Azonosító jel:

ÉRETTSÉGI VIZSGA • 2016. május 18.

KÖZGAZDASÁGI ALAPISMERETEK (ELMÉLETI GAZDASÁGTAN) ANGOL NYELVEN

EMELT SZINTŰ ÍRÁSBELI VIZSGA

2016. május 18. 8:00

Az írásbeli vizsga időtartama: 180 perc

Pótlapok száma	
Tisztázati	
Piszkozati	

EMBERI ERŐFORRÁSOK MINISZTÉRIUMA

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 diagrams, the final solution, however; has to be finalised in 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!

Test questions

Multiple choice questions (6 · 2 = 12 points)

We have provided 4 possible answers that correctly complete the statements below, 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.

Points scored	

1.	2.	3.	4.	5.	6.

1. **Let's assume that due to the price increase of *Product A*, the quantity sold of *Product B* increases. We can thus conclude that**
   a) the demand for *Product A* is inelastic, and the demand for *Product B* is elastic.
   b) the cross-price elasticity of the two products has a negative sign and, therefore, the two products are complementary products.
   c) the cross-price elasticity of the two products has a positive sign and, therefore, the two products are substitute products.
   d) *Product A* is inferior, and *Product B* is a luxury good.

2. **If the average product determined at a given factor quantity is 4 and the marginal product is 2, then …….. of the production function.**
   a) a) the company is producing on the accelerating section
   b) b) the company is producing at the maximum point
   c) c) the company is producing on the decreasing section
   d) d) the company is producing on the decreasing profit section

3. **The individual labour supply function is backward bending, because**
   a) with a high hourly wage, wage has greater utility than leisure time.
   b) with a high hourly wage, the employer values leisure time more than wage.
   c) with a minimum hourly wage, the working time stipulated by law always appears as supply.
   d) sacrificing leisure time for a low hourly wage is not worthwhile.

4. **Which statement defines price level correctly?**
   a) Shows how many products can be purchased from one unit of income.
   b) Shows how inflation changes from one year to the next.
   c) The indicator that can be calculated as the weighted average of the price of products and services.
   d) The indicator corresponding to the inflation rate.

5. The budget has deficit if the following correlation holds true for the numerical data on the state's current items account:

a) $G+TR-T < 0$
b) $G+T+TR > 0$
c) $G+TR-T > 0$
d) $T > G+TR$

6. If the money supply in circulation in an economy increases then, if money demand elements remain unchanged, money market equilibrium

a) is established at an interest rate higher than before.
b) is established at an interest rate lower than before.
c) is established at an interest rate identical to the rate before.
d) equilibrium interest rate could change in any direction.

Written (long-answer) questions

Points scored	

1. True-False statements (6 · 3 = 18 points)

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. Indication of the letter in itself will not be awarded any points, we shall only evaluate solutions WITH explanations. All correct explanations are worth 2 points.

1) In the case of a price increase of a good with inelastic demand, the quantity purchased of the good will change because the consumer's expenses increase.

3 points	

2) The difference of sales revenue and explicit cost is lower than accounting profit.

3 points	

3) If in case of the additional production of a product, MSB is greater than MSC, while the condition MC=MR holds true, then from a social perspective expanding production is undesirable.

3 points	

4) If primary income from abroad in an economy exceeds primary income transferred abroad, then GDP is greater than GNI.

3 points	

5) If the taxes imposed exceed transfers in an economy, then the budget will surely have deficit.

3 points	

6) The deficit of the current account makes the utilisation of foreign capital necessary.

3 points	

Points scored	

2. Complete the table (4 points)

By considering and weighing the aspects of a certain market player, you must choose from two alternatives. You must enter your selection, as well as the indicator taken into account into the appropriate field of the table.

You must compare the two alternatives and select the one that is more favourable for the economic player/decision maker. When making your decision, take the following into account:

- when making the decision, you must compare the information shown in the table, from all other aspects the various alternatives are identical,
- you must compare the two different options on the basis of the same indicator, and you must also name this indicator
- for each question, the more favourable option is the one that ensures greater profit for the decision maker.

Answer the following questions. First determine the indicator that will serve as basis for the decision/selection, then use this indicator to select the more favourable option.
Complete the table based on your answers to the questions.

2.1. Which investment is worth making?

Data known		Indicator (name or letter)	Letter of the more favourable option
X	Y		
Purchase price: = HUF 10 000 000 Capitalised value: = HUF 8 000 000	Purchase price: = HUF 12 000 000 Net present value: = HUF 100 000		

2.2. How should the arable land be utilised?

Data known		Indicator (name or letter)	Letter of the more favourable option
X *(e.g. fruit)*	Y *(e.g. cereal)*		
Factor marginal product: = 2 tons/hectare Marginal revenue product = HUF 120 000/hectare	Factor marginal product: = 3 tons/hectare Product unit price = HUF 43400/ton		

Points scored	

3. Pairing up (4 points)

Pair up the following groups according to the aspects indicated, and fill in the table.

