

ÉRETTSÉGI VIZSGA • 2006. május 18.

**BIOLÓGIA
ANGOL NYELVEN
BIOLOGY**

**EMELT SZINTŰ ÍRÁSBELI
ÉRETTSÉGI VIZSGA
ADVANCED LEVEL
WRITTEN EXAM**

**JAVÍTÁSI-ÉRTÉKELÉSI
ÚTMUTATÓ
KEY AND GUIDE FOR
EVALUATION**

**OKTATÁSI MINISZTERIUM
MINISTRY OF EDUCATION**

Instructions - How To Mark The Advanced Level Paper

1. Always use **red ink**.
2. If the answer to question is complete tick correct answers. **Each tick** is equivalent to **1 point**. You can not give half the point. Indicate with two ticks, if the candidate answered correctly an assignment of two points.
3. Please accept the answer, if it is correct, but not mentioned in the Answer Key. The same procedure should be applied in the case of synonyms (e.g.: *platelets – thrombocytes*).
4. In the Answer Key equally acceptable answers are separated with **backslash (/)** from one another.
5. At the end of the assignment **add the points up** in the grey-coloured chart.
6. At the end indicate the detailed points for each assignment **in the final summary chart** and add them up to indicate the total score.
7. In the optional essay questions mark correct answers by a tick on the margin of the page. The Answer Key contains only key content elements, terms and phrases in logical order. Please accept compositions with different order but with logical structure – unless the instruction of the questions tells the contrary. Finally please add up the points of the correct answers and write in the appropriate box (X.) of the **final summary chart**.
In the essay question point can be awarded only for those answers which respond to the guiding questions.
8. If the candidate worked on both optional questions (A and B) then the instructions in "instructions for Candidates" are to be applied.
9. If the candidate was asked to compose whole sentences (e.g.: giving reasons or explanations) – only grammatically correct sentences are acceptable. Please, do not deduct points for spelling mistakes, yet do not accept misleading compositions.

We wish you a successful work.

I. Vitamins**8 points**

This assignment is based on the following chapters of the Detailed Requirements: 2.1.3; 4.4.4; 4.6.1. .

- | | |
|------------------------------------------------------------------------------|---------|
| 1. vitamin deficiency/ deficiency disease/ deficiency symptom | 1 point |
| 2. vitamin C | 1 point |
| 3. pepper/paprika, rosehip, lemon, orange, kiwi fruit, pickled cabbage, etc. | 1 point |
| 4. rickets/ softening of the bones/ disorder of ossification | 1 point |
| 5. vitamin A | 1 point |
| 6. fat-soluble | 1 point |
| 7. fat-soluble | 1 point |
| 8. haemophilia/ failure of blood clotting | 1 point |

II. Reproduction and development of living organisms**5 points**

- | | |
|------|---------|
| 1. T | 1 point |
| 2. F | 1 point |
| 3. F | 1 point |
| 4. T | 1 point |
| 5. F | 1 point |

III. Relations between the frequency of life-forms and climate**6 points**

- | | |
|----------------------------------------------------------------------------------------------------------------------------|---------|
| 1. The more humid and warmer the climate, the more trees are present
<i>Other correct phrasings are also acceptable</i> | 1 point |
| 2. light | 1 point |
| 3. H | 1 point |
| 4. Ch | 1 point |
| 5. temperate (zone) | 1 point |
| 6. A | 1 point |

IV. Who is the tit's call addressed to?**10 points**

This assignment is based on the following chapters of the Detailed Requirements: 3.4.4., 4.8.2.

Source of picture: Csányi Vilmos: Etológia, Nemzeti Tankönyvkiadó, Bp., (p.474)

- | | |
|-----------------------------------------------------------------------------------------------------------------------|----------|
| 1. A) attractive (during the reproductive period),
B) repellent/ warning off
C) attractive (prey)
D) neutral | |
| 4 correct answers: 2 points | 2 points |
| 3 or 2 correct answers: 1 point | |
| 1 or 0 correct answer: 0 point | |

2. A) courtship behaviour/ courtship display/ mating behaviour, 1 point
 B) keeping the rival male away/ aggression/ offensive behaviour 1 point
 C) escaping behaviour 1 point
 D) has no influence on its behaviour 1 point
3. Advantageous: occupies a larger territory, more food is available, 1 point
 finds (more) mating partner 1 point
 Disadvantageous: fighting takes up time from feeding, 1 point
 possible injuries or death (if it is not ritualized) 1 point

Any other good solution is also acceptable

V. The inheritance of phenylketonuria 12 points

This assignment is based on the following chapters of the Detailed Requirements: 6.2.1., 4.9.2

1. A 1 point

2.	Magda	aa	1 point
3.	Alíz	Aa	1 point
4.	Aba	Aa	1 point
5.	Erik	aa	1 point
6.	Márk	Aa	1 point

7. D 1 point
 8. Yes, Ilona, 1 point
 she can be normal (AA) or a healthy carrier (Aa), 1 point
 because she may inherit alleles "A" or "a" from her father (Richárd)
9. D 1 point
 10. Toxic metabolic wastes can get across the placenta and damage the foetus as well. 1 point
11. It can not be a X-linked disorder, because Aba should also be sick (unhealthy) if his daughter (Sára) is sick. (Being a Y-linked trait is excluded) 1 point

VI. The double helix 11 points

This assignment is based on the following chapters of the Detailed Requirements: 2.1.1., 2.1.5., 2.1.6., and 6.1.1.

