1. (12 points) Suppose you are given the following data for the land of milk and honey. Use 2001 as the base year.

<table>
<thead>
<tr>
<th>Year</th>
<th>Price of Milk</th>
<th>Quantity of Milk (quarts)</th>
<th>Price of Honey</th>
<th>Quantity of Honey (quarts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>$1</td>
<td>100</td>
<td>$2</td>
<td>50</td>
</tr>
<tr>
<td>2002</td>
<td>$1</td>
<td>200</td>
<td>$2</td>
<td>100</td>
</tr>
</tbody>
</table>

a) Calculate nominal GDP for each year.

\[ \text{Nominal GDP}_{2001} = (1 \cdot 100) + (2 \cdot 50) = 100 + 100 = 200 \]
\[ \text{Nominal GDP}_{2002} = (1 \cdot 200) + (2 \cdot 100) = 200 + 200 = 400 \]

b) Calculate real GDP for each year.

\[ \text{Real GDP}_{2001} = \left( \frac{100}{400} \right) \cdot 200 = 50 \]
\[ \text{Real GDP}_{2002} = \left( \frac{100}{400} \right) \cdot 400 = 100 \]

c) Calculate the GDP deflator for each year.

\[ \text{GDP Deflator}_{2001} = \left( \frac{200}{100} \right) = 100 \]
\[ \text{GDP Deflator}_{2002} = \left( \frac{400}{100} \right) = 400 \]

2. (10 points) Suppose we use 2003 as the base year. We have information on the consumption of a typical resident of Del Boca Vista.

<table>
<thead>
<tr>
<th></th>
<th>Tennis Balls</th>
<th>Tennis Racquets</th>
<th>Gatorade</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003 price</td>
<td>$2</td>
<td>$40</td>
<td>$1</td>
</tr>
<tr>
<td>2003 quantity</td>
<td>100</td>
<td>10</td>
<td>200</td>
</tr>
<tr>
<td>2004 price</td>
<td>$2</td>
<td>$60</td>
<td>$2</td>
</tr>
<tr>
<td>2004 quantity</td>
<td>100</td>
<td>10</td>
<td>200</td>
</tr>
</tbody>
</table>

a) Calculate the price index for each year. \( \rho_t \) is the Base Year 2003 (\( \rho_2003 = 100 \)) by definition.

\[ \rho_{2004} = \frac{\text{Cost}_{2004}}{\text{Cost}_{2003}} \times 100 = \frac{1200}{500} \times 100 = 15 \times 100 = 1500 \]

b) Calculate the inflation rate from 2003 to 2004.

\[ \text{Inflation Rate} = \frac{\text{Cost}_{2004} - \text{Cost}_{2003}}{\text{Cost}_{2003}} \times 100 = \frac{1500 - 100}{100} = 15 \times 100 = 150\% \]
*3. (14 points) Suppose that the reserve requirement is 20% and that the First Student Bank has $200,000 of deposits. Let us assume they loan out the maximum allowable.

a) Show their T-Account below.

First Student Bank

<table>
<thead>
<tr>
<th>assets</th>
<th>liabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>42,000 reserves</td>
<td>$210,000 deposits</td>
</tr>
<tr>
<td>160,000 loans</td>
<td></td>
</tr>
</tbody>
</table>

b) Suppose the Federal Reserve purchases a U.S. Government Bond from you for $10,000. What is the name of the Fed’s action?

Open Market Operation


c) Suppose you deposit the $10,000 in First Student Bank. Show this transaction on First Student Bank’s T-account above. Circle the new values.

d) Once again, suppose the reserve equipment is 20 percent. Show First Student Bank’s T-account if they loan out as much as they can.

First Student Bank

<table>
<thead>
<tr>
<th>assets</th>
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</tr>
</thead>
<tbody>
<tr>
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<td></td>
</tr>
</tbody>
</table>

f) After infinite rounds of depositing and lending, how much money could be created from the Fed’s policy action?

money multiplier * initial = $5 * 10,000 = $50,000 = money created
4. (4 points) Suppose we look at the actual data for the United States adult population (All figures in millions).

