

ÉRETTSÉGI VIZSGA • 2018. október 25.

**INFORMATIKA
ANGOL NYELVEN**

**EMELT SZINTŰ
GYAKORLATI VIZSGA**

**JAVÍTÁSI-ÉRTÉKELÉSI
ÚTMUTATÓ**

EMBERI ERŐFORRÁSOK MINISZTERIUMA

Important information

The exercises are marked in accordance with the marking given in the key and guide for evaluation. In the guide the identification of the major logical units is facilitated by the texts in the bordered parts. The parts without bordering contain the breakdown of the marks and reference to situations where the given mark can be awarded or cannot be awarded.

To ensure unified evaluation, please do not divert from the marking in the guide. The marks cannot be broken down further than indicated in the guide. If several solutions are given for the same problem, please evaluate the solution with the most given marks. In the case of several good solutions no extra marks can be awarded.

The key and guide for evaluation also serves as an evaluation form. The awardable mark can be found next to the description of the evaluation. The mark awarded by the examiner should be entered into the thick-bordered box next to the mark. The sum of the marks awarded by the examiner should be entered into the cell with grey shading at the end of the exercise, next to the total mark. One evaluation form should be filled for each examination paper and it should be attached to the examination paper (to the candidate's exercise sheet). The candidate receives this form at the viewing of the examination paper. The filling of the form is helped by the electronic marking table provided with the key in Hungarian. If marking is done in this table, then its filled and printed version can be used as an evaluation sheet. For more obvious evaluation and easier handling of subsequent enquiries you may also indicate why you do not award a mark next to the given marks in the electronic marking table.

The total marks awarded for the individual exercises, the mark awarded for the exam should also be indicated on the last page of the examination paper, in the tables provided.

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1. Galileo Galilei

Creating document *galileo*

Document *galileo* exists in the default format of the word processor, which contains the text from file *galtext.txt* with correct accents. The mark cannot be awarded if the document contains unnecessary spaces or paragraphs. (A paragraph is not considered to be empty if it does not contain text but contains a picture, table, table of contents or other object that is important for the exercise.)

1 mark

Page properties

The page size is A4, the orientation is portrait, the top and bottom margins are 2.2 cm, the left and right margins are 2.0 cm

1 mark

General formatting of the text body

The font type is Times New Roman (Nimbus Roman) and the font size is 12 points

1 mark

The spacing before and after the paragraphs is 0 points, the line spacing is single; the indent of the first line is 0.8 cm, the paragraphs are justified. The marks can be awarded even if the settings were not applied to the text of the header, the footer, the footnote or the table of contents.

1 mark

Use and formatting of styles

Used *Heading 1*, *Heading 2* and *Heading 3* styles in the correct parts of the text of the document according to the example

1 mark

The mark can be awarded if the correct style was not used for the required paragraph in at most 3 cases.

At least two of the following six settings are correct:

- The font type of the paragraphs with style *Heading 1* is Times New Roman (Nimbus Roman), the font size is 24 points, the font style is bold, the font colour is black
- The spacing before and after the paragraphs with style *Heading 1* is 0 points and 24 points, respectively and the line spacing is single
- The font type of the paragraphs with style *Heading 2* is Times New Roman (Nimbus Roman), the font size is 18 points, the font style is bold, the font colour is black
- The spacing before and after the paragraphs with style *Heading 2* is 18 points and 12 points, respectively and the line spacing is single
- The font type of the paragraphs with style *Heading 3* is Times New Roman (Nimbus Roman), the font size is 14 points, the font style is italics, the font colour is black
- The spacing before and after the paragraphs with style *Heading 3* is 12 points and 6 points, respectively, the line spacing is single

1 mark

At least four of the above six settings are correct

1 mark

The last two marks can be awarded if the styles were set but they were not used or if the required paragraphs were formatted in the way described above without the use of styles.

