KÖZGAZDASÁGI ALAPISMERETEK
(ELMÉLETI GAZDASÁGTAN)
ANGOL NYELVEN

EMELT SZINTŰ ÍRÁSBELI VIZSGA

2010. május 14. 8:00

Az írásbeli vizsga időtartama: 180 perc

Pótlapok száma
Tisztázati
Piszkozati

OKTATÁSI ÉS KULTURÁLIS
MINISZTÉRIUM
Important information

The test sheet is complex, broken down into sections according to the different types of questions. When working out the solution, please take into account the additional information in italic font. Please follow the instructions when answering the questions. Maximum score will only be given if all subsections of the question have been answered.

Solutions and elaborations should be written on the test sheet. All drafts should be written on the additional pages provided. If the answer requires additional pages, please indicate this next to the relevant question.
Pencils may be used to draw up diagrams, the final solution, however; has to be finalized by pen.
Please use a ruler to draw precise diagrams.
You may only use non-programmable calculators during the written examination.

Good luck with your examination!
Multiple choice questions

We have provided four possible answers that correctly complete the statements in the questions, but only one of these answers is correct. The other answers are either partially correct or completely wrong. Choose the letter corresponding to the correct answer and write it into the table below, into the field corresponding to the given question number. Attention! Only one answer will be accepted. No points will be awarded for multiple or unclear answers.

<table>
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<th>4</th>
<th>5</th>
<th>6</th>
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</table>

1. If the price of margarine increases, ceteris paribus, by 5%, then the demand of butter increases by 8%. Based on the cross-elasticity calculated from the data, the relationship of the two products is characterised by the following statement:
   a) butter is the supplementary product of margarine
   b) the changes in the demands of butter and margarine have the same direction
   c) the demand of butter increased, because the quantity in demand of margarine decreased
   d) All of the above are correct.

2. If the equation of the budget line of a consumer for goods \(x\) and \(y\) is \(y = 100 - 4x\), then this tells us that
   a) the price of good \(x\) is four times that of good \(y\).
   b) the maximum purchasable quantity of good \(y\) is \(100 * 4 = 400\).
   c) the spendable income of the consumer is 100.
   d) All of the above are correct.

3. Which of the following statements is incorrect?
   a) The present value of a money amount expected in the future can be calculated by discounting.
   b) Capitalised value does not depend on the market price of the capital good.
   c) If the net present value of an investment is zero, then the market rate of interest is equal to the internal rate of return.
   d) If the market rate of interest is greater than the internal rate of return, then the investment is worth making.

4. Suppose that there are foreign workers from country B working in country A, and they transfer a significant portion of their wages home. The income transferred home by the workers
   a) is considered part of the GDP in country A.
   b) is considered part of the GNI in country A.
   c) is considered part of the NNDI in country B.
   d) none of the above statements are correct.
   e) Answers a) and c) are both correct.
   f) Answers b) and c) are both correct.
5. On the equilibrium labour market of a national economy, we see that real wage remains unchanged regardless of how price levels change. Such a macro-economic model is characterised by the following:
   a) nominal wage cannot be fixed.
   b) employment is at a maximum.
   c) the macro-supply function is a vertical line.
   d) all three statements are true.

6. Suppose that there is a progressive tax-system in an economy. This means that
   a) for low incomes they apply a high tax rate.
   b) for high incomes they apply a linear tax rate.
   c) for low incomes the applicable tax rate is lower than for high incomes.
   d) for high incomes payable tax is lowered with tax benefits.
II. Written (elaborative) questions

1. True/false questions

Decide whether the statements below are true or false. Please indicate your decision by writing the letters T (true) or F (false) in front of the statements. Unclear markings or crossed out letters will not be accepted.

ATTENTION! ALL ANSWERS HAVE TO BE EXPLAINED! Indications without explanation will not be awarded any points; all correct explanations are worth 2 points.