Determine how the changing of the various factors impacts the consumption function. Pair up the events indicated with numbers to the consequences corresponding to the change of the consumption function.

Write the correct letters into the columns corresponding to the numbers. (Attention, a given letter may repeat several times!)

EVENTS

Example: The marginal propensity to consume decreases

3.1. Autonomous consumption increases, and the marginal propensity to consume increases
3.2. Autonomous consumption increases, and the marginal propensity to save increases
3.3. With unchanged autonomous consumption and marginal propensity to consume, a lump-sum tax to be paid from income
3.4. With unchanged autonomous consumption and marginal propensity to consume, a 10% income tax to be paid

CONSEQUENCE

A) the function's vertical intercept increases, its slope decreases
B) the function's vertical intercept increases, its slope also increases
C) the function's vertical intercept decreases, its slope increases
D) the function's vertical intercept remains unchanged, its slope decreases
E) the function's vertical intercept decreases, its slope remains unchanged

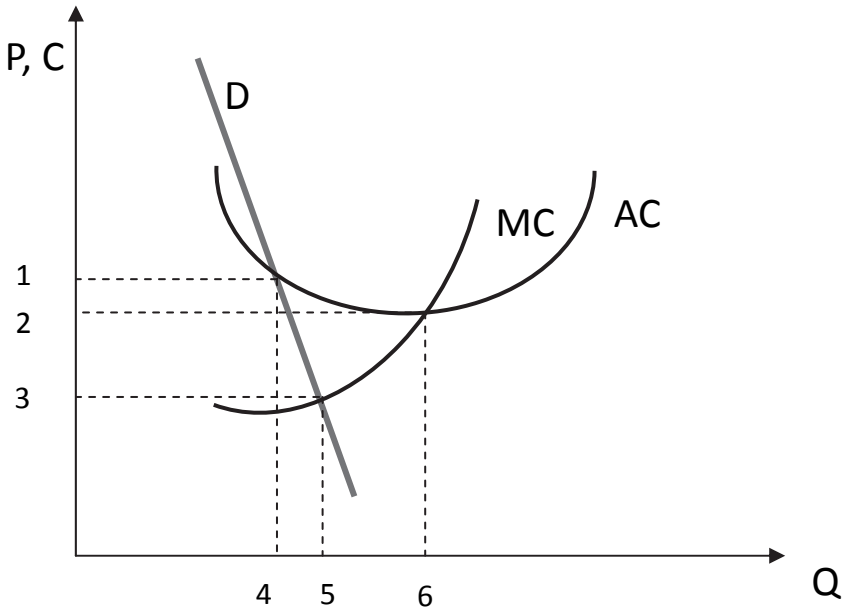
Event number	*example*	**3.1.**	**3.2.**	**3.3.**	**3.4.**
Change of the consumption function	*D*				

Points scored	

4. Comparison (7 points)

Based on the aspects indicated, you must compare the various possibilities of the price regulation by the state of a natural monopoly.

Let's assume that a natural monopoly exists in a given sector, where the relationship between market demand and costs can be described as follows:



4.1. Describe how costs develop with **production that ensures the satisfaction of solvent demand**. *Complete the following statements so that they become true. (Write the correct term in italic font on the dotted line.)*

A) With the increase in production, average cost ……..…… *(increases/decreases/remains unchanged).*

B) Marginal cost is …….. *(lower than/greater than/equal to)* average cost.

4.2. Let's assume that in the interest of reducing welfare losses, the state introduces price regulation and sets **market price at a level equal to marginal cost**. How much will the monopoly produce with this price? Of the numerical options provided, select the quantity produced (Q_2) and the price (P_2).

Write the letters of the quantity and price into the empty field corresponding to the number selected.

1.	2.	3.	4.	5.	6.

4.3. Complete the table with (draw) a rectangle which illustrates the profit/loss realised by the monopoly in this particular market situation. (Indicate the rectangle's area with lines drawn into it.)

4.4. How would the market situation and the monopoly's profit change if the state would set **a price equal to average cost**? Consider the effects of this state measure, and complete the following statements so that they become true.
(Write the correct term in italic font on the dotted line.)

A) This official price is ……... *(lower than/greater than/equal to)* the marginal cost corresponding to the given production. With this price, the monopoly's revenue from sales is …… *(lower than/greater than/equal to)*, its total cost.

B) In this situation, in order to recover the monopoly's costs, state support is …… *(required/not required)*.

