise and the value of money to fall. As the value of money falls, the quantity of money people want to hold increases so that the excess supply is eliminated.
3. Colonial America had little industry and so had mostly raw materials to export. At the same time, there were many opportunities to purchase capital goods from abroad and earn a high rate of return because there was little existing capital (so the marginal product of capital was relatively high). What does this suggest about net exports and net capital outflow in colonial America?

Net exports were negative because the value of exports was low, and the colonies imported capital goods. If net exports were negative, net capital outflow must also have been negative. Net capital outflow would have been negative because the colonies sold stocks, bonds, and other domestic assets to buy capital goods from abroad.

4. Explain how inflation affects savings? Is this one of the costs of inflation or is it simply a transfer of wealth?

Inflation discourages savings. Income tax is collected on nominal rather than real interest rates. So an increase in inflation will increase nominal interest rates and taxes. The increase in taxes in turn lowers the real return on savings and so discourages savings. This is not merely a transfer of wealth from savers to the government, but is a cost of inflation because the reduced saving in turn reduces investment and the growth in the capital stock, thereby slowing improvement in productivity.