1. (12 points)
   a. There are three types of unemployment. Please cite them.
      Frictional, structural, cyclical

   b. Which if any of them are part of what is called the natural rate of unemployment.
      Frictional, structural

   c. What is the approximate numerical value of the natural rate of unemployment?
      Book cites 5.0 - 5.5% may be a bit lower.

   d. Peter is an opera singer living in Devils Lake, North Dakota. He is searching for a job there but none exist. There are jobs in New York City. Is he unemployed and if so, cite the type of unemployment from part (a).
      Structural, jobs for opera singers in NYC, but not in Devils Lake. (Peter is searching so unemployed)

   e. Ben was an autoworker at General Motors in Detroit. He lost his job when the economy entered the last recession. He inquired at Ford Motor Company if there were jobs available. At that point in time was he considered unemployed and if so, cite the type of unemployment from part (a).
      Lost job due to recession and searching (cyclical)

   f. Jeannie worked as police officer in Los Angeles. Her husband took a job in Columbus and she moved with him. She sought work at local police departments in Columbus all last year, but could not find a job and has stopped looking. Is she considered unemployed now and if so, cite the type of unemployment from part (a).
      Stopped looking, Discouraged worker. Not unemployed
2. (10 points) A typical consumer in Detroit bought the following goods each year. The prices and quantities are given in the table below.

<table>
<thead>
<tr>
<th>Year</th>
<th>Quantity Detroit Tiger Tickets</th>
<th>Price Detroit Tiger Tickets</th>
<th>Quantity Vernor's Ginger Ale</th>
<th>Price Vernor's Ginger Ale</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>1</td>
<td>$20</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>2006</td>
<td>2</td>
<td>$22</td>
<td>12</td>
<td>15</td>
</tr>
<tr>
<td>2007</td>
<td>1</td>
<td>$30</td>
<td>25</td>
<td>20</td>
</tr>
</tbody>
</table>

a. Using 2005 as the base year, please calculate the Consumer Price Index for each year. Place your answers in the box below.

\[
\text{2005 Base Year} \quad CPI_{2005} = 100
\]

\[
\text{Cost of Goods} \quad (1 \times 20) + (10 \times 10) = 20 + 100 = 120
\]

\[
\text{2006 Basket Same} \quad (1 \times 22) + (10 \times 15) = 22 + 150 = 172
\]

\[
\text{2007 Basket Same} \quad (1 \times 30) + (10 \times 20) = 30 + 200 = 230
\]

\[
\text{CPI 2006} = \frac{\text{Cost of Goods 2006} \times 100}{\text{Cost of Goods Base Year}} = \frac{172}{120} \times 100 = 143.3
\]

\[
\text{CPI 2007} = \frac{\text{Cost of Goods 2007} \times 100}{\text{Cost of Goods Base Year}} = \frac{230}{120} \times 100 = 191.7
\]

b. What was the rate of price inflation in 2006? 
\[
\frac{\text{CPI}_{2006} - \text{CPI}_{2005}}{\text{CPI}_{2005}} = \frac{143.3 - 100}{100} = 43.3 = 43.3\%
\]

c. What was the rate of price inflation in 2007? 
\[
\frac{\text{CPI}_{2007} - \text{CPI}_{2006}}{\text{CPI}_{2006}} = \frac{191.7 - 143.3}{143.3} = 33.8\%
\]

<table>
<thead>
<tr>
<th>Year</th>
<th>Cons. Price Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>100</td>
</tr>
<tr>
<td>2006</td>
<td>143.3</td>
</tr>
<tr>
<td>2007</td>
<td>191.7</td>
</tr>
</tbody>
</table>
3. (4 points) Before OPEC had an impact, gasoline prices in the United States were at $0.36 per gallon in 1972. The CPI was 41.8 that year and is currently at 208.5. How much was gasoline in 1972 measured in today’s prices?

\[
\text{Price in 1972} = \frac{0.36}{\frac{CPI_{today}}{CPI_{1972}}} = \frac{0.36}{\frac{208.5}{41.8}} 
\]

4. (14 points)
   a. In the space to the right, carefully draw the Short Run Aggregate Demand (SRAD), Short Run Aggregate Supply (SRAS) and Long Run Aggregate Demand Curves.
   b. Label the axes.
   c. The point where the LRAS touches the horizontal axis is called the what?
   d. The SRAD has a downward slope in part due to the Pigou Wealth Effect. Please explain what that is.
   e. State something that could cause the SRAD curve to increase.
   f. Draw the new SRAD curve and label it SRAD\_2 that shows an increase in SRAD.
   g. Is the economy in equilibrium? How can you tell?
5. (8 points) Suppose we observe what an economy produces in two different years

<table>
<thead>
<tr>
<th>Year</th>
<th>Quantity CDs</th>
<th>Price CDs</th>
<th>Quantity Gum</th>
<th>Price Gum</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>10</td>
<td>$12</td>
<td>50</td>
<td>$1</td>
</tr>
<tr>
<td>2007</td>
<td>12</td>
<td>$18</td>
<td>60</td>
<td>$1</td>
</tr>
</tbody>
</table>

Using 2006 as the base year:

a. Calculate the Nominal GDP in 2006.
\[
(10 \times 12) + (50 \times 1) = 120 + 50 = 170
\]

b. Calculate the Real GDP in 2006.
\[
\left( \frac{10 \times 12}{2006} \right) + \left( \frac{50 \times 1}{2006} \right) = \left( \frac{120}{2006} \right) + \left( \frac{50}{2006} \right) = 0.06 + 0.02 = 0.08
\]

c. Calculate the Nominal GDP in 2007.
\[
(12 \times 15) + (60 \times 1) = 180 + 60 = 240
\]

d. Calculate the Real GDP in 2007.
\[
\left( \frac{12 \times 12}{2006} \right) + \left( \frac{60 \times 1}{2006} \right) = \left( \frac{144}{2006} \right) + \left( \frac{60}{2006} \right) = 0.07 + 0.03 = 0.10
\]

\[
\text{Nominal GDP 2007} \quad \times 100 = \frac{240}{240} \times 100 = 118
\]

6. (4 points) Homer bought some gasoline in Delaware last week. Give an example of how that purchase might NOT be counted in GDP.
Multiple Choice. Three points each.

