



**UNIVERSITY OF VETERINARY SCIENCES BRNO**  
**Faculty of Veterinary Medicine**  
**Admissions and Study Office**

**ENTRANCE EXAMINATION**

Applicants are accepted into the **Master's programme in Veterinary Medicine** on the basis of an entrance examination consisting of written tests in **biology** and **chemistry** which are based on the secondary school curriculum for these subjects.

**The written test in biology:**

- consists of multiple choice questions with only one correct answer for each question
- contains a total of **37 questions**, with **1 point** being awarded for each correct answer and **0 points** being awarded for each wrong answer
- the maximum number of points which can be obtained in this test is **37 points**

**The written test in chemistry:**

- consists of multiple choice questions with only one correct answer for each question
- contains a total of **37 questions**, with **1 point** being awarded for each correct answer and **0 points** being awarded for each wrong answer
- the maximum number of points which can be obtained in this test is **37 points**

The maximum number of points that can be obtained in the whole exam is **74 points**.

In order to pass the entrance examination, a candidate must obtain at least **18 points** in the biology test and **18 points** in the chemistry test.

The entrance examination is carried out **in the English language**.

The maximum time allowed to complete the whole exam is **120 minutes**.

No periodic tables or other reference materials are required, apart from a basic calculator for the chemistry exam.

On the basis of a written request (**specific needs** form available on our website) and supporting medical evidence, students with specific needs may be given an extension of the time allowed to complete the entrance examination.

Based on the total number of points awarded to each applicant, candidates will be ranked for a decision by the Dean of the Faculty on their acceptance or rejection.



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**SAMPLE QUESTIONS FROM PAST EXAMS**

**BIOLOGY:**

1. The theory of evolution by inheritance of acquired characteristics was advanced by

- a) Cuvier
- b) Malthus
- c) Buffon
- d) Lyell
- e) Lamarck

2. A picture showing an ordered array of stained chromosomes is known as

- a) a karyotype
- b) a pedigree
- c) an RFLP
- d) a mosaic
- e) none of the above

3. Steppes, prairies, and pampas are all examples of

- a) forests
- b) shrublands
- c) deserts
- d) tundras
- e) grasslands

4. A bacterium that elicits an immune response can be called an

- a) antibody
- b) antigen
- c) anticell
- d) antibiotic
- e) immunoglobulin

5. The dominant vegetation of high-elevation conifer forests are

- a) angiosperms
- b) grasses
- c) cycads
- d) ginkgoes
- e) gymnosperms



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6. The synthesis of an RNA molecule from DNA is known as

- a) translation
- b) initiation
- c) elongation
- d) transcription
- e) termination

7. The wall of the gut is lined by

- a) smooth muscle
- b) skeletal muscle
- c) cardiac muscle
- d) digestive muscle
- e) all of the above

8. The spinal cord and the brain join at

- a) the hindbrain
- b) the cerebellum
- c) the medulla oblongata
- d) the pons
- e) none of the above

9. The excretory organs found in flatworms are

- a) protonephridia
- b) Malpighian tubules
- c) metanephridia
- d) nephridiopores
- e) contractile vacuoles

10. The trochophore larva is found in

- a) the molluscs
- b) the annelids
- c) the sponges
- d) the corals
- e) a and b

**CORRECT ANSWERS:**

**1E, 2A, 3E, 4B, 5E, 6D, 7A, 8C, 9A, 10E**



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**CHEMISTRY:**

1. Write the chemical formula of the nitrate ion and indicate the oxidation number of the nitrogen and oxygen atoms:

- |    |                    |      |      |
|----|--------------------|------|------|
| a. | $\text{NO}^-$      | N +2 | O -3 |
| b. | $\text{NO}_3^{2-}$ | N +4 | O -2 |
| c. | $\text{NO}_3^+$    | N +7 | O -2 |
| d. | $\text{NO}_3^-$    | N +5 | O -2 |
| e. | $\text{NO}_2^-$    | N +3 | O -2 |