C) From the perspective of consumers, the change of the market situation is …….. *(favourable/unfavourable/neutral)* to the situation before, because at this point price is ……..…… *(lower/higher/the same)*, and the quantity supplied is ……. *(more/less/the same)* than it would be in case of a price equal to marginal cost.

Points scored	

5. Analysis and evaluation question (7 points)

Use the macro-economic correlations of the labour market to complete the table, and evaluate the correlations between the various categories.

The table below summarises Hungary's employment statistics for the 2011-2013 period. The data in some of the fields of the table are missing.

Period	**2011**	**2012**	**2013**
Number of employed (thousand people)	3812		3938
Number of unemployed (thousand people)	468	475	
Number of economically active (thousand people)			4387
Number of economically inactive (thousand people)		3303	
Population between the ages of 15-74 (thousand people)	7676	7656	7630

Source: KSH (HCSO) Economic activity of the population between the ages of 15–74 (1998–2013) http://www.ksh.hu/docs/hun/xstadat/xstadat_eves/i_qlf001.html

5.1. Complete the active population data series based on the correlations existing between the population groups. Select the correct values from the numbers shown below, and enter them into the table's **"economically active"** line.

4280	3396	3243	3878	449	4353

5.2. Using the basic data in the tables, we can determine various indicators/rates for the analyses. Using the above table, we have calculated the following indicators:

Indicators (%)	**2011**	**2012**	**2013**
A	55.8	56.9	57.5
B	10.9	10.9	10.2
C	49.7	50.6	51

Identify the various indicators and complete the following table. Enter the missing letter, method of calculation and the indicator calculated to correspond with the year into the appropriate field of the table. The first line of the table shows an example written in *italic font*.

Letter	Name of indicator	Method of calculation	Numerical value of indicator	
			year	data
C	*Employment rate*	*The proportion of employed to the whole population*	*2012*	*50.6*
			2011	10.9
	Activity rate		2013	

5.3. Evaluate the statements characterising labour market processes, and determine which are correct reflections of the correlations between categories and which are erroneous. Write the correct letter in the empty column.

Number	**Correlation**	**True-false**
A)	The activity rate drops if women permanently exit the labour market in large numbers to take care of their children.	
B)	The active population increases if the number of unemployed increases as a result of a drop in employment.	
C)	If the unemployment rate decreases, the employment rate definitely increases.	

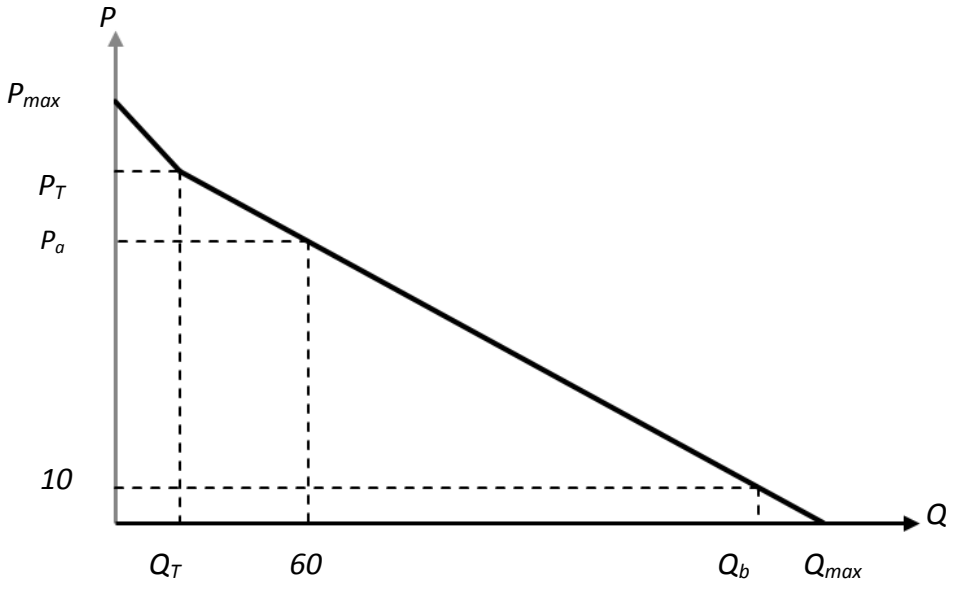
Calculation and Plotting Questions

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, simply indicating end results is insufficient. You also have to indicate the theoretical foundations of the calculations as well as the formulas applied.

Points scored	

Question 6 (12 points)

There are only 2 consumers present in the market of a given product. The individual demand function of the 1st consumer is:
$\boldsymbol{P = 100 - q_1}$, while that of the 2nd consumer is: $\boldsymbol{P = 120 - q_2}$, where P indicates market price, and q_1 and q_2 indicates the quantity demanded by the consumer.
The following diagram shows the aggregate demand function of the two consumers. We have marked some relevant points of the function.



