Syllabus Pathobiochemistry 2019/2020

1. Introduction, the importance of studying pathobiochemistry. The scope and requirements for successful completion of the course exam, recommended literature. Metabolism disorders, types and causes. Hereditary metabolic diseases.
2. Understanding the regulation of metabolism. Biochemical communication. Receptors.
3. The nucleic acid metabolism disorders of purine and pyrimidine. Hyperuricemia, orotacidurie, therapy.
4. Metabolism disorders, types and causes. Hereditary metabolic diseases. Enzymes, regulation of metabolism. Causes increased activity of cellular enzymes in the plasma. Clinically significant enzymes.
5. Amino acid metabolism and its disorders. Types of diseases and therapy.
6. Pathobiochemistry of carbohydrates, glucose metabolism and its disorders. Glycemic control disorders. Pathobiochemistry of diabetes mellitus, types of DM. Disorders of glycogen metabolism, glykogenosis.
7. Disorders of lipid metabolism. Cholesterol, lipoproteins. Lipidosy, dyslipoproteinaemia.
8. Blood, blood plasma proteins. Blood clotting, coagulopathy. Dysproteinaemias. Porphyrins. Biosynthesis, metabolism disorders. Porphyria, hemoglobinopathies.
9. Xenobiotics and their effects on the body. Detoxification mechanism. Biological oxidation. The effects of free radicals on the organism. Lipoperoxidation antioxidants.
10. Tumor, tumor markers. Basic characteristics of tumor cells. Strategy laboratory tests. Requirements ideal tumor marker. Used tumor markers.
11. Analysis of urea and the urinary sediment. Immunochemical methods.
12. Mechanization and automation in clinical biochemistry. Analyzers, their distribution from different perspectives. Diagnostic kits. The organization of work in clinical-biochemical laboratory, laboratory and hospital information systems.
13. Pathobiochemistry of arteriosclerosis. Ischemic heart failure - cardiac markers.
14. Relation between Pathobiochemistry and Clinical Biochemistry. Clinical and biochemical analysis and its specific features. Terminology of Clinical Biochemistry. The analyzed material. Material removal.