All three styles were formatted according to the instructions of the exercise and they were used consistently in every required case

1 mark

Creating the footnotes

Moved the contents of the braces after the quotations into a footnote inserted at the end of the quote and the braces were deleted

1 mark

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Formatting the quotations

At least two of the following settings were made in at least one place in the paragraphs between the quotation marks in chapters “*Galilei’s oath*” and “*The interpretation of the trial in the history of science*”

- the font size is 10 points, the font type is Arial (Nimbus Sans), the font style is italics
- the left indent is 2 cm
- it is bordered by a grey line of width 6 points on the left

1 mark

Each of the above settings was used correctly in the given paragraphs

1 mark

Inserting the pictures and creating the captions

Picture *galpicture.jpg* is on the first page of the document and set the height of the picture to 5 cm keeping the aspect ratio, or picture *pipicture.png* is in chapter “*Physics*” and set the height of the picture to 6 cm keeping the aspect ratio

1 mark

Both pictures are in the correct place, their height is set to the given value keeping the aspect ratio, both are wrapped by the text from the left
Caption “Galileo Galilei” appears below *galpicture.jpg* or caption “Free fall before and after Galileo” appears under *pipicture.png*, it is separated from the text body

1 mark

The format of the caption is the same as the format of the text body, its font style is italics and the indent of the first line is 0 cm for at least one of the captions

1 mark

Both captions are in the correct place and their format is correct

1 mark

Creating the table

There is a table on the first page and it contains the text from file *galtable.txt*

1 mark

The table has two columns, the width of the left column is 2.3 cm, the width of the right column is 5 cm

1 mark

The table is wrapped by the text from the left

1 mark

In the table the font size is 10 points, the font type is Arial (Nimbus Sans), the indent is 0 cm, the spacing is 0 points and the line spacing is single

1 mark

In the table the background of rows containing text “*Biographical data*” and “*Career*” is grey, the font style is bold

1 mark

In the given rows of the table text “*Biographical data*” and “*Career*” is aligned centred in the cells that are merged horizontally

1 mark

The table is bordered by a thin line from outside, there are no borders within the table

1 mark

Using a numbered list

Used a numbered list for the three paragraphs after sentence “*The sentence had three main parts:*” of chapter “*The sentence*”

1 mark

Creating the header and the footer

There is no header and footer on the first page but they are both present on the other pages; they are aligned left on even pages and right on odd pages

1 mark

The text of the header is word “Galileo” on both even and odd pages, the footer contains the page number

1 mark

The font style of the text of the header is italics, it is separated from the text body by a thin black line

1 mark

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Automatic hyphenation		
Used automatic hyphenation in the whole document	1 mark	<input type="checkbox"/>
Creating the table of contents		
Inserted a new page at the end of the document using page break, text “Table of contents” is displayed at the top of the new page, its format is <i>Heading 2</i>	1 mark	<input type="checkbox"/>
The document contains the table of contents created by the word processor, it contains all titles and the corresponding page numbers	1 mark	<input type="checkbox"/>
Total:	30 marks	<input type="checkbox"/>

