CIA Economics
Factor Markets and Income Distribution
Practice Test

NOTE: The real test will have more multiple-choice questions, but fewer questions from the remaining sections.

Section A: Multiple Choice
Indicate the option that correctly completes the statement. (1 mark each = 6 marks)

1. If the most recent worker hired by a firm (which competes in the market for labour) produces 16 units a day of a product that sells for $5.00 per unit, the worker works for eight hours a day, and the worker’s wage rate is $8.00 an hour, then the marginal revenue product (per day) of that worker is:
   a) $5.00
   b) $8.00
   c) $64.00
   d) $80.00
   e) none of the above.

2. A monopsony would tend to:
   a) pay a higher wage rate than a competitive firm;
   b) pay a lower wage rate than a competitive firm;
   c) hire the same quantity of labour than a competitive firm;
   d) hire a greater quantity of labour than a competitive firm;
   e) b and c.

3. A given firm can hire labour and capital as input factors. Labour costs $12.00 an hour and capital costs $20.00 an hour. At the firm’s current level of production, labour is producing 30 units per hour and capital is producing 100 units per hour. Bearing in mind that all inputs are subject to the law of diminishing returns, what should this firm do to decrease the cost of its current level of production?
   a) hire more labour and more capital;
   b) hire less labour and less capital;
   c) hire less labour and more capital;
   d) hire more labour and less capital;
   e) hire the same amount of labour and the same amount of capital.

4. Engel’s law states that:
   a) wealthy people purchase more food than poor people;
   b) poor people tend to buy less luxury items than poor people;
   c) wealthy people tend to spend a greater percentage of their income on food than poor people;
   d) poor people tend to spend a lower percentage of their income on food than wealthy people;
   e) none of the above.

5. Which of the following Gini coefficients would indicate the least income disparity:
   a) 0.12
   b) 0.28
   c) 0.56
   d) 0.78

6. Which of the following situations leads to the tragedy of the commons?
   a) Rival goods that are excludable.
   b) Rival goods that are non-excludable.
   c) Non-rival goods that are excludable.
   d) Non-rival goods that are non-excludable.
Section B: Graphs, Calculations, and Analyses

Complete the following questions on this paper. (13 marks)

1. i) Use the graph below to illustrate a marginal revenue product curve for a firm that makes socks. (1 mark)

ii) Label both of the axis as would be appropriate for the marginal productivity theory of wages. (1 mark)

iii) Use this graph to demonstrate how this firm’s hiring decision would be impacted by a decrease in the market price for socks. (2 marks)

iv) In the space below, explain why a firm will generally continue to hire employees until the final employee costs as much as he earns. (2 marks)

2. i) Use the graph below to show how a monopsony (ex. NASA) determines the quantity and wage rate for employees (ex. astronauts). Be sure to draw the Marginal Revenue Product, Marginal Cost, and Supply curves, and show the wage paid and the quantity hired. (1 mark)

iv) In the space below, explain why such a firm will hire fewer employees than a competitive market. (2 marks)
3. Examine the following graph, and then answer the questions that follow.

i) According to the dotted Lorenz curve (not the dashed one) how much of society’s wealth is controlled by the wealthiest 50% of the population? (1 mark)

ii) According to the solid Lorenz curve, how much of society’s wealth is shared by the poorest 50% of the population? (1 mark)

iii) Which of the three Lorenz curves depict the society with the greatest concentration of income in the hands of the wealthiest people: the solid line, the dashed line, or the dotted line? How do you know? (2 marks)
Section C: Written Response

Respond to the following questions within the space provided. (8 marks)

1. Explain why the Marginal Revenue Product of Labour curve for a firm that competes for labour in the factor market is also the firm’s demand curve for labour? (4 marks)

_________________________________________________________________________________________

_________________________________________________________________________________________

_________________________________________________________________________________________

_________________________________________________________________________________________

_________________________________________________________________________________________

_________________________________________________________________________________________

_________________________________________________________________________________________

2. Explain how firms use the implement the “least-cost” principle to determine the quantities of labour and capital that it will employ. (4 marks)

