

**Practical Tasks in Physiology
FOR DENTAL MEDICINE STUDENTS
2018/2019 Academic Year (summer semester)**

WEEK	TOPIC
16. 11.02 - 17.02	Respiratory system. External respiration. Lung volumes and lungs capacities. (<i>Seminar Questions №№ 48, 49, 50 of the Examination Synopsis</i>). Practical tasks: 1. Donders' model. 2. Physical examination of the lungs. 3. Measurement of the lung volumes and capacities.
17. 18.02 - 24.02	Respiratory system. Exchange and transport of oxygen and carbon dioxide. (<i>Seminar Questions №№ 51, 52, 53 of the Examination Synopsis</i>). Practical tasks: 1. Calculation of the partial pressure of O ₂ in the atmospheric air. 2. Calculation of the partial pressure of O ₂ in alveolar air. 3. Calculation of the chemically bound O ₂ in the blood. 4. Calculation of the Ventilation/Perfusion ratio in the different parts of the lungs in straight position at rest. 5. Calculation of the coefficient of utilization (UC) of O ₂ in the tissues. 6. Measurement of O ₂ consumption and CO ₂ release.
18. 25.02 - 03.03	Respiratory system. Regulation of respiration. (<i>Seminar Questions № 54, of the Examination Synopsis</i>). <i>Colloquium on the Chapter "Respiratory system"</i> .
19. 04.03 - 10.03	Cardiovascular system. Heart. Physiological characteristics of the excitation and contraction tissue of the the heart and of the working myocardium. (<i>Seminar Question №№ 32, 33, 34, of the Examination Synopsis</i>). Practical tasks: 1. Mechanogram of a frog heart. 2. Effect of temperature on the sinus venosus. 3. Stannius' ligatures. 4. Recording of ventricular extrasystoles.
20. 11.03 - 17.03	Cardiovascular system. Cardial cycle. Electrical events during a cardial cycle. Functions of the heart valves (<i>Seminar Questions №№ 35, 36, 37 of the Examination Synopsis</i>). Practical task: 1. Auscultation of heart sounds. 2. Registration and analysis of ECG. 3. Registrasion and analysis of ST-segment. 4. Phonocardiography.
21. 18.03 - 24.03	Cardiovascular system. Stroke volume and cardiac output. Control of cardiac activity. (<i>Seminar Questions №№ 38, 39, 40 of the Examination Synopsis</i>). Practical tasks: 1. Determining the Mean Electrical Axes of the heart. 2. Calculating the Stroke Volume after Starr's formula. 3. Defying the Cardiac Output by Fick's method using data from the table. 4. Changes in cardiac activity in rodents within vagus irritation and application of epinephrine, acetylcholine and atropine.
22. 25.03 - 31.03	Cardiovascular system. Blood vessels. Hemodynamic parameters. Arterial pulse. Physiology of capillaries. (<i>Seminar Questions №№ 41, 42, 43, 44 of the Examination Synopsis</i>). Practical tasks: 1. Defying the characteristics of arterial pulse. 2. Sphygmography. Measurement of pulse wave velocity of conduction. 3. Plethysmography. 4. Capillaroscopy. 5. Investigation of frogs' tongue capillaries.
23. 01.04 - 07.04	Cardiovascular system. Regulation of vascular tone. Arterial blood pressure and its control. (<i>Seminar questions №№ 45, 46, 47 of the Examination synopsis</i>). Practical tasks: 1. Experiment of Claud Bernard. 2. Measurment of arterial blood pressure after the method of Korotkov with the sphygmomanometer of Riva-Rocci. 3. Neural and humoral factors affecting rodent's arterial blood pressure.
24. 08.04 - 14.04	Cardiovascular system. <i>Colloquium on the Chapter "Physiology of cardiovascular system"</i> .
25. 15.04 - 21.04	Gastrointestinal physiology. (<i>Seminar Questions №№ 56, 57, 58, 59, 60, 61 of the Examination Synopsis</i>). Practical tasks: 1. Investigation of frog's intestine movements in situ. 2. Investigation of isolated rodents' (rat's) intestine movements in vitro. 3. The effect of bile on the rate of vegetable oil's filtration. 4. The effect of bille on the rate of sulphur sedimentation.
26. 29.04 - 05.05	Digestion, energy balance, metabolism and nutrition. (<i>Seminar Questions №№ 62, 63, 64 of the Examination Synopsis</i>). Practical tasks: 1. Methods for measuring energy expenditures. 2. Principles of optimal nutrition. Composition of a dietary regimen.
27. 06.05 - 12.05	Urinary system and water-electrolyte balance. (<i>Seminar Questions №№ 67, 68, 70, 71</i>). Practical tasks: 1. Effect of ADH on diuresis of white mice. 2. Determining of effective filtration pressure (EFP). 3. Calculation of clearances and transport maximum.
28. 13.05 - 19.05	Digestive system, energy balance, metabolism and nutrition. Urinary system, water-electrolyte and acid-base balance. <i>Colloquium on the Chapters "Digestion, energy balance metabolism and nutrition"</i> (<i>Seminar questions №№ 55, 56, 57, 58, 59, 60, 61, 62, 63, 64 of the Examination Synopsis</i>) and <i>"Urinary system, water- electrolyte and acid-base balance"</i> . (<i>Seminar questions №№ 67, 68, 69, 70, 71 of the Examination Synopsis</i>).
29. 20.05 - 26.05	Physiology of physical exercise. Estimation of the body fitness by functional tests. Practical tasks: 1. Changes in the gas exchange during exercise. 2. Combined functional test for analysis of cardiac performance. 3. Harvard step test. 4. Evaluation of the aerobic working capacity of the organism by Sjostrand's test – PWC ₁₇₀ .
30. 27.05 - 31.06	Higher functions of the nervous system. (<i>Seminar Questions № 80 of the Examination Synopsis</i>). Practical tasks: 1. Tachistoscopia. 2. Determining the type of higher nervous function by the Sharankov's test. 3. Examination of the visual memory test according to Boymler. 4. Raven's test.

11.02.2019

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