1. The basket of goods, in which the utility of the last forint in the case of good A is greater than in the case of good B cannot be optimal for a profit maximising consumer according to Gossen’s 2nd Law.  

3 points

2. If several companies leave the market in a fully competing industry, then the industry supply function shifts to the right.  

3 points

3. If the marginal revenue product of labour is equal to marginal cost, then the company’s factor utilisation is optimal.  

3 points

4. The size of the nominal transactional money supply depends on the price level.  

3 points

5. If there is unemployment in an economy, the employment function is positively sloping.  

3 points

6. Commercial banks cannot issue currency.  

3 points

Total: 18 points
2. Comparison

Briefly explain the relationship between the categories paired below. Firstly, indicate the attributes based on which they can be paired up, namely in what way they are similar; secondly give at least two attributes in terms of which they differ from each other.

2.1. What are the similarities and differences between the following concepts?

**Bonds – Shares**

2.2. What are the similarities and differences between the following concepts?

**Consumption function – Savings function**
3. Complete the missing data

Complete the table below using the correlations you have learnt. Write the missing text or the name of the missing function into the numbered fields. You may also write your answer (indicating the corresponding question number) next to the table.

The table below analyses the relationship of the production function, the marginal product function and the average product function. Please write the missing elements of the correlation or rule within the given line into the numbered fields. When completing the table, please take the following into account:
- fill out the table one line at a time, as each line represents a separate correlation,
- the lines of the table are independent of one another, the correlation for the given line is not affected by the line preceding it,
- The column ‘existing correlation’ represents the area examined or names the condition under which the rule has been determined,
- your task is to complete the missing information so the line determines the correlation for the given function.

<table>
<thead>
<tr>
<th>Existing correlation</th>
<th>Name of examined function</th>
<th>Characteristic or given point of the progression of the selected function</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Example:</strong></td>
<td></td>
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<tr>
<td>In the case of increasing yield</td>
<td>3.0.</td>
<td>increases at an accelerated rate</td>
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<tr>
<td><strong>Solution:</strong></td>
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</tr>
<tr>
<td>3.0. = the production function</td>
<td></td>
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<tr>
<td><strong>Questions:</strong></td>
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<tr>
<td>At the intersection point of two functions</td>
<td>the average product function</td>
<td>3.1.</td>
</tr>
<tr>
<td>While the marginal product function is positive</td>
<td>the production function</td>
<td>3.2.</td>
</tr>
<tr>
<td>Output is at a maximum under given technical conditions, if</td>
<td>the marginal product function</td>
<td>3.3.</td>
</tr>
<tr>
<td>Productivity is at a maximum if</td>
<td>3.4.</td>
<td>is at a maximum</td>
</tr>
<tr>
<td>When the marginal product function progresses under the average product function</td>
<td>the average product function</td>
<td>3.5.</td>
</tr>
<tr>
<td>While the marginal product function increases</td>
<td>the production function</td>
<td>3.6.</td>
</tr>
</tbody>
</table>
4. Analysis, evaluation question

Evaluate the economic impacts of various exchange rate changes and decide which of the statements in the table are true or false.

The image below shows the exchange rate changes of the Hungarian Forint for 2008. The 12 horizontal sections of the graph stand for the changes of one month each, while the markings at the bottom indicate the months of the year. Analyse the diagram and decide whether the statements shown in the table are true or false. Write your answers in the true-false column.

![Graph showing exchange rate changes of the Hungarian Forint for 2008](Source: mnb.hu)

<table>
<thead>
<tr>
<th>Question number</th>
<th>Statements</th>
<th>True, false</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example</td>
<td>The rising exchange rate is favourable for those who want to change forints into euros.</td>
<td><strong>False</strong></td>
</tr>
<tr>
<td>4.1.</td>
<td>The forint was strongest against the euro in September.</td>
<td></td>
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<tr>
<td>4.2.</td>
<td>In May, the forint strengthened and this change stimulated tourism, as well as incoming euro and purchasing tourism.</td>
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<tr>
<td>4.3.</td>
<td>July’s exchange rate change was an unfavourable development for domestic commodity exporters.</td>
<td></td>
</tr>
<tr>
<td>4.4.</td>
<td>As a result of the exchange rate change in October, the payment instalments of foreign currency loans rose significantly.</td>
<td></td>
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<tr>
<td>4.5.</td>
<td>March was one of the months when a drop in commodity imports could be expected due to the strengthening of the forint.</td>
<td></td>
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</tbody>
</table>

