**Instructions**

The questions below are arranged into two groups according to the estimated time and difficulty. Group A are relatively short, should require 5 – 10 minute each, and are worth 25 points each. Group B are more complicated, require more time (10 – 15 minutes each), and are worth 50 points each. The opportunity cost of answering one question in Group B is not answering two questions in Group A.

You are to answer any combination of questions that sum to exactly 200 points.

**Group A: 25 point questions (estimated time 5 – 10 minutes)**

1. Providing legal representation to individuals accused of a crime and unable to afford their own attorney is essential to our legal system. Evaluate the normative economic (Pareto efficiency) implications of the following two proposals to provide this representation. Assume that both proposals are expected to provide the same level (quality) of representation.

   Proposal 1: Require that all defense attorneys to participate in a program by which they are randomly assigned to provide free legal representation to such individuals.

   Proposal 2: Create a publicly financed office of attorneys that will represent these individuals.

2. It is common for state laws to prohibit young adults under the age of 18 from working at specific jobs. The principles underlying normative economics (Pareto efficiency), clearly indicates that such laws reduce social welfare. Assuming such welfare loss, what economic arguments might be used to support such restrictive legislation?

3. In January 2006 the Bureau of Labor Statistics reported the following data.

   **Table A.** Major indicators of labor market activity, seasonally adjusted
   (Numbers in thousands)

<table>
<thead>
<tr>
<th>Monthly Data</th>
<th>2005</th>
<th>2005</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nov</td>
<td>Dec</td>
<td>Jan</td>
</tr>
<tr>
<td>Civilian labor force</td>
<td>150,183</td>
<td>150,153</td>
<td>150,114</td>
</tr>
<tr>
<td>Employment</td>
<td>142,611</td>
<td>142,779</td>
<td>143,074</td>
</tr>
<tr>
<td>Unemployment</td>
<td>7,572</td>
<td>7,375</td>
<td>7,040</td>
</tr>
<tr>
<td>Not in labor force</td>
<td>77,021</td>
<td>77,271</td>
<td>77,439</td>
</tr>
</tbody>
</table>

   a. Calculate the unemployment rates and the labor force participation rates; round your answer to tenth of a percent.

   b. What do these data tell you about the flow of workers between the three labor market states (employed, unemployed, out of the labor market)?

   c. Would you consider this “good news” for the economy? Explain why or why not.
4. Some employers have policies that discourage employees from discussing their salaries with co-workers. One might argue this is just a privacy issue. However, economic theory suggests the employers might benefit from such policies. Explain the benefits to employers that economic theory suggests.

5. When Glenda graduated in May two companies offered her jobs, which were identical except for the salary. One company's salary offer was $32,000; the other's was $37,000. Assuming that both companies operate in competitive product and labor markets, what economic explanation can you offer for the willingness of the second company to offer Glenda a higher wage?

6. The marginal product theory of labor demand states that the quantity demanded is dependent on three factors: the marginal product of labor, the marginal revenue of output, and the price of labor. To test this theory, we need to gather data on these variables as well as others. Unfortunately, it is often difficult or impossible to observe data that exactly reflects the desired concept. For example, most labor productivity variables measure average not marginal productivity of labor. Select two commonly used measures of wages and briefly describe the advantages and disadvantages of each.

7. Using the Hicks-Marshall rules for derived demand, explain why one would expect the short-run own-wage elasticity for demand for labor to be less elastic than the long-run own-wage elasticity for labor.

8. Suppose the weekly market demand for labor is given by the following equation:

\[ L = 75 - 3W, \]  

(1)

where \( L \) is the measure of labor usage (the number of workers employed per week) and \( W \) is the wage rate (dollars per hour).

a. As the wage increases from $5 per hour to $20 per hour, how does the slope of the labor demand curve change?

b. Calculate the own-wage elasticity of demand at a wage of $5, $10 and $20 per hour.

c. Given the own-wage elasticity of demand at a wage of $10, if the equilibrium market wage increases from $10 to $11 per hour will total labor income increase? Briefly explain.
9. In a recent article Christiana Stoddard and Peter Kuhn study the impact educational reforms have had on work hours of teachers.\(^1\) Suppose they used ordinary least squares regression to obtain the results reported in the attached table. The data in this table represents the results of four (4) regressions; one for each set of years.

a. How much of the variance in the dependent variable (for the years 1991-1994) is explained by their regression?

b. For the regression for years 1995-98, which independent variable coefficients are statistically significant? [For which can we be confident that the coefficient is not zero?]

c. What conclusion about the changing impact of unionization might you draw from the evidence in the table?

d. From the data in the table, which variable would you conclude is most consistently important over time? What support can you provide?

10. The State of Ohio’s Technology Investment Tax Credit (TITC)\(^2\) provides tax credits for taxpayers who invest in qualified (small, research and development and technology-oriented) firms. For simplicity, assume the credit allows a taxpayer (individual or firm) to reduce its tax liability by a 25 percentage (25%) of the cost of qualified investment expenditures. So, a firm that buys $1 million of new technology-oriented equipment can reduce its Ohio tax liability by $250,000. Proponents of the credit argue it will increase job opportunities in Ohio.

Use the theory of derived demand for labor to evaluate the validity of the claim that Ohio’s TITC will increase job opportunities in Ohio.

To simplify the analysis, assume there are two kinds of capital and two kinds of labor. Designate qualified (technology-oriented) capital as K1; non-qualified capital as K2. Designate technology-skilled labor as L1; non-technology-skilled labor as L2. Assume that K2 and L2 are gross substitutes for K1 and for L1. Assume that K1 and L1 are gross complements and K2 and L2 are gross complements.

11. Assume the market demand for and the market supply of labor can be represented by:

\[
\begin{align*}
L_d &= 200 - 0.25w \\
L_s &= 40 + 0.5w
\end{align*}
\]

a. Determine the equilibrium wage and units of labor employed.

b. What is the value of economic rent earned by workers?

c. Suppose a minimum wage of $300 per unit of labor. Determine the new equilibrium level of labor employed.

d. Has the net income of workers increased? Explain.

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12. Adam Smith states that “the demand for those who live by wages, it is evident, cannot increase but in proportion to the increase of the funds which are destined for the payment of wages.” Therefore he focuses on the growth of an economy as a determinant of wages. “It is not the actual greatness of national wealth, but its continual increase, which occasions a rise in the wages of labour. It is not, accordingly, in the richest countries, but in the most thriving, or in those which are growing rich the fastest, that the wages of labour are highest. England is certainly, in the present times, a much richer country than any part of North America. The wages of labour, however, are much higher in North America than in any part of England.”

Is Smith’s contention that wages are based on changes in national wealth, not on the level of national wealth consistent with today’s economies? What evidence can you supply to support your position? [Hint: be sure to clarify whether Smith is talking about real or nominal wages.]

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3 Smith, Adam. Wealth of Nations, chapter 8, page 43.