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Announcement for Winter Term 2024/2025
1st year DENTISTRY

The credit requirements for the subject '**Medical Chemistry, Materials in Dental Medicine**' include passing two tests – one written and one practical.

Written revision test:

The interim revision test scheduled for the 6th week will contain calculations of concentrations of the solutions, stoichiometric and titration calculations, pH of acids, bases and buffers, inorganic nomenclature and ionic equations.

At least 60% of all obtainable points is required. In case of failure the test can be repeated twice more. In such case the mandatory date(s) for test retakes will be set by the group teacher.

The written test will take place in the time of seminar classes.

Practical test:

The practical examination scheduled for the end of winter semester will consist of two tasks:

- Task in which knowledge of the principle, and practical performance will be required – Part A (see below)
- Theoretical question from the contents of the practical lessons – Part B (see below)

Each student chooses (receives by chance) two questions: one from part A, and one from part B.
Each question is evaluated on scale 0–5 points; at least 3 points must be obtained for each question in order to pass the practical credit examination.
In case of failure two more attempts to pass the practical examination can be provided.

The practical test will take place in the time of practical lessons according to the syllabus.

A. Tasks in which knowledge of the principle and <u>practical performance</u> will be required (instructions on the procedure will be available)

1.	Acid-base titration: Estimation of concentration of sulfuric acid in the unknown sample
2.	Acid-base titration: Estimation of concentration of phosphoric acid in the unknown sample
3.	Argentometry: Estimation of concentration of chloride ions in the unknown sample
4.	Analysis of unknown sample of saccharide by means of colored reactions
5.	Analysis of selected groups of organic substances (primary alcohols, phenols, aldehydes, ketones)
6.	Analysis of unknown sample of amino acid
7.	Spectrophotometry: Estimation of concentration of a food dye in the unknown sample
8.	Comparison of buffer capacity of two different phosphate buffers

B. Theoretical tasks

1.	Photometry – principle and usage
2.	Chromatographic methods – principle and usage
3.	Titrations – principle, examples of methods
4.	Principle of pH measurement. Electrophoresis – principle and usage
5.	Buffers – definition, examples, function and usage
6.	Overview of reactions of selected functional groups in organic compounds
7.	Properties and reactions of proteins – reversible and irreversible precipitation, dialysis, biuret reaction
8.	How would you demonstrate substrate specificity of α-amylase and sucrose?
9.	Galvanic and electrochemical cells

September 10th, 2024

Prof. MUDr. Tomáš Zima, DrSc., MBA
Head of the Institute