



CHARLES UNIVERSITY – FIRST FACULTY OF MEDICINE
AND
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Practical Credit Examination

Summer term 2024/2025

2nd year GENERAL MEDICINE

In our Medical Chemistry and Biochemistry course, the summer semester credit requirements include also the practical credit examination that is scheduled for the 14th week of the semester as the last practical lesson.

Students who plan to take the final examination in one of the pre-terms, can upon agreement with the group teacher get a chance to take the practical credit examination on an earlier date, in order to obtain the credit before the exam.

If a student does not attend the practical credit examination from a serious reason, the group teacher can arrange for a substitute examination. However, technical constraints dictate that availability of substitute dates for the practical credit examination will be limited. For passing the practical credit examination two amendatory attempts are possible.

Course of the practical credit examination

A student tosses a doublet of questions combined from the list below.

The first question contains an experiment previously performed during the practical lessons. The necessary reagents, equipment and brief instructions will be provided. Student is expected to show a good knowledge of the principles of the experiments, its evaluation, basic interpretation of the results, as well as an adequate understanding of related topics. From the experiment a student elaborates a report similar to those from the practical lessons. The given instructions will contain the details of the experimental procedure and numbers needed for calculations.

The second question refers to the theoretical knowledge also encountered during the practical lessons. Good knowledge of the assay principles, practical significance, results evaluation and interpretation will be required.

Questions for the practical credit examination

A. Practical tasks:

1.	Estimation of total serum protein.
2.	Estimation of total bilirubin in serum.
3.	Estimation of triacylglycerols in serum.
4.	Estimation of total cholesterol in serum.
5.	Estimation of urea in biological sample.
6.	Estimation of glucose in serum, enzymatic assay.
7.	Estimation of calcium in serum.
8.	Estimation of ALT activity in serum.

9.	Estimation of AST activity in serum.
10.	Estimation of alkaline phosphatase activity in serum.
11.	Estimation of γ -glutamyl transferase activity in serum.
12.	Estimation of creatinine in serum and urine.
13.	Spectrophotometry of cerebrospinal fluid.

B. Theoretical questions:

1.	Quantitative estimation of protein in urine. Types of proteinuria.
2.	Spectrophotometry of hemoglobin and porphyrins, hemoglobin derivatives – principles of detection, significance.
3.	Basic biochemical examinations in patients with diabetes mellitus.
4.	Basic biochemical examinations in patients with disorders of lipoprotein metabolism.
5.	Biochemical markers of myocardial injury.
6.	Enzymes examined in diseases of the liver.
7.	Chromatographic methods in clinical chemistry.
8.	Hyperbilirubinemia and types of icterus. Characteristic findings of bile pigments in serum and urine.
9.	Biochemical markers of bone formation and resorption.
10.	Biochemical examinations of renal function.
11.	Examination of selected ions: sodium and phosphate in serum and urine, iron in serum.
12.	Selected examination of cerebrospinal fluid (total protein, oligoclonal immunoglobulins, spectrophotometry).
13.	Immunochemical methods: immunoprecipitation and agglutination, enzyme immunoassay.

February 6th 2025

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and Laboratory Medicine