2. Find the correct chemical formula for the following inorganic substance:

**Zinc sulphide**

- a.  $\text{Zn}_2\text{S}_3$
- b.  $\text{Zn}_3\text{S}_2$
- c.  $\text{ZnSO}_3$
- d.  $\text{ZnS}$
- e.  $\text{ZnSO}_4$

3. Write the name of the inorganic substance having the following chemical formula:

**$\text{MgCO}_3$**

- a. Manganese carbonate
- b. Manganese bicarbonate
- c. Molybdenum carbonate
- d. Magnesium bicarbonate
- e. Magnesium carbonate

4. Find the correct chemical formula for the following organic functional group

**Ethyl-**

- a.  $\text{CH}_3 - \text{CH}_3 -$
- b.  $\text{CH}_2 - \text{CH}_2 =$
- c.  $\text{CH}_3 -$
- d.  $\text{CH}_3 - \text{CH}_2 -$
- e.  $\text{CH}_2 =$



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5. Use boxes and arrows in order to describe the occupation of d-orbitals by 5 electrons:

a.	↓↓	↑	↑	↑	
b.	↓↓	↓↓	↓	↑	
c.	↓↑	↓		↑	↑
d.	↓	↓	↓	↓↑	
e.	↑	↑	↑	↑	↑

6. Find the correct chemical formula for the following organic substance:

**Furan**

- a.
- b.
- c.
- d.
- e.

7. Calculate the concentration (in mol/L) of a nitric acid solution having the pH = 2,8:

- a.  $1,58 \times 10^{-3}$
- b.  $2,58 \times 10^{-4}$
- c.  $3,58 \times 10^{-5}$
- d.  $4,58 \times 10^{-6}$
- e.  $5,58 \times 10^{-7}$



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8. How many grams of hydrochloric acid can be prepared by the reaction of 100g of sodium chloride with concentrated sulphuric acid:

- a. 44,5
- b. 62,5
- c. 76,5
- d. 61,1
- e. 131,0

9. Find the correct redox equation:

- a.  $3 \text{Pb} + 8 \text{HNO}_3 \longrightarrow 3 \text{Pb} (\text{NO}_3)_2 + 2 \text{NO} + 4 \text{H}_2\text{O}$
- b.  $\text{Pb} + 2 \text{HNO}_3 \longrightarrow \text{Pb} (\text{NO}_3)_2 + \text{NO} + \text{H}_2\text{O}$
- c.  $4 \text{Pb} + 6 \text{HNO}_3 \longrightarrow 4 \text{Pb} (\text{NO}_3)_2 + 4 \text{NO} + 3 \text{H}_2\text{O}$
- d.  $2 \text{Pb} + 4 \text{HNO}_3 \longrightarrow 2 \text{Pb} (\text{NO}_3)_2 + 4 \text{NO} + 2 \text{H}_2\text{O}$
- e.  $6 \text{Pb} + 12 \text{HNO}_3 \longrightarrow 6 \text{Pb} (\text{NO}_3)_2 + 8 \text{NO} + 6 \text{H}_2\text{O}$

10. Write the chemical equation for the dissociation of HCOOH:

- a.  $\text{HCOOH} \rightleftharpoons 2\text{H}^+ + \text{COO}^-$
- b.  $2 \text{HCOOH} \rightleftharpoons \text{H}^{2+} + 2 \text{HCOO}^-$
- c.  $\text{HCOOH} \rightleftharpoons \text{H}^- + \text{HCOO}^+$
- d.  $\text{HCOOH} \rightleftharpoons \text{H}^+ + \text{HCOO}^-$
- e.  $\text{HCOOH}_2 \rightleftharpoons 2\text{H}^+ + \text{COOH}^-$

**CORRECT ANSWERS:**  
1D, 2D, 3E, 4D, 5E, 6A, 7A, 8B, 9A, 10D