2. Percolation

Table <i>percolation</i> exists		
Saved the table as <i>percolation</i> in the default format of the spreadsheet processor and entered the texts	1 mark	<input type="checkbox"/>
The mark can be awarded only if the texts in cells <i>P2:P4</i> are according the example and cell <i>Q2</i> contains a number between 0 and 1		
Creating the initial state		
The width of columns <i>A:N</i> is the same, the height of rows <i>1:30</i> is the same; the width and the height of the cells in the given range differ at most by 10% in normal view;		
and the cells in ranges <i>A1:A13</i> and <i>N1:N13</i> contain value “ <i>B</i> ” and the cells in range <i>B1:M1</i> contain value “ <i>W</i> ”	1 mark	<input type="checkbox"/>
Determined correctly for each cell in range <i>B2:M13</i> whether it should be filled with value “ <i>B</i> ” or left empty correctly using a formula that can be copied flawlessly	1 mark	<input type="checkbox"/>
For example: cell <i>B2</i> contains: <code>=IF(RAND()<=\$Q\$2;"B";"")</code>		
Ratio of cells that block leakage		
Determined the ratio of cells that block leakage correctly	1 mark	<input type="checkbox"/>
For example: cell <i>Q3</i> contains: <code>=COUNTIF(B2:M13;"B")/COUNTA(B2:M13)</code> The mark can be awarded if the denominator contains 144 (or 12*12) instead of the function.		
Creating the simulation		
In the cells of ranges <i>A15:A27</i> , <i>N15:N27</i> and <i>B15:M15</i> the two blocking sides and the upper water layer of the initial state are displayed using a reference	1 mark	<input type="checkbox"/>
For example: cell <i>A15</i> contains: <code>=A1</code>		
Determined the value of the cell using a correct expression in one cell of range <i>B16:M27</i>	1 mark	<input type="checkbox"/>
For example: cell <i>B16</i> contains: <code>=IF(B2="B";"B";IF(OR(A15="W";B15="W";C15="W");"W";""))</code>		
Determined the value of the cell using a correct expression in each cell of range <i>B16:M27</i>	1 mark	<input type="checkbox"/>

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Deciding whether water leaks through the structure		
Displays the correct text depending on leak-through For example: cell <i>Q4</i> contains: =IF (COUNTIF (B27:M27; "W")>0; "Yes"; "No")	1 mark	<input type="checkbox"/>
Setting the formats		
The cells in range <i>A1:N13</i> and <i>A15:N27</i> are bordered by a thin line, the cells in range <i>B2:M13</i> are bordered by a thick line from outside The mark cannot be awarded if other cells are also bordered.	1 mark	<input type="checkbox"/>
The contents of cells <i>Q2:Q4</i> are aligned centred and the numbers are displayed with three decimal figures	1 mark	<input type="checkbox"/>
The cells in range <i>A15:N27</i> are white if they are empty; and either the ones that contain value " <i>W</i> " are blue or the ones that contain value " <i>B</i> " are black	1 mark	<input type="checkbox"/>
Each cell of range <i>A15:N27</i> is coloured according to its contents The mark cannot be awarded if the characters are visible.	1 mark	<input type="checkbox"/>
Determining and representing the water content of the layers		
In the cells of range <i>O15:O27</i> determined the water content of the layers of the simulation correctly using a formula For example: cell <i>O15</i> contains: =COUNTIF (B15:M15; "W")	1 mark	<input type="checkbox"/>
There is a bar chart next to the values in the width of columns <i>P:U</i> so that the bars are displayed next to the their corresponding numbers The longest bar fits on the horizontal scale of the chart exactly, the chart has no legend and no title	1 mark	<input type="checkbox"/>
	1 mark	<input type="checkbox"/>
Total:	15 marks	<input type="checkbox"/>

3. Paper subscription

Creating the database		
Created a database with name <i>delivery</i> and imported the tables into it The mark cannot be awarded if the encoding of the database is incorrect.	1 mark	<input type="checkbox"/>
The given fields are of the given type	1 mark	<input type="checkbox"/>
Created field <i>id</i> of type autonumber in table <i>subscriptions</i>	1 mark	<input type="checkbox"/>
Set the given fields as keys in the tables	1 mark	<input type="checkbox"/>
Displaying the required fields		
Each saved query displays exactly the required fields The mark can be awarded if the query that prepares for the report contains other fields as well. The mark cannot be awarded if fewer than three queries were created.	1 mark	<input type="checkbox"/>
Query <i>2monthly</i>		
The query contains the title of the papers and the monthly subscription fees in the alphabetical order of the titles	1 mark	<input type="checkbox"/>
Filters correctly for field <i>monthly</i> not being blank	1 mark	<input type="checkbox"/>
The result is correct The mark cannot be awarded if data are displayed multiple times. For example: SELECT title, monthly FROM papers WHERE monthly IS Not Null ORDER BY title;	1 mark	<input type="checkbox"/>

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Query 3several

In the query the subscriber's name, street and house number are displayed and the required tables are used

