There are five questions. Answer both questions from Part 1 and exactly two questions from Part 2. Answer questions from Part 3 (low value, extra credit questions) only if you have finished the other parts. Answers should be thorough, but should not contain information not relevant to the question asked. Be careful to show your work and the basis for any calculations; explain any diagrams.

Part 1
1. During the Iraqi occupation of Kuwait (1990-91), substantial parts of the Kuwaiti capital stock were destroyed. Using production/labor-supply/labor-demand analysis, analyze the effects this would have had on GDP, employment and real wages provided that full employment was maintained at all times.

2. Table 1 shows data relevant to the second longest business cycle expansion in U.S. history (the longest was in the 1990s).

<table>
<thead>
<tr>
<th>Date</th>
<th>Real GDP (1992$ billions)</th>
<th>Capital (1992$ billions)</th>
<th>Labor (hours (millions) annual rate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960:1 (Peak)</td>
<td>2,279.2</td>
<td>6,580.6</td>
<td>116,731.6</td>
</tr>
<tr>
<td>1969:4 (Peak)</td>
<td>3,392.6</td>
<td>9,436.2</td>
<td>144,400.1</td>
</tr>
</tbody>
</table>

On the assumption that labor’s share in GDP is 0.69, how much of the growth of GDP from the peak of the earlier cycle to the end of the 1960s expansion can be attributed to growth in labor, growth in capital, and to technical progress? (Present the final answers in percentage points with zero decimal places – e.g., 18 percent).

Part 2
3. Explain in detail how an open-market sale of Treasury bills affects the Treasury-bill rate, the Federal funds rate, the long-term bond rate, investment, unemployment, and inflation.
4. Figures 1 and 2 present estimates of Okun’s law and the Phillips curve for Canada. Hypothetically, assume that these curves continue to be good estimates of the relationships in 2050. (Present final answers to two decimal places.)
   a) In words, define what we mean by the modified balanced-growth path and NAIRU.
   b) Using the two figures, write down the equations for the Phillips curve and Okun’s law in standard form. Indicate the implied values of the modified balanced-growth path and NAIRU.
   c) With a crystal ball, we know that at the beginning of 2050, the rate of GDP growth in Canada is 4.4% per year, inflation is 2% per year, and the unemployment rate is 6.8%. Assuming that GDP growth remains at its current level for all of 2050, what would you predict the unemployment rate to be at the beginning of 2051?
   d) Notwithstanding your answer in b), assume that the unemployment rate remained at its initial level for all of 2050, what would you predict the inflation rate to be at the beginning of 2051?
   e) Suppose that the growth of aggregate demand (GDP) remains exactly at the value calculated in a) for the modified balanced-growth path, but that the rate of growth of labor productivity, which is now 1% per year, doubles. Qualitatively (calculations are not necessary) what would be the effects on the unemployment rate and inflation of this increase in labor productivity. If aggregate demand could be adjusted to higher or lower growth rates through fiscal policy, how would policymakers want to adjust it? Is an increase in labor productivity a good or a bad thing? (Be specific about your standard of judgment.)

5. The following are actual yields to maturity on government bonds in December 2009:

<table>
<thead>
<tr>
<th>Bond Matures in:</th>
<th>Yield to Maturity</th>
</tr>
</thead>
<tbody>
<tr>
<td>December 2010</td>
<td>( r_{1,09} = 0.27 )</td>
</tr>
<tr>
<td>December 2011</td>
<td>( r_{2,09} = 0.67 )</td>
</tr>
<tr>
<td>December 2012</td>
<td>( r_{3,09} = 1.12 )</td>
</tr>
<tr>
<td>December 2013</td>
<td>( r_{4,09} = 1.57 )</td>
</tr>
</tbody>
</table>

(Present final answers to two decimal places.)

   a) Sketch the yield curve for December 2009 (label the points).
   b) Assuming that there is no risk premium and that the expectations-theory of the term structure is true, what is the 1-year rate of interest expected for a bond purchased in December of each year from 2010 to 2013 (\( r_{1,09} \), \( r_{1,10} \), \( r_{1,11} \), \( r_{1,12} \))?
   c) Imagine that the Fed announces a monetary policy action that is expected to raise the rate of inflation by 1 percentage point per year from 2010 through 2013 (i.e., inflation increases 1 point in the year starting December 2009, 2 points in the year starting December 2010, etc.). Again, assuming no risk premium, what would happen to the yield curve as a result? Show this by sketching the curve and labeling the points. Be sure that your calculations are clearly displayed.
Part 3
6. Extra Credit (low value; do this question only if finished with the others).
   a) President Obama presented what economic plan on Tuesday?
   b) What happened to the unemployment and employment rates in the latest announcement?
   c) What major economic policymaker is being considered for reappointment?
Fig. 1. Change in the Unemployment Rate vs. Real GDP Growth for Canada 1980-1995

\[ y = -0.431x + 1.1607 \]

\[ R^2 = 0.7532 \]
Fig. 2 Change in the Inflation Rate versus the Unemployment Rate for Canada: 1980-1995

\[ y = -0.5294x + 4.5807 \]

\[ R^2 = 0.3508 \]