Schedule of Practical Classes in Biochemistry for 2nd year students of the Medical and Pediatric Faculties of Kuban State Medical University for the Fall Semester 2020-2021

Date	Lesson topic	Test exercises	Lesson content	Practical works
№1	Physical and chemical properties of proteins	№ 1-18	1. Salting out of proteins with ammonium sulfate, sodium chloride. 2. Protein precipitation with salts of heavy metals. 3. Protein precipitation with concentrated mineral acids. 4. Protein precipitation with organic acids.	1.1-1.2 2.1-2.2 3.1-3.2 4.1-4.2
№2	Proteins. Structural organization and methods of its study. *Test control*	№ 19-30	1. Simple protein hydrolysis. 2. Chromatographic separation of amino acids.	5 6
№3	Proteins. Methods of protein separation and quantitative determination. *Test control*	№ 31-39	1. Protein quantitative determination with the refractometric method. 2. Determining protein amount with the biuret method. 3. Electrophoretic separation of blood serum proteins.	7 8,9 10
№ 4	Protein classifications. General characteristics of groups of simple and complex proteins.	№ 40-54	1. Analysis of the phosphoprotein qualitative composition. 2. Analysis of the glycoproteins qualitative composition. 3. Analysis of the nucleoprotein qualitative composition.	12.1, 12.2 13.1, 13.2 14.1, 14.2, 14.3, 14.5
№5	Structure of simple and complex proteins and their properties	Module control questions № 1-16	Oral theoretical survey on proposed control questions.	
№ 6	Vitamins. General properties, characteristic of fat-soluble vitamins. *Test control*	№16-21	Quantitative determination of vitamins A, D, E, K.	15. 1-4
№7	Vitamins Characterization of water-soluble vitamins. *Test control*	№21-29	Quantitative determination of vitamin C in biological fluids and products.	17.1-17.2

№8	Enzymes. General information. Quantitative analysis of enzymes. *Test control*	№ 30-36	1. Quantitative determination of enzymes. 2. Enzyme thermolability.	18.1-18.6 19
№ 9	Enzymes General properties. *Test control*		1. Specificity of enzymes. 2. Effect of medium reaction on the enzyme activity.	20 21
№ 10	Enzymes Regulation. Enzyme activity. Quantification of enzyme activity. *Test control*	№37-48	1. The effect of activators and inhibitors on salivary amylase activity. 2. Quantitative determination of salivary amylase activity.	22 23
№ 11	Hormones as biological regulators of metabolic processes. *Test control*	№49-63	1. Quantitative determination of insulin. 2. Detection of iodine in thyroxine. 3. Quantitative determination of adrenaline. 4. Detection of 17-ketosteroids in urine. 5. Solution of situational problems.	29.1-29.3 30 31 32
№12	The final lesson in the section "Vitamins, hormones, enzymes."	Module control questions	Oral theoretical survey on proposed control questions.	1-27, 1-41, 1-28
№13	Energy metabolism. *Test control (TCA)*	№1-15 for seminar (1-16 for Pediatric Faculty)	1. Quantitative determination of enzymes in mitochondria	40A 40B
№14	Carbohydrate metabolism. Glucose as a central metabolite of carbohydrate metabolism. *Test control (Glycolysis)*	№ 1-8 and № 22-25	1. Determination of glucose in the blood by glucose oxidase method. 2. Quantitative determination of sugar in urine according to the Althausen method.	33 36
№15	Carbohydrate metabolism. Regulation of the metabolism. *Test control*	№ 9-14	Determination of glucose tolerance.	35

№16	Carbohydrate metabolism. Complex carbohydrate metabolism	№15- 27	1. Determination of sialic acids with the Hess method. 2. Determination of glycoproteins in blood serum	№ 37 № 38
№ 17	Final lesson in the section “Energy Exchange. Carbon metabolism”	Control questions №1-50 (1-55 for Pediatric Faculty)	Oral theoretical survey on proposed control questions.	

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