DIRECTIONS: There are 13 questions on this exam. Complete all questions in the space provided. In some questions, you are asked to justify your answer. In other questions, you are not. You will not have time to answer more than the question asks. Put all your answers in the space provided.

1. (6 points) Suppose that workers receive a compensating wage difference for working in high risk jobs. How will each of the following affect the size of the compensating difference? (List increase or decrease.)
   a. A new law that triples the amount workers can win from employers if they are injured on the job. 
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   b. A new law that improves the amount workers receive from workers compensation insurance if they are injured on the job. 
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   c. New information that makes it clear to workers that the job risks they are facing are greater than they previously believed. 
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2. (6 points) How will each of the following affect the after-tax rate of return on a college education? (List increase or decrease).
   a. A longer work life. 
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   b. A work life with more frequent career interruptions. 
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   c. A progressive income tax. 
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3. (6 points) The estimated rate of return to education increased sharply in the U.S. during the 1980s. List three changes that have occurred in the U.S. that have been pointed to as explanations for this trend. (List the changes. No need to explain how they caused the return to education to increase.)

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4. (12 points) Suppose that there are two barber shops in town. At Floyd’s, barbers are paid $10 per hour. At Fred’s, barbers are paid $5 per hour plus $2 per haircut.

a. Will Floyd’s attract more or less risk averse barbers than Fred’s?

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b. Will Floyd’s attract the “fast” or “slow” barbers?

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c. Is the barber equipment likely to be misused more at Floyd’s or Fred’s?

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d. In total, will average hourly compensation be higher at Floyd’s or Fred’s?

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5. Consider the isoprofit curves for firms A and B (AA and BB) and indifference curves for workers X and Y (XX and YY).

Suppose that all firms and workers are currently at the point Z. At the current combination of risk and wages:

a. (3 points) Is it more expensive for firm A or B to reduce risk?

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b. (3 points) Does worker X or Y require a larger wage increase to put up with more risk?

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c. (3 points) Given the diagram, we would expect that firm B would move to a compensation package that had (higher, lower) risk and (higher, lower) wages than at point Z.

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d. (3 points) Given the diagram, we would expect that firm B would match with type (X, Y) workers.

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6. Consider the following estimated wage equations for men:

\[ W = 2.0 + 0.8 \text{Education} + 0.3 \text{Experience} \]

The average levels of education and experience are as follows:

<table>
<thead>
<tr>
<th></th>
<th>Education</th>
<th>Experience</th>
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<tbody>
<tr>
<td>Men</td>
<td>14</td>
<td>12</td>
</tr>
<tr>
<td>Women</td>
<td>12</td>
<td>6</td>
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</tbody>
</table>

Suppose the average wage for men is $16.80 and the average wage for women is $12.00.

a. (4 pts) What portion of the $4.80 wage gap can be attributed to differences in

(i) education

(ii) experience?

b. (3 pts) How much lower are women’s wage than men’s because of “discrimination”?

7. OSHA has recently promoted new ergonomic standards for the workplace that are intended to reduce musculoskeletal injuries such as carpal tunnel syndrome and lower back problems. In a *New York Times* article, an OSHA official describes the likely results of the new regulations:

"The biggest savings from the regulations will be in improved productivity and reduced workers' compensation costs. If injuries occur, you pay the worker, you pay the doctor, you pay the compensation costs, you lose productivity from someone being out and you have to train someone new. That's a significant cost."

a. (3 pts) Given the savings described for the ergonomics standards, why don’t some firms implement them voluntarily?
b. (3 pts) For firms that don’t implement the standards voluntarily, how would mandatory implementation of the standards affect their workers, on net? Explain briefly.

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c. (3 pts) UPS estimates that the new ergonomic standards would cost them $20 billion because they will have to redesign their trucks and sorting facilities. It is clear that the standards could affect UPS, UPS employees, and UPS customers. How could the new standards generate cost savings for firms not directly affected by the new ergonomic standards? Explain briefly.

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8. (4 pts) Suppose that the typical college graduate receives a starting salary of $40,000 per year while a high school graduate of the same age receives a salary of $30,000 per year. Some economists argue that the $10,000 earnings differential is an overstatement of the true effect of the college degree on earnings. What is the logic behind this argument?

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9. (9 points) Thousands of illegal immigrants are working in the U.S. Suppose the U.S. increases the penalties for illegal immigration to include long jail sentences for illegal workers. Use labor supply/demand for each of the groups below to explain the effects of this change in the law on their respective wages and employment (you needn’t draw the diagrams, you can just indicate whether labor supply and/or labor demand is affected and the resulting effect on wage and employment.

a. illegal immigrants

b. native workers that are gross substitutes for illegal immigrants

c. native workers that are gross complements to illegal immigrants.
10. The marginal expense of labor (MEL) equals the increase in labor costs associated with hiring one additional unit of labor. Using calculus, it is straightforward to show that:

\[ MEL = W(1 + 1/e^s) \]

where \( W \) is the wage rate and \( e^s \) is the elasticity of labor supply.

a. (4 points) Suppose that a firm has identified two distinct groups of workers. Group A workers are married, have children, and an employed spouse. Group B workers are single without children. Which group is likely to have more elastic labor supply? Explain why in one sentence.

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b. (4 points) Using the information provided above regarding MEL, explain why it would not be profit maximizing to pay A and B workers the same wage. Also, explain which workers should be paid the higher wage.

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11a. (3 points) Define the term “efficiency wage premium”.

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b. (3 points) If a firm pays an efficiency wage premium, why is an employee less likely to shirk?

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c. (3 points) How can payment of an efficiency wage premium help conserve on a company’s monitoring costs?

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d. (3 points) Why is an efficiency wage premium less effective in reducing shirking among older employees?

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12a. (4 points) Draw a graph (be sure to label axes and curves) and use it to describe what is meant by a “deferred pay” system.

b. (4 points) Give two reasons that a firm might want to use a deferred pay system.

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c. (3 points) Give one reason that a worker might be reluctant to accept a deferred pay system

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13. (5 points) Suppose that employer discrimination results in a minority wage rate of $8 and a majority wage rate of $10. Draw a labor demand curve for a prejudiced employer who is unwilling to hire any minorities given the current wage structure. Shade in the area on the diagram to illustrate how much the prejudiced employer is “paying” for being prejudiced. Briefly describe what the area represents.