<table>
<thead>
<tr>
<th>Population</th>
<th>227.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employed</td>
<td>142.6</td>
</tr>
<tr>
<td>Unemployed</td>
<td>7.3</td>
</tr>
</tbody>
</table>

a) What is the unemployment rate?

\[
\text{Unemployment Rate} = \frac{\text{Unemployed}}{\text{Population}} \times 100 = \frac{7.3}{227.0} \times 100 = 3.22\%
\]

b) What is the labor force participation rate?

\[
\text{Labor Force Participation Rate} = \frac{\text{Employed} + \text{Unemployed}}{\text{Population}} \times 100 = \frac{142.6 + 7.3}{227.0} \times 100 = 66.0\%
\]

*5. (10 points) Use the saving and investment identities from the National Income Accounts to answer the following questions. Suppose the following values are from the national income accounts of a country with a closed economy, i.e., no imports or exports (all values are in billions).

\[
Y = 6,000 = \text{GDP} \\
T = 1,000 \\
C = 4,000 \\
G = 1,200
\]

a) What is the value of saving and investment in this country?

\[
\text{Net Saving} + \text{Investment} = Y - (C + T + G) = Y - C - T - G = \$5,000
\]

b) What is the value of private saving?

\[
\text{Private Savings} = Y - C - T = \$1,000
\]

c) What is the value of public saving?

\[
T - G = -200 = \text{Public Savings}
\]

d) Is the government’s budget policy contributing to growth in this country or harming it? Why?

It is harming us as it is reducing savings/investment and reducing future growth. (Although, credit given if cited possible public investment.)
6. (14 points) a) Suppose the economy is in long-run equilibrium in 2003. In the graph below, draw the Long Run Aggregate Supply, Short Run Aggregate Supply and Short Run Aggregate Demand curves. LABEL THE AXES. Label the curves as LRAS₁, SRAS₁ and SRAD₁.

![Diagram of aggregate supply curves]

b) Suppose between 2003 and today oil prices jumped by $25/barrel. Show any shifts with a new curve and label them with a subscript of “2”.

c) Why would the shift(s) you showed in b) occur?

See pp 746-751, firms will have to get a higher price for their goods & services as the price of a basic good has risen. (cost of transportation up)
If we sum them (aggregate them) the AS will shift as well.

d) What happened to the price level and real output in the short run?

![Diagram of price and real GDP]

e) If the economy is allowed to adjust to the increase in the price of oil, what happens to the price level and real output in the long run (compared to their original level in part a)?

In the long run will return back to their original level.

f) Does an increase in the price of oil change the level of output (compared to the natural rate) permanently?

No. LRAS depends on quantities, not price.
Multiple Choice.

*7. U.S. GDP would exclude which of the following?
   a. lawyer services purchased by a home buyer
   b. lawn care services purchased by a home owner
   c. a new bridge purchased by the state of Texas
   d. cotton purchased by Lee Jeans
   e. the purchase of a new Mazda produced in Illinois

*8. Once a country is wealthy,
   a. it is nearly impossible for it to become relatively poorer.
   b. it may be harder for it to grow quickly because of the diminishing returns to capital.
   c. capital becomes more productive due to the "catch-up effect."
   d. it no longer needs any human capital
   e. none of the above

*9. Which of the following financial market securities would likely pay the highest interest rate?
   a. a municipal bond issued by the state of Texas
   b. a mutual fund with a portfolio of blue chip (good) bonds
   c. a bond issued by a blue chip (good) company
   d. a bond issued by a start up company

*10. According to the interest rate effect, aggregate demand slopes downward (negatively) because
   a. lower prices increase the value of money holdings and consumer spending increases.
   b. lower prices decrease the value of money holdings and consumer spending decreases.
   c. lower prices reduce money holdings, increase lending, interest rates fall, and investment spending increases.
   d. lower prices increase money holdings, decrease lending, interest rates rise, and investment spending falls.