Source of excerpts: James Watson: A kettős spirál, Gondolat, Bp., 1970

1. A D *for the correct pair of letters* 1 point
 2. made up of different building blocks/ monomers, 1 point
 whose variable sequence may contain information 1 point
 3. RNA 1 point
 4. Proteins 1 point
 5. A C *for the correct pair of letters* 1 point
 6. E 1 point
 7. D 1 point
 8. B 1 point
 9. C 1 point
 10. D 1 point

VII. Regulation in three steps

10 points

This assignment is based on the following chapter of the Detailed Requirements: 4.8.4. Each correct answer is awarded by 1 point.

1.	C
2.	K
3.	H
4.	A
5.	F
6.	D
7.	E
8.	B
9.	I
10.	G

VIII. The effect of antibiotics

8 points

This assignment is based on the following chapters of the Detailed Requirements: 2.1.6; 3.2.1, 5.1.2. Source of picture: Biology I2 Hodder Gibson, Paisley 2005
Each correct answer (a letter or a pair of letters) is awarded by 1 point

1.	C
2.	C
3.	A
4.	B
5.	A
6.	B
7.	AB
8.	AC

IX. Renewable and non-renewable sources of energy

10 points

This assignment is based on the following chapter of the Detailed Requirements: 5.5
(from 1 to 9 each correct answer is awarded by 1 point)

1.	B
2.	A
3.	B
4.	A
5.	D
6.	A
7.	D
8.	A
9.	C

10. *any two* of the following answers:

(1 point)

- sun/ solar energy/ collectors/ H₂ from splitting of water
- wind/ turbines/ windfarms/ windmills
- water/ hydroelectric power/ water-mills
- "fuelwood" forests/ production of "fuelgrass"
- petrol (gasoline) from plant oil/ "biodiesel"/ ethanol
- traditional methods of agriculture/ e.g. ploughing with animals
- geothermal energy

Optional questions**X. A****Calcium ion in the human body - Essay 20 points**

This assignment is based on the following chapters of the Detailed Requirements: 2.1.1., 4.2.3., 4.3.1., 4.4.4., 4.7.1., 4.8.4. and 4.6.1.

- Milk and dairy foods are the main sources of calcium ion 1 point
- Calcium ion is absorbed from the small intestine 1 point
- By means of active transport into the bloodstream 1 point

- It is stored in the intercellular spaces of bone tissue 1 point
- In the bones 1 point
- Osteoporosis is common in elderly people 1 point
- That makes bone more fragile 1 point

- The kidneys remove unnecessary calcium ion 1 point
(skin /alimentary canal is also acceptable)
- Vitamin D 1 point
- is a fat-soluble vitamin 1 point
- Sources: milk, butter, yeast, egg yolk, seafish (mentioning 2 is required) 1 point
- It is produced from its precursor in our skin by the action of sunlight 1 point
- Deficiency: rickets, softening of the bones 1 point

- Calcitonin produced in the thyroid gland 1 point
- reduces, 1 point
- parathormone produced in the parathyroid glands 1 point
- increases the calcium level in blood 1 point
- Production of both hormones are controlled by the calcium level of blood 1 point

- Contraction of striated muscles /protein fibres/ requires Ca^{2+} 1 point

- During blood-clotting (when a blood vessel is injured) Ca^{2+} is an essential factor (thrombin) 1 point

X. B Air pollution

This assignment is based on the following chapters of the Detailed Requirements: 5.5 ; 4.8.5..

Analysis of an experiment 6 points

1. Acid rain
2. Sulphur-dioxide/ oxide of sulphur
3. Nitrous oxides (carbon-dioxide)
4. Combustion of fossil fuels (coal, oil, natural gas), traffic (transportation)
Mentioning 2 examples: 2 points
5. Damage to plants/ destruction of chlorophyll/ increased number of respiratory illnesses / damaged limestone buildings/ acidification of soils and natural waters/ corrosion of metal buildings
2 correct examples: 2 points
1 correct example : 1 point

Air pollution - Essay

14 points

- The chlorofluorocarbons (CFSs) / freons are responsible **for the thinning**
- **ozone layer (shield)** 1 point
- Main sources: sprays/aerosols (in the past), coolants (refrigerator gases) nowadays 1 point
- They react with ozone in the upper atmosphere / attack the ozone layer 1 point
- Absorption of harmful amount of ultraviolet radiation decreases 1 point
- Harmful effects: skin cancer/ cataract/ suppressed immune system 1 point
(Only 1 example should be mentioned)

- **Increasing greenhouse effect:** CO₂/water vapour/methane (any of these) 1 point
- Sources: traffic, industry / cultivation of rice / climate change 1 point
- Effects: climate change / global warming / rising sea-level 1 point

- **From traffic:** nitrogen oxides / hydrocarbons / ozone formed because of these / CO / CO₂ / lead/ (PAN) (any two of these) 2 points

- Harmful effects: irritation of the conjunctiva (eye) / shortage of air (smog) (any other correct answer is acceptable) 1 point

- **CO:** shortage of air (respiratory difficulties) / paleness / headache 1 point
- It inhibits oxygen takeup, 1 point
- because it combines with haemoglobin 1 point