_________________________________________________________________________________________

_________________________________________________________________________________________

_________________________________________________________________________________________

_________________________________________________________________________________________

_________________________________________________________________________________________

_________________________________________________________________________________________

_________________________________________________________________________________________
Section D: Case Study

Read the article on the following page and then respond to the questions below. (8 marks)

1. According to this article, why does the wealthy segment of society have a natural advantage in swaying public policy? (4 marks)

_________________________________________________________________________________________
_________________________________________________________________________________________
_________________________________________________________________________________________
_________________________________________________________________________________________
_________________________________________________________________________________________
_________________________________________________________________________________________
_________________________________________________________________________________________
_________________________________________________________________________________________
_________________________________________________________________________________________
_________________________________________________________________________________________
_________________________________________________________________________________________

2. Outline and elaborate upon any one of the policies that Oxfam suggests the global community could work towards to improve inequality. (4 marks)

_________________________________________________________________________________________
_________________________________________________________________________________________
_________________________________________________________________________________________
_________________________________________________________________________________________
_________________________________________________________________________________________
_________________________________________________________________________________________
_________________________________________________________________________________________
_________________________________________________________________________________________
_________________________________________________________________________________________
_________________________________________________________________________________________
_________________________________________________________________________________________
Richest 1% will soon own 50% of all wealth, Oxfam warns
One in 9 people can't afford to eat every day, group says

CBC News Posted: Jan 19, 2015 9:04 AM ET

The richest one per cent of people globally are poised to own more than half of all wealth by next year, international inequality watchdog Oxfam warns in a report released today.

The Oxfam was timed to coincide with the start of the upcoming Davos World Economic Forum, an annual gathering in the Swiss city of influential policymakers to discuss issues that affect the global economy.

The group's research shows the share of wealth owned by the richest one per cent has increased from 44 per cent six years ago in 2009 to 48 per cent last year. And the uneven distribution doesn't just spike at the very end — the top 20 per cent are still doing well for themselves.

**1 billion people earn $1.25 a day**

The poorest 80 per cent own just 5.5 per cent of the world's wealth. That means four-fifths of everyone in the world have an average of $3,851 US to their name.

Although people tend to assume the cutoff to be included in the one per cent would be a gargantuan amount of money, the reality is quite different: the average wealth of the "one percenters" is $2.7 million.

Oxfam made headlines this time last year with a similar report, which found that the world's 85 richest people had as much wealth as the poorest 50 per cent — more than 3.5 billion people. This year, that group was even more rarified — as few as 80 people now own more than the poorest half of all humans on earth do combined.

"One in nine people do not have enough to eat and more than a billion people still live on less than $1.25 a day," Oxfam said in a release.

"Do we really want to live in a world where the one per cent own more than the rest of us combined?" Winnie Byanyima, Oxfam's executive director, said in a statement. "The scale of global inequality is quite simply staggering, and despite the issues shooting up the global agenda, the gap between the richest and the rest is widening fast."

The group says a few simple policies could help tip the scales back towards a more equitable solution. They include investing in things like universal health care and education for everyone, ensuring global standards for child and elder care, and closing the wage cap between men and women.

The group's paper outlines a few policies that the global community could work towards to make a real dent in inequality.

They include:

- Clamping down on tax dodgers by closing tax-evading loopholes that are only available to multinational corporations and extremely rich individuals
- Share the global tax burden more fairly by shifting the onus of taxation away from consumption and income and on to capital and wealth.
- Introduce minimum wage standards and work towards a living wage for all workers.

The report cites a few sectors in particular for being major roadblocks to inequality, by using their pre-existing power and influence to sway legislation in their favour.

The health-care and financial services industries spent almost $900 million to lobby the U.S. government for favourable legislation in 2013, and more than $200 million was spent on lobbying in the EU, Oxfam said.