1 mark

The connection between the tables is correct or the subquery or auxiliary query is built in correctly

1 mark

Groups correctly for the subscriber's identifier (*subid*)

1 mark

Group filtering for the number of papers is correct

1 mark

For example:

```
SELECT sname, street, housenumber
FROM subscribers, subscriptions
WHERE subscribers.id = subscriptions.subid
GROUP BY subid, sname, street, housenumber
HAVING Count(subid)>=4;
```

or

```
SELECT sname, street, housenumber
FROM subscribers
WHERE subscribers.id in (SELECT subid
FROM subscriptions
GROUP BY subid
HAVING Count(id)>=4);
```

Query 4total

Used exactly the required tables and the connection between them is correct

1 mark

Filters correctly for street and house number

1 mark

Sums annual subscriptions correctly

1 mark

For example:

```
SELECT Sum(annual) AS Total
FROM papers, subscribers, subscriptions
WHERE subscribers.id = subscriptions.subid AND
papers.id = subscriptions.paperid AND
street='Bodor utca' AND housenumber='13';
```

Query 5discount

The query determines the difference of 12 times the monthly subscription fee and the annual subscription fee

1 mark

The mark can be awarded independently from the sign of the difference.

Displays the name of the paper and the calculated value

1 mark

Ensured that only the paper with the highest difference is displayed in the output

1 mark

The mark can be awarded if in the case of negative differences only the smallest is displayed.

For example:

```
SELECT TOP 1 title, 12*monthly-annual AS Discount
FROM papers
ORDER BY 2 DESC;
```

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Query 6together

Determines the identifier of the subscribers of Magyar Nemzet using tables *papers* and *subscriptions* in a subquery, auxiliary query or within the query itself

1 mark

The subquery, the auxiliary query or the second copy of tables *papers* and *subscriptions* is built into the query correctly

1 mark

Displays the title of papers subscribed to together with Magyar Nemzet but Magyar Nemzet is not displayed

1 mark

Ensures that the title of each paper is displayed only once

1 mark

For example:

```
SELECT DISTINCT title
FROM papers, subscriptions
WHERE papers.id = subscriptions.paperid AND
      subid in (SELECT subid
                FROM papers, subscriptions
                WHERE papers.id = subscriptions.paperid
                AND title='Magyar Nemzet')
AND title<>'Magyar Nemzet';
```

or

```
SELECT DISTINCT p1.title
FROM papers AS p1, subscriptions AS s1, papers AS p2,
      subscriptions AS s2
WHERE p1.id = s1.paperid AND p2.id = s2.paperid AND
      s1.subid= s2.subid AND p2.title='Magyar Nemzet' AND
      p1.title<>'Magyar Nemzet';
```

Query 7weekly

Field *subid* is displayed in the subquery; uses the correct tables and the connection between them is correct

1 mark

Filters correctly for papers other than weekly papers using field *frequency*

1 mark

Saved the completed query and it is correct

2 marks

The mark cannot be broken down.

For example:

```
SELECT subscribers.sname, street, housenumber, papers.title
FROM papers, subscribers, subscriptions
WHERE subscribers.id = subscriptions.subid AND
      papers.id = subscriptions.paperid AND
      subid Not IN (SELECT subid FROM papers, subscriptions
                   WHERE papers.id = subscriptions.paperid
                   AND frequency<>52);
```

Query and report 8rarely

Created the query with the required field names (*topic, frequency, title*)
The mark can be awarded even if fields other than the ones listed above are included in the query.

1 mark

Filters correctly for field *frequency*

1 mark

Displays the required fields in the report, it is grouped according to the example and the titles of the papers are displayed in alphabetical order

1 mark

Laid out the text of the title and the field names according to the example, used capital and small letters correctly in the field names

1 mark

The mark can be awarded in the case of character or case errors provided that there are no more than two such errors.

For example:

```
SELECT topic, frequency, title
FROM papers
WHERE frequency<=12;
```

Total:

30 marks

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4. Fence

The submitted program can be evaluated only if a source file that corresponds to the chosen programming environment exists and it contains the source code belonging to the solution of the exercise parts.