Explain your answer for question 4.3.
III. Calculation and plotting questions

Follow the instructions indicated for each question carefully: complete the necessary calculations and/or prepare the diagrams according to the given specifications. Mark your answers with the number of the corresponding sub-question. In the case of calculation questions, indicating results only will not be sufficient; the theoretical foundations for the calculations as well as applied formulas must also be indicated on the work sheet.

Question 5

On a fully competing market, with the current short-term equilibrium, demand and supply conditions can be described using the following functions:

\[ Q^D = 240 - 4P \]
\[ Q^S = 60 + P \]

Each unit of Q stands for 1000 products.

5.1. Calculate how many companies are currently producing on the market, if the marginal cost function of a company is the following: \( MC = q^2 - 3q + 26 \). Each unit of the \( q \) in the MC function stands for one (1) product.

5.2. Suppose consumers acquire new information regarding the product’s utility. Due to negative environmental effects accompanying the use of the product, consumers are now only willing to buy each product for half the original price. Write down the equation of the demand function corresponding to this new condition and solve for \( Q \).

Total: 8 points
Continuation of the solution of Question 5
Grandma, who is a pensioner, won HUF 3 million with a scratch-and-win ticket. She is encouraging her grandson Dönci, who is a university student, to start up an enterprise together. Her suggestion is to establish a limited partnership, and to lease and operate the ice cream parlour on the corner.

Dönci has decided to give the idea some thought, looked at all possibilities and made the following calculations:

- Legal fees related to the process of establishing the enterprise would amount to HUF 450 000.
- The ice cream parlour is offered for a lease of two years. The shop is operational as it is, however, the extension of the operating licence would definitely require the facility to get a new painting job done, as well as the changing of water taps and the procurement of a new cash register. Dönci would also like to replace the refrigeration counter with modern, less noisy equipment. Renovations and the replacement of machines would be covered by HUF 1 800 000. The wear and tear period of these machines is 2 years.
- Monthly rent can be determined by two methods. During summer months (from 1 April to 31 October to be precise) within the framework of the lease relationship raw materials are supplied if needed at scheduled intervals for a monthly fee of HUF 4.5 million. This is a lump-sum payment, and is not impacted by how much raw material is used in the given month. If the shop is closed for business (meaning it’s not in operation) and no raw materials are needed, then the rental fees of the shop amount to HUF 1 million per month. Based on previous experiences the ice cream parlour will only operate during the months of summer.
- Besides rental fees, they also have to pay overhead costs (refrigeration, lighting, water consumption) Experiences show that on average these costs amount to HUF 120 000 per month.
- Because of opening hours, the help of a full-time, as well as a part-time employee will be needed besides Grandma, who will also be working full-time. If the enterprise succeeds in hiring student employees, then monthly wage payments and contributions will amount to HUF 392 000. Wages are payable only when the ice cream parlour is open.
- Grandma resigns from her 4-hours-a-day ticket controlling job, where she was earning HUF 60 000 every month.
- Dönci does not do any physical work at the ice cream parlour, however, he does the accounting all on his own. In order to be able to perform this task, he gives up teaching English and decides to quit his journalist position. Until now these two jobs ensured an average joint monthly income of HUF 50 000.
- Due to uneven income distribution, the enterprise will have to take out loans to be able to pay the rent. In the worst case scenario, this would mean a period of three months during which the deficit would amount to HUF 1.0; 1.2; and 1.8 million. The rent for the winter months would also have to be paid from loans. These loans each have terms of one month, which means 1 month interest is to be paid for their disbursement in each case.
- Loan interest rate is an annual 15%, and deposit interest rate is 8%.