"A small number of people are capturing political power, they have the power," Oxfam's executive director Julie Delahanty said in an interview with CBC News. "The amount of lobbying that's done to ensure that they continue to have that advantage and make that amount of money is part of what the problem is."
GW Company produces and sells hats in a perfectly competitive market at a price of $2 per hat. Assume that labor is the only variable input and the wage rate is $15 per unit of labor per day. The table below shows GW’s short-run production function for hats.

<table>
<thead>
<tr>
<th>Number of workers per day</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output of hats per day</td>
<td>0</td>
<td>10</td>
<td>26</td>
<td>36</td>
<td>44</td>
<td>49</td>
<td>52</td>
</tr>
</tbody>
</table>

(a) After which worker do diminishing marginal returns begin?
(b) Calculate the marginal physical product of the fifth worker.
(c) Calculate the marginal revenue product of the third worker.
(d) How many workers will GW hire to maximize profit?
(e) If GW Company has fixed costs equal to $20, what will be the company’s short-run economic profits from hiring two workers?
(f) If the price of hats increases, what will happen to the number of workers hired in the short run? Explain.
Section A: Multiple Choice

Indicate the option that correctly completes the statement. (1 mark each = 10 marks)

1. If the most recent worker hired by a firm (which competes in the market for labour) produces 16 units a day of a product that sells for $5.00 per unit, the worker works for eight hours a day, and the worker’s wage rate is $8.00 an hour, then the marginal revenue product (per day) of that worker is:
   a) $5.00
   b) $8.00
   c) $64.00
   d) $80.00
   e) none of the above.

2. A monopsony would tend to:
   a) pay a higher wage rate than a competitive firm;
   b) pay a lower wage rate than a competitive firm;
   c) hire the same quantity of labour than a competitive firm;
   d) hire a greater quantity of labour than a competitive firm;
   e) b and c.

3. A given firm can hire labour and capital as input factors. Labour costs $12.00 an hour and capital costs $20.00 an hour. At the firm’s current level of production, labour is producing 30 units per hour and capital is producing 100 units per hour. Bearing in mind that all inputs are subject to the law of diminishing returns, what should this firm do decrease the cost of its current level of production?
   a) hire more labour and more capital;
   b) hire less labour and less capital;
   c) hire less labour and more capital;
   d) hire more labour and less capital;
   e) hire the same amount of labour and the same amount of capital.

4. Engel’s law states that:
   a) wealthy people purchase more food than poor people;
   b) poor people tend to buy less luxury items than poor people;
   c) wealthy people tend to spend a greater percentage of their income on food than poor people;
   d) poor people tend to spend a lower percentage of their income on food than wealthy people;
   e) none of the above.

5. Which of the following Gini coefficients would indicate the least income disparity:
   a) 0.12
   b) 0.28
   c) 0.56
   d) 0.78

6. Which of the following situations leads to the tragedy of the commons?
   a) Rival goods that are excludable.
   b) Rival goods that are non-excludable.
   c) Non-rival goods that are excludable.
   d) Non-rival goods that are non-excludable.
1. i) Use the graph below to illustrate a *marginal revenue product curve* for a firm that makes socks. (1 mark)

ii) Label both of the axis as would be appropriate for the *marginal productivity theory of wages*. (1 mark)

iii) Use this graph to demonstrate how this firm's hiring decision would be impacted by a decrease in the market price for socks. (2 marks)

iv) In the space below, explain why a firm will generally continue to hire employees until the final employee costs as much as he earns. (2 marks)

A firm will generally continue to hire employees until the final employee costs as much as he earns because until that point each worker was earning more than he cost. Therefore, the profit extracted from labour will be maximized at the point where the $\text{MRPL}_L$ is equal to the $\text{MC}_L$.