During evaluation, solutions that generate runtime errors or solutions that are partially good should also be evaluated. The mark can be awarded if the part of the code that corresponds to the given element is flawless. Marks are awarded for displaying independently of the use of accents.

Program (or project) <i>street</i> exists		
Program (or project) <i>street</i> exists and it can be run without error The mark can be awarded only if the name is accurate.	1 mark	<input type="checkbox"/>
Messages on the screen		
There is an exercise that requires displaying information on the screen where the exercise number is displayed and – if required – the kind of data requested from the user is also displayed	1 mark	<input type="checkbox"/>
Displays the exercise number for each solved exercise that requires displaying information on the screen and if exercise 5 was solved, the kind of data requested from the user is also displayed	1 mark	<input type="checkbox"/>
The previous mark can be awarded only if at least 4 numbered exercises were solved.		
Processing the input file and storing the data		
Opens the file for reading before reading from it	1 mark	<input type="checkbox"/>
Reads one data line correctly	1 mark	<input type="checkbox"/>
Reads each data line correctly	1 mark	<input type="checkbox"/>
Stores the data of each plot	1 mark	<input type="checkbox"/>
The mark cannot be awarded if the program cannot store the data of 125 plots per side or a total of 250 plots.		
Determining the number of sold plots		
Determines the number of sold plots	1 mark	<input type="checkbox"/>
Displays the determined value according to the example	1 mark	<input type="checkbox"/>
Determining the side of the last sold plot		
Determines the last sold plot	1 mark	<input type="checkbox"/>
Determines correctly whether the plot is on the even or the odd side	1 mark	<input type="checkbox"/>
Displays the determined value according to the example	1 mark	<input type="checkbox"/>
The mark cannot be awarded if the program cannot display both possible values.		
Determines the house number correctly for one side	1 mark	<input type="checkbox"/>
Determines the house number correctly for both sides	2 marks	<input type="checkbox"/>
Displays the determined house number according to the example	1 mark	<input type="checkbox"/>

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Searching for neighbouring fences of the same colour		
Works with the fences on the odd side	1 mark	<input type="checkbox"/>
Compares the colour of two neighbouring fences on one side of the street	1 mark	<input type="checkbox"/>
Compares the colour of all neighbouring fences on one side of the street	2 marks	<input type="checkbox"/>
The mark can be awarded even if the program searches only until the first two neighbours with the same colour are found.		
Filters out either the fences that are not painted or the fences that are not finished	1 mark	<input type="checkbox"/>
Filters out both the fences that are not painted and not finished	2 marks	<input type="checkbox"/>
The last 1+2 marks can be awarded even if the plots were investigated in the order they were sold.		
Determined at least one plot that has a neighbouring fence of the same colour correctly	1 mark	<input type="checkbox"/>
The mark cannot be awarded if an incorrect plot is also listed.		
Displays the determined house number(s) according to the example	1 mark	<input type="checkbox"/>
In the input file provided the following house numbers meet the condition: 73, 75, 93, 95.		
Repainting the fence of the given house number		
Reads and stores the house number in a variable of appropriate type	1 mark	<input type="checkbox"/>
The content of the communication with the user is according to the example	1 mark	<input type="checkbox"/>
Determines the colour (or state) of the fence that belongs to the house number	2 marks	<input type="checkbox"/>
Displays the determined value according to the example	1 mark	<input type="checkbox"/>
Determines the colour of the neighbouring fences	1 mark	<input type="checkbox"/>
Handles correctly if the first house number is given	1 mark	<input type="checkbox"/>
Handles correctly if the last house number is given	1 mark	<input type="checkbox"/>
Ensures that the chosen colour differs from the colour of the fence with the given house number	1 mark	<input type="checkbox"/>
Determines one colour that meets the requirements of the exercise	1 mark	<input type="checkbox"/>
Displays the determined value according to the example	1 mark	<input type="checkbox"/>