*11. To insulate the Federal Reserve from political pressure,
   a. the Board of Governors are elected by the public.
   b. the Board of Governors have life-time tenure.
   c. the Board of Governors are supervised by the House Banking Committee.
   d. the Board of Governors are appointed to 14-year terms.
12. Which of the following policy combinations would consistently work to increase the money supply?
   a. sell government bonds, decrease reserve requirements, decrease the discount rate
   b. sell government bonds, increase reserve requirements, increase the discount rate
   c. buy government bonds, increase reserve requirements, decrease the discount rate
   d. buy government bonds, decrease reserve requirements, decrease the discount rate
   e. none of the above

13. An American company owns a fast food restaurant in Romania. The value of goods and services it produces is included
   a. in both Romanian and U.S. GDP.
   b. partly in Romanian GDP and partly in U.S. GDP.
   c. in Romanian GDP, but not U.S. GDP.
   d. in U.S. GDP, but not Romanian GDP.

14. The substitution bias in the consumer price index refers to the
   a. substitution of new goods for old goods in the purchases of consumers.
   b. substitution of quality for quantity in consumer purchases over time.
   c. fact that consumers substitute toward goods that have become relatively less expensive.
   d. substitution of new prices for old prices in the basket of goods from one year to the next.

15. In 1969 Don bought a Dodge Dart for $2,500. He drove this car until 2003 when he bought a Honda Civic for $18,000. If the price index in 1969 was 36.7 and the price index in 2003 is 180, what's the price of the Dodge Dart in 2003?
   a. $3,583
   b. $4,500
   c. $9,762
   d. $12,262

16. Who would not be included in the labor force?
   a. Jay, who is on temporary layoff
   b. Mike, who has retired and is not looking for work
   c. Jane, who does not have a job, but has applied for several in the last week
   d. None of the above

17. In the United States in recent years, for people age 20 and over, the unemployment rate of blacks has been
   a. less than that of whites.
   b. about the same as that of whites.
   c. about 50 percent higher than that of whites.
   d. about double that of whites.
18. In a closed economy, i.e. \( N - X = 0 \) (no net exports), private saving is
   a. the amount of income that households have left after paying for their taxes and consumption.
   b. the amount of income that businesses have left after paying for the factors of production.
   c. the amount of tax revenue that the government has left after paying for its spending.
   d. always equal to investment.

19. Henry buys a bond issued by Ralston Purina, which uses the funds to buy new machinery for one of its factories.
   a. Henry and Ralston Purina are both investing.
   b. Henry and Ralston Purina are both saving.
   c. Henry is investing; Ralston Purina is saving.
   d. Henry is saving; Ralston Purina is investing.

20. Aggregate demand shifts right when the government
   a. raises personal income taxes.
   b. increases the money supply.
   c. repeals an investment tax credit (a tax break to firms that invest).
   d. All of the above are correct.

21. Which of the following would cause prices and real GDP to rise in the short run?
   a. Short-run aggregate supply shifts right.
   b. Short-run aggregate supply shifts left.
   c. Aggregate demand shifts right.
   d. Aggregate demand shifts left.

22. The Federal Open Market Committee is made up of
   a. 5 of the 12 presidents of the Federal Reserve Regional banks, and the 7 members of the Board of Governors.
   b. 7 of the 12 presidents of the Federal Reserve Regional banks, and the 5 members of the Board of Governors.
   c. the 12 presidents of the Federal Reserve Regional banks, and the Chair of the Board of Governors.
   d. the 12 presidents of the Federal Reserve Regional banks, and the 7 members of the Board of Governors.

23. Current U.S. currency is
   a. commodity money with intrinsic value.
   b. commodity money with no intrinsic value.
   c. fiat money with intrinsic value.
   d. fiat money with no intrinsic value.
24. The initial impact of an increase in government spending is to shift
   a. aggregate supply to the right.
   b. aggregate supply to the left.
   c. aggregate demand to the right.
   d. aggregate demand to the left.

25. Extra Credit. (2 points if answered correctly and missed one or fewer classes in this
   part of the course.)

   a. What is the name of the interest rate banks charge each other on loans?

      Federal Funds Rate

   b. Currently, is it higher, lower or equal to the discount rate?

      Lower