2. i) Use the graph below to show how a monopsony (ex. NASA) determines the quantity and wage rate for employees (ex. astronauts). Be sure to draw the Marginal Revenue Product, Marginal Cost, and Supply curves, and show the wage paid and the quantity hired. (1 mark)

iv) In the space below, explain why such a firm will hire fewer employees than a competitive market. (2 marks)

A monopsony will hire fewer employees than a competitive market because it will hire a quantity where its marginal cost of labour is equal to its marginal revenue product of labour. However, because its MCL rises more quickly than the supply of labour, this quantity of labour will be reached before it reaches market equilibrium.
3. Examine the following graph, and then answer the questions that follow.

![Crossing Lorenz Curves](image)

i) According to the dotted Lorenz curve (not the dashed one) how much of society’s wealth is controlled by the wealthiest 50% of the population? (1 mark)

63%

ii) According to the solid Lorenz curve, how much of society’s wealth is shared by the poorest 50% of the population? (1 mark)

22%

iii) Which of the three Lorenz curves depict the society with the greatest concentration of income in the hands of the wealthiest people: the solid line, the dashed line, or the dotted line? How do you know? (2 marks)

The dashed line represents the greatest concentration of wealth in the upper income segment of society because the wealthiest 25% of the population owns 60% of the wealth, as opposed to 51% for the solid line and 37% for the dotted line.
1. Explain why the Marginal Revenue Product of Labour curve for a firm that competes for labour in the factor market is also the firm's demand-curve for labour? (4 marks)

The Marginal Revenue curve is also the firm’s demand curve because the quantity of labour that the firm will hire will be set where the MRPL curve intersects the prevailing wage rate (which is taken from the market because a firm that “competes” for labour is a “wage-taker”).

Thus, the MRPL curve is satisfying the definition of demand, which is “the quantity that will be purchased across various different prices over a given period of time.”

2. Explain how firms use the implement the “least-cost” principle to determine the quantities of labour and capital that it will employ. (4 marks)

Firms seek to maximize productivity from the fewest productive resources possible. Thus, they will divide their money across various factors of production until each dollar spent on each factor of production delivers approximately the same productivity. Naturally, if money spent on a given factor would generate more productivity than another factor, then more money will be directed toward that factor. As this happens, marginal productivity for that factor falls (due to diminishing returns). This happens until the productivity per dollar of all factors of production becomes the same.
Section D: Case Study

Read the article on the following page and then respond to the questions below. (8 marks)

1. According to this article, why does the wealthy segment of society have a natural advantage in swaying public policy? (4 marks)

   The article suggests that the wealthy segment of society have a natural advantage in swaying public policy because they use their pre-existing power and influence to sway legislation in their favor. The article cites the health care and financial services industries as examples, stating that these industries “spent almost $900 million to lobby the U.S. government for favorable legislation in 2013.” Oxfam’s executive director, Julie Delahanty, says, “A small number of people are capturing political power,” and part of the problem is the amount of high priced lobbying that’s done to ensure that these same people “continue to have that advantage.”

2. Outline and elaborate upon any one of the policies that Oxfam suggests the global community could work towards to improve inequality. (4 marks)

   One policy Oxfam suggests might work towards improving income inequality is Sharing the global tax burden more fairly by shifting the taxation from consumption and income toward capital and wealth. This would allow people to i) keep more of the money they earn as wages, and ii) not pay so much tax when they spend money. Rather, more tax should be charged on wealth generated from ownership of productive resources, such as investments in corporations, or even private ownership of firms. Presumably, this would include higher corporate tax rates as well as higher taxes on the capital gains generated when assets such as stocks, bonds, property, and private firms are sold.
Question 3

7 points \((1 + 1 + 3 + 2)\)

(a) 1 point:
- One point is earned for stating that \(\text{MRP}=\text{MFC}\).

(b) 1 point:
- One point is earned for calculating the price: \(\$30/20 = \$4\)

(c) 3 points:
- One point is earned for a correctly labeled graph with downward-sloping demand curve.
- One point is earned for drawing a horizontal supply curve.
- One point is earned for showing equilibrium amount of labor.

(d) 2 points:
- One point is earned for stating that the amount of labor will increase.
- One point is earned for explaining that \(\text{MRP}>W\).