Apporoved
Vice-Chancellor for Academic Affair
Prof. J.Guminsky
31.08.2017 _____

THE LIST OF STUDENTS INDEPENDENT WORK TOPICS

to discipline "Clinical biochemistry" for 3d year students of pharmaceutical faculty, speciality «Pharmacy» 2017-2018 academic years

Module 1. Biochemistry of organs and tissues in normal and pathological conditions

№	Themes	Time (h)
1	Preparation of anticoagulant solutions commonly used in laboratory practice and contraindications to their application. General tactical principles of clinical biochemistry. Examples of biochemical constellations determinations.	2
2	Localization of enzymes in the organelles of cells and in tissues. Indicator and marker enzymes. The most common methods of enzyme determinations. Examples of enzymodiagnostics of certain diseases. Enzymes and drugs. Clinical and diagnostic value of enzyme activities determinations	2
3	Enzymopathies, biochemical aspects of the pathogenesis of primary and secondary enzimopathies	4
4	Functions of proteins. Protein compositions of serum and plasma, blood enzymes, diagnostic value of their determination	4
5	Clinical value of total protein and protein fractions determination in serum. Paraproteinemies.	4
6	Rest nitrogen system, diagnostic value of its levels determination	2
7	Functions of carbohydrates. Ways of glucose metabolism. Gluconeogenesis. Regulation of carbohydrate metabolism. Complex carbohydrates. Glycoproteins, glycosaminoglycans	4
8	Pathochemistry of carbohydrates. Diabetes, its complications and their diagnosis.	4
9	Functions of lipids. Regulation of lipid metabolism. Serum lipoproteins. Ways of cholesterol metabolism	4
10	Ketone bodies. Ketoacidosis. Lipid peroxidation, antioxidant system	4
11	Diseases of the cardiovascular system. Atherosclerosis. Hypotheses of its origin. Atherogenic lipoproteins. Lipid blood profiles abnormalities by atherosclerosis. Nitric oxide and its role in the development of atherosclerosis. Composition and development of atherosclerotic plaques.	4
12	Types of hyperlipoproteinemies. Lipid hypothesis of the formation of lipid spots and their transformation into atheromatous vascular damages. Secondary hyperlipidemies	4
13	Ways of digestion of proteins, carbohydrates and lipids, their abnormalities. Enzymes of GIT and pancreas. Clinical and biochemical characteristics of stomach, pancreas and intestines diseases.	4
14	Metabolic disorders by liver diseases. Liver functions. Composition of bile. Abnormalities pigmentary metabolism. Biochemical constants by liver diseases.	4
15	Hyperazotemies; enzymodiagnostics of kidney diseases. Urolithiasis. Compositions of urine in normal and pathological conditions. Syndromes of acute and chronic renal failure. Determination of clearance, urea and creatinine levels in urine and blood.	4
16	Kidney diseases, its pathogenesis, (glomerulonephritis, pyelonephritis, amyloidosis,) and their clinical and biochemical diagnostics.	4
17	Metabolic processes in connective tissue and their abnormalities. Proteoglycans metabolism. Degradation of glycoproteins and proteoglycans polysaccharide components. Features of bone tissue, markers of cartilaginous and bone tissues destructions.	2
18	Biochemical aspects of carcinogenesis. Chemical carcinogens, biochemical mechanisms of carcinogenic factors action. Tumor markers, diagnosis of tumors. Prospects of malignant tumors therapy.	4
	Total	64

Head of Biochemistry Departament **Prof. Zaichko N.V.**