

**Thematic plan of student's independent work in the discipline "Clinical Biochemistry"
for students in the main professional educational program of the specialist
specialty 31.05.01 General Medicine, focus (profile) General Medicine,
Full-time form of education for 2023-2024 academic year**

№	Theme of independent work	Reporting forms
1	Sanitary and anti-epidemic work in the CDL. Disinfectants and methods of disinfection.	Abstract, presentation
2	Quality control methods (reproducibility control, correctness control). The main statistical criteria in quality control of laboratory tests.	Abstract, presentation
3	Biochemical studies in liver diseases. Liver function. Laboratory tests for the diagnosis of liver diseases.	Abstract, presentation
4	Methods for determining the content of albumins and globulins of blood plasma: electrophoretic, enzyme immunoassay.	Abstract, presentation
5	Structure, functions, main diseases of the pancreas.	Abstract, presentation
6	Late complications of diabetes mellitus. Diabetic nephropathy: stages of microalbuminuria and proteinuria. Diabetic ketoacidosis.	Abstract, presentation
7	Triglycerides, Lipoproteins, composition properties. Types of hyperlipoproteemia. Dyslipidemia. Modified lipoproteins, products of limited lipoprotein proteolysis.	Abstract, presentation
8	Primary urine, composition, physico-chemical properties. Secondary urine, composition, physico-chemical properties. Filtered, reabsorbed and secreted substances.	Abstract, presentation
9	Water-electrolyte exchange. Distribution of water in the body. Composition and content of intra- and extracellular fluid. Functions of water in the body.	Abstract, presentation
10	Exchange of sodium and potassium. The role of these ions in maintaining the body's homeostasis: the content inside and outside the cell.	Abstract, presentation
11	Concepts of buffer solutions, buffer capacity, pH of solutions. The Henderson-Hasselbach equation. The main indicators of acid-base balance of blood: pH, pO ₂ , pCO ₂ , [HCO ₃], BB, VE.	Abstract, presentation
12	Blood buffer systems: carbonate, protein, phosphate.	Abstract, presentation
13	Nitrogen balance. Nitrogen balance disorders in diseases and pathological conditions. Methods for assessing nitrogen balance.	Abstract, presentation
14	Metabolic disorders of individual amino acids (phenylketonuria, cystinosis and cystinuria, alkaptonuria, homocystinuria, carcinoidosis). Pathogenesis, laboratory and clinical manifestations of disorders.	Abstract, presentation
15	Clinical significance of the determination of intracellular and secretory enzymes, intracellular proteins in the blood in diseases of the cardiovascular system.	Abstract, presentation

16	Clinical significance of the determination of intracellular and secretory enzymes, intracellular proteins in the blood in liver diseases.	Abstract, presentation
17	The clinical significance of the determination of intracellular and secretory enzymes, intracellular proteins in the blood in diseases of the pancreas.	Abstract, presentation
18	Diabetes mellitus. Classification and pathogenesis. Laboratory diagnostics.	Abstract, presentation
19	Glycylated protein, control over the compensation of diabetes mellitus. Glucose tolerance test. Execution and interpretation of results.	Abstract, presentation
20	Disorders of lipid metabolism in diseases of the liver and biliary tract.	Abstract, presentation
21	Violation of lipid metabolism in atherosclerosis. Laboratory diagnostics.	Abstract, presentation
22	The main metabolic disorders in acute myocardial infarction. Conditions of reversibility of myocardial changes. Irreversible changes in the heart muscle. Laboratory diagnostics.	Abstract, presentation
23	Methods of laboratory assessment of the water-electrolyte balance.	Abstract, presentation
24	Diagnostics of emergency conditions in anesthesiology and intensive care.	Abstract, presentation
25	Structure and equipment of modern clinical diagnostic laboratories.	Abstract, presentation
26	Laboratory diagnostics of acid-base balance disorders.	Abstract, presentation
27	Calcium metabolism. Regulation of calcium metabolism. Hyper- and hypocalcemia.	Abstract, presentation
28	Potassium metabolism. Regulation of potassium metabolism. Hyper- and hypokalemia.	Abstract, presentation
29	Phosphorus and its functions in the human body. Clinical values and diagnosis of phosphorus level disorders.	Abstract, presentation
30	Clinical biochemistry of kidney diseases.	Abstract, presentation

Reviewed at the meeting of the Department of Clinical Laboratory Diagnostics on May 30, 2023, Protocol № 14

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