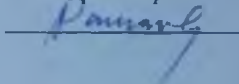


FEDERAL STATE BUDGETARY EDUCATIONAL INSTITUTION OF HIGHER EDUCATION
«DAGESTAN STATE MEDICAL UNIVERSITY»
MINISTRY OF HEALTH OF THE RUSSIAN FEDERATION

Department of Hominal Physiology

APPROVED
at the department meeting
«31» August 2020.,
Protocol № 1
Head of the department

prof. R.M.Ragimov



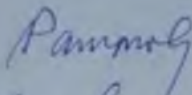
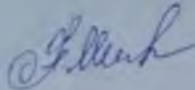
EDUCATIONAL ASSESSMENT FUND
Hominal Physiology

Field of study (major): 31.05.01 Medical care

Graduate qualification: Physician, M.D.

EAF is made up:

Head of the department of Hominal Physiology
Professor

Ragimov R.M.

Associate Professor
Hominal Physiology

Abdullaeva N.M.

EAF considered and adopted at the meeting of the department of Hominal Physiology

Minutes of the meeting of the department No.1 of August 31, 2020

AS OF:

2020__/2021__ school year _____

20__/20__ school year _____

20__/20__ school year _____

I. STUDENT COMPETENCY MAP FORMED AS A RESULT OF DISCIPLINE

Hominal Physiology

№	Competence category name	CONTENT
	1	2
1	General competence	<p>GC-1: ability to abstract thinking, analysis, synthesis y.</p> <p>To know: forms of manifestations of higher neural activity (HNA) in humans, classification and characteristics of types of GNI, variants of inter-hemisphere asymmetry and their importance in the doctor's activities.</p> <p>To be able to: analyze the features of the higher nervous activity of the person, the patterns of activity of individual systems of the body at different functional states and the dynamics of physiological processes at different types of stress; - <i>to conduct research</i>: higher mental functions and individual typological characteristics of a person.</p> <p>Own: methods of mental health studies using the Eisenka test and the evaluation of HNA types.</p>
2	General professional competencies	<p>GPC-9: ability to assess morphofunctional, physiological conditions and pathological processes in the human body to solve professional problems</p> <p>To know:</p> <ul style="list-style-type: none"> - Excitability and excitability parameters; - membrane-ion theory of the origin of biopotentials; - Classification of nerve fibers; - the polar effect of constant on excitable tissues; - laws of irritation and regularity of arousal on nerve fibers; - the importance of registering biopotentials in medicine (EMG, ECG, EEG); - The structure and function of myoneural synapses; muscle fiber structure, sarcoma; - modern theory of the mechanism of muscle contraction ("Sliding Thread Theory" by H. Huxley E. Huxley); - strength, work and muscle fatigue; morpho-functional classification of neurons; - Principles of feedback in the CENTRAL National SN; - types of CNS synapses and classification of mediators; - the nature of THE EPCP and TPSP; - functional characteristics of different parts of the central nervous system. The nature of spinal shock; - vital centers of the oblong brain; mechanisms of functioning and principles of regulation of endocrine cells and glands of internal secretion; - Hormone types and mechanisms; hypothalamic-pituitary neuroendocrine regulation of physiological functions; - features of their interaction in conditions of purposeful behavior and pathology; - the blood system and its role in maintaining and regulating the body's homostatic constants, blood function; - characteristic and functional features of physiological blood constants; - Blood transfusion rules - The importance of biological testing in blood transfusions; - hemostasis processes and modern ideas about blood clotting mehenisms; - The main properties of the heart muscle; cavities and valve apparatus of the heart; - the main mechanisms of regulation of heart activity, heart cycle; - physiological role of vascular departments, regulation of vascular tone and systemic hemodynamics;

	<ul style="list-style-type: none"> - the relationship between volume blood flow and linear speed at rest and physical exertion; Mechanisms of filtration and reabsorption at the level of the microcirculatory channel and their regulation; - neuro-humoral regulation of vascular tone; - ventilator, pulmonary volumes and capacity; - regulation of breathing, breathing features in different conditions of existence; - digestion as a process necessary to implement the energy and plastic functions of the body; - Pavlovian experiments in digestive physiology; - features of the functioning of different departments of the gastrointestinal tract. Digestive and non-respiratory functions of the gastrointestinal tract; - Mechanisms of hunger and satiety; Methods of research of the digestive system; - The main processes and mechanisms for maintaining the permanence of body temperature; - the main stages of urine formation and mechanisms for their regulation; - How the Artificial Kidney is working; - basic non-specific (homeostatic) kidney function; - The main morpho-functional features of the organization of different parts of sensor systems; - theories of color perception, perception of sound vibrations, anomalies of vision refraction; - types of higher neural activity on Hippocrates and I.P. Pavlov; - memory mechanisms, sleep phases and cortical rhythms.
	<p>To be able to:</p> <ul style="list-style-type: none"> - prepare a neuromuscular drug; - Determine the time of the reflex on the Turk; - To reproduce the experience of central