1. Clearly and accurately draw and label a diagram of the IS—LM—FE Model.

2. Provide an economic explanation of the shape of the curve(s) in your diagram in #1.

The IS curve shows the combinations of the real interest rate, $r$, and the level of economic output, $Y$, that maintain equilibrium in the market for goods and services. This is an inverse relationship, the downward slope indicating that as the real interest rate declines, desired consumption and desired investment will increase, thereby increasing the level of economic output.

The LM curve shows the combinations of the real interest rate, $r$, and the level of economic output, $Y$, that maintain equilibrium in the money market. This is a positive relationship, the upward slope indicating that as the level of economic output (or income) rises, the demand for money will also increase. To maintain equilibrium with a fixed supply of money, this requires a higher real interest rate to reduce the demand for money to its original level.

The FE line shows the combinations of the real interest rate, $r$, and the level of economic output, $Y$, that maintain equilibrium in the labor market. Because the labor market is not dependent on the real interest rate, the FE line is vertical at the full-employment level of output.
3. List the endogenous and exogenous variables in this model.

**Endogenous variables:** The real interest rate, \( r \); the level of economic output (or income), \( Y \); desired consumption, \( C^d \); desired national saving, \( S^d \), and desired investment, \( I^d \).

**Exogenous variables:** Technology (or productivity), \( A \); the supply of labor, \( N^s \); the capital stock, \( K \); expected future output, \( Y^e \); wealth, \( W \); government purchases, \( G \); taxes, \( T \); the expected future marginal product of capital, \( MPK^f \); the tax-adjusted effective corporate tax rate, \( \tau \); the nominal money supply, \( M^s \); the riskiness of non-money assets; the liquidity of non-money assets; and the efficiency of the payments system.

4. List the variables (and the direction of their change) that would shift the IS curve to the right. Also provide an economic explanation for why each of these variables would shift the IS function.

Increases in expected future output, increases in wealth, increases in government purchases, decreases in taxes, increases in the expected future marginal product of capital, and decreases in the tax-adjusted effective corporate tax rate will all shift the IS curve to the right. At every real interest rate, each of these factors would increase the level of economic activity, either directly or indirectly, by affecting the values of either \( C^d \), \( I^d \), or \( G \).

5. List the variables (and the direction of their change) that would shift the LM curve to the right. Also provide an economic explanation for why each of these variables would shift the LM function.

Increases in the nominal money supply, a decrease in the riskiness of non-money assets, an increase in the liquidity of non-money assets, and an increase in the efficiency of the payments technology will all shift the LM curve to the right. At any level of economic output or income, these events would either increase the money supply or decrease the demand for money, causing the real interest rate to fall.

6. List the variables (and the direction of their change) that would shift the FE curve to the right. Also provide an economic explanation for why each of these variables would shift the FE function.

Increases in technology (or productivity), increases in the supply of labor, and increases in the capital stock will all shift the FE line to the right. Each of these events would increase the full-employment level of employment and full-employment level of output.

7. Assume that the economy starts in equilibrium. Suppose now that there is an increase in taxes (with no Ricardian equivalence). Describe the adjustment process that moves the economy from its initial equilibrium to its final equilibrium.

An increase in taxes would decrease disposable income. A decrease in disposable income would reduce desired consumption by the marginal propensity to consume multiplied by the change in disposable income. A decline in desired consumption would reduce economic output (or income). This would cause a further decline in desired consumption as well as the real demand for money. At the initial real interest rate, the real demand for money is now less than the real supply of money. Consequently, the real interest rate will begin to decline. As the real interest rate declines, desired consumption, desired investment, and the real demand for money will increase. This process will continue until both the real interest rate and economic output (or income) have fallen to a level where both the market for goods and services and the market for money are back in equilibrium.