After completing the necessary calculations, answer the following questions. Give all results in HUF thousand.
6.1. Prepare an itemised report of explicit costs, listing all costs and determining the aggregate size of these costs for one year. Use the table provided below to indicate your response. *(We have provided more lines than actually needed in order to provide sufficient space in case an incorrectly filled out field needs to be crossed out and the new, correct solution written in a new line)*

6.2. Prepare an itemised report of implicit costs, listing all costs and determining the size of these costs per year.

6.3. Calculate what first year turnover is necessary in order for the enterprise not to show losses. (Suppose that the lease agreement is valid as of the 1st of January, and this is when they start paying rent.)

6.4. Suppose next year (from September) Dönci continues his studies in England as he wins a scholarship and can no longer be involved in the enterprise. As a result, accounting tasks must be performed by an outside accountant. The wage of this accountant is HUF 300 000 for four months. How does accounting cost and economic profit change as a result? Calculate the new values of these two categories following the changes, if annual revenues are HUF 44 million according to estimates.

**Assistance for the solution of Question 6**

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<tr>
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<td>IMPLICIT</td>
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</table>
Continuation of the solution of Question 6
Question 7

In a two-player economy, with a 12 percent interest rate there is equilibrium on the commodity market and income is 4000. If the interest rate would decrease by 5 percent, the new equilibrium income would be 9000.

7.1. Write down the equation of the consumption function, if the investment demand function can be given as

\[ I(i) = 1500 - 10000i \]

where \( i \) is equal to one hundredth of the interest rate

The data available on the money market of the economy is the following: money demand function is

\[ MD = 0.8Y - 10000i + 400 \]

real money supply is \( M^d / P = 4200, P = 1 \). (Again: \( i \) is equal to one hundredth of the interest rate.)

7.2. Calculate the size of the income and interest rate that ensure the joint equilibrium of the commodity market and the money market.

As a result of movements of the exchange rates that were unfavourable for the country, the central bank has raised the central bank interest rate by 50 basis points, as a result of which the money-market rate increased by 1 percent.

7.3. Characterise the impact the interest rate increase has on commodity market and the money market according to the following. Supposing there is an unchanged income level, calculate what market situation the change results in, and determine the size of excess demand or oversupply on both markets that come about as the result of the interest rate change.
Continuation of the solution of Question 7
Question 8

The production function of an economy is \( Y = 66 \cdot L - \frac{L^2}{960} \), where the value of \( L \) is given in persons. We have the following data on the composition of the population: the size of the population is \( 4800 \) persons, of which \( 3600 \) persons are working age, and \( 12.5 \) percent of the population is inactive.

We know the labour demand and labour supply functions:

\[
L^D = 2640 - 48\frac{W}{P}, \quad \text{and} \quad L^S = 96\frac{W}{P} - 240, \quad \text{The current level of real wage is 30 units.}
\]

8.1. Mark the number of the active population with \( L^* \), and calculate its size based on the data in the example.

8.2. Calculate how many persons are employed in the current state of the economy.

8.3. Calculate precisely the current value of macro-level output.

8.4. Determine what the value of potential output would be in this economy.

8.5. At the wage level determined under the initial conditions, determine the total number of unemployed and distinguish the number of voluntary and involuntary unemployed.

8.6. Calculate the activity rate and the unemployment rate at the current level of employment.
Közgazdasági alapismeretek (elméleti gazdaságtan) angol nyelven — emelt szint

Azonosító jel:
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<th>Points Scored</th>
<th>Maximum points of topic</th>
<th>Points scored in topic</th>
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<td>3. Complete the missing data</td>
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<td>Question 8</td>
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<td><strong>Points scored in written examination</strong></td>
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Correcting teacher

Date: ..................................

Javító tanár / Correcting teacher

Programba beírt egész szám / Points entered into programme

Notary