7. GDP is defined as
   a. the market value of all goods and services produced within a country in a given period of time.
   b. the market value of all goods and services produced by the citizens of a country, regardless of where they are living in a given period of time.
   c. the market value of all final goods and services produced within a country in a given period of time.
   d. the market value of all final goods and services produced by the citizens of a country, regardless of where they are living, in a given period of time

8. Tyler and Camille both live in Oklahoma. A new-car dealer in Oklahoma bought a new car from the manufacturer for $17,000 and sold it to Tyler for $20,000. Later that year, Tyler sold the car to Camille for $15,000. By how much did these transactions contribute to U.S. GDP for the year?
   a. $17,000
   b. $20,000
   c. $35,000
   d. $52,000

9. One of the widely-acknowledged problems with the consumer price index (CPI) as a measure of the cost of living is that the CPI
   a. fails to account for consumer spending on housing.
   b. accounts only for consumer spending on food, clothing, and energy.
   c. fails to account for the fact that consumers spend larger percentages of their incomes on some goods and smaller percentages of their incomes on other goods.
   d. fails to account for the introduction of new goods.

10. When the quality of a good improves, the purchasing power of the dollar
    a. increases, so the CPI overstates the change in the cost of living if the quality change is not accounted for.
    b. increases, so the CPI understates the change in the cost of living if the quality change is not accounted for.
    c. decreases, so the CPI overstates the change in the cost of living if the quality change is not accounted for.
    d. decreases, so the CPI understates the change in the cost of living if the quality change is not accounted for.

11. A nation’s standard of living is determined by
    a. its productivity.
    b. its gross domestic product.
    c. its national income.
d. how much it has relative to others

12. Last year real GDP in Oceania was 561.0 billion and the population was 2.2 million. The year before real GDP was 500.0 billion and the population was 2.0 million. What was the approximate growth rate of real GDP per person?
   a. 12 percent
   b. 10 percent
   c. 4 percent
   d. 2 percent

13. If there are diminishing returns to capital, then
   a. capital produces fewer goods as it ages.
   b. old ideas are not as useful as new ones.
   c. increases in the capital stock eventually decrease output.
   d. increases in the capital stock increase output by ever smaller amounts.

14. A bond is a
   a. financial intermediary.
   b. certificate of indebtedness, i.e., an IOU
   c. certificate of partial ownership in an enterprise.
   d. None of the above is correct.

15. Which of the following equations will always represent GDP in an open economy?
   a. $S = I - G$
   b. $I = Y - C + G$
   c. $Y = C + I + G$
   d. $Y = C + I + G + NX$

16. In a small closed economy investment is $20 billion and private saving is $22 billion. What is public saving and national saving?
   a. $24 billion and $2 billion
   b. $20 billion and -$2 billion
   c. $2 billion and $24 billion
   d. -$2 billion and $20 billion

17. In a closed economy, what does $(Y - T - C)$ represent?
   a. national saving
   b. government tax revenue
   c. public saving
   d. private saving

18. Suppose that Congress were to repeal an investment tax credit. What would happen in the market for loanable funds?
a. The demand and supply of loanable funds would shift right.
b. The demand and supply of loanable funds would shift left.
c. The supply of loanable funds would shift right.
d. The demand for loanable funds would shift left.

19. The labor force equals the
a. number of people who are employed.
b. number of people who are unemployed.
c. number of people employed plus the number of people unemployed

d. adult population.

This table shows the 2003 data for males and females ages 16 and over in the imaginary country of Meditor.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Not in labor force</td>
<td>80</td>
</tr>
<tr>
<td>Unemployed</td>
<td>10</td>
</tr>
<tr>
<td>Employed</td>
<td>150</td>
</tr>
</tbody>
</table>

20. What is the adult unemployment rate in Meditor?
   a. 4.12%
   b. 6.25%
   c. 11.11%
   d. 12.50%

   \[ \text{unemployment rate} = \frac{\text{unemployed}}{\text{adult population}} = \frac{10}{150} = 6.25\% \]

21. What is the adult labor-force participation rate in Meditor?
   a. 4.12%
   b. 12.50%
   c. 37.50%
   d. 66.67%

   \[ \text{participation rate} = \frac{\text{employed}}{\text{adult population}} = \frac{150}{200} = 75\% \]

22. The long-run aggregate supply curve shows that by itself a permanent change in aggregate demand would lead to a long-run change
   a. in the price level and real GDP.
   b. in the price level, but not real GDP.
   c. in real GDP, but not the price level.
   d. in neither the price level nor real GDP.

Extra Credit. (2 points. Must also have no more than one absence.)

In class I cited several reasons why GDP per person is not a perfect measure of the standard of living. Cite and explain one.

- measures inc, not wealth
- does not count non-mkt good
- does not account for pull'n, etc
- could be wide dispersion of income