6.1. Calculate the numerical value of the various letters based on known correlations and the markings shown in the diagram.
Complete the following table.

Number	**Name of letter**	**Quantity corresponding to letter**
1)	Reservation price of first consumer *(p_{1m})*	
2)	Reservation price of second consumer *(p_{2m})*	
3)	The vertical intercept of the market demand function P_{max}	
4)	The horizontal intercept of the market demand function Q_{max}	
5)	Price at the market demand breakpoint P_B	
6)	Quantity demanded at the market demand breakpoint Q_B	
7)	Market price in case of a demand of 60 P_a	
8)	Market demand in case of market price of 10 Q_b	

6.2. Write up the equation for the market demand function.

Points scored	

Question 7 (12 points)

Let's assume that in the short-term, the only variable production factor of a company is labour. We know that the company is perfectly competitive on both the product market and the labour market. The conditions and features of its economic management are as follows:

- The equation for the marginal product function of labour: $\boldsymbol{MP_L = 50 - L}$
- the equation of the average product function: $\boldsymbol{AP_L = 50 - 0.5L}$
- average fixed cost can be characterised with the $\boldsymbol{AFC = \frac{6000}{Q}}$function
- the product's market price $\boldsymbol{p = HUF\ 40}$
- labour's unit price is $\boldsymbol{P_L = HUF\ 1200/hour}$

7.1. Calculate how much labour the company uses and how much it produces if it maximises profit.

7.2. Calculate attainable profit.

7.3. Let's assume that the price of labour changes, and the product's market price also changes at the same time. The company re-optimises its situation, and attainable profit is now **804**, while average product is **41** products.
Calculate the new labour wage, the total cost of production and the new product price.

Points scored	

Question 8 (10 points)

The following data is available on the current item accounts of a four-player economy:

- The corporate sector pays wages of W = **480 000** to households.
- The savings of households is S_H = **20 000**.
- The savings of companies is S_C = **140 000**.
- Savings by the state: S_S = **–15 000**.
- The savings of the foreign sector is S_F = **5 000**.
- Companies pay taxes of T_C = **80 000** units and receive state transfers of TR_C = **6000**.
- Households pay taxes of T_H = **15 000** units and receive state transfers of TR_H = **10 000**.

Based on the above, calculate the following values:

8.1. consumption (*C*),
8.2. investment (*I*),
8.3. government purchases (*G*),
8.4. the foreign trade balance *(X-IM)* and
8.5. gross domestic product (*Y*).

Question 9 (14 points)

Points scored	

The following data is available regarding a four-player economy:
Taxes are **T = 800,** transfer are **TR = 600,** investment is **I = 900,** and government purchases **G = 1200.** International relations are characterised by autonomous export, and import depending on disposable income. Export is **X = 1300**, while the import function is:
$IM(Y_{di}) = 420 + 0.1Y_{di}$

In addition, we also know that if the value of income is **$Y_1 = 10\ 000$**, then consumption is: **$C_1 = 9\ 440$**, and that if the value of income is **$Y_2 = 12\ 000$**, then consumption is: **$C_2 = 11\ 040$**.

9.1. Write down the equation for the consumption function as a function of disposable income.

9.2. Calculate equilibrium income, the balance of the budget and the foreign trade balance.

9.3. In the interest of reducing high unemployment, the government is applying budgetary measures. What is the change in income in the open economy if the government increases state purchases by **260** units and autonomous taxes by **200** units?
Calculate the equilibrium income that corresponds to the new conditions in the open economy.

Topic	Question number	Maximum points	Points scored	Maximum points of topic	Points scored in topic
Test Questions	Multiple choice questions 1–6	12		**12**	
Written (long-answer) questions	1. True-false statements	18		**40**	
	2. Complete the table	4			
	3. Pairing up	4			
	4. Comparison	7			
	5. Analysis and evaluation question	7			
Calculation and Plotting Questions	Question 6	12		**48**	
	Question 7	12			
	Question 8	10			
	Question 9	14			
Points scored in written examination				**100**	

Correcting teacher

Date: .....

	pontszáma **egész számra** kerekítve/ Points rounded to a **whole number**	programba beírt **egész** pontszám / Points (**whole number**) entered into programme
Választásos, egyszerű rövid választ igénylő feladatok/ Test Questions		
Szöveges (kifejtendő) feladatok/ Written (long-answer) questions		
Számítást, ábrázolást igénylő feladatok/ Calculation and Plotting Questions		

javító tanár/Correcting teacher

Dátum/Date: .....

jegyző/Notary

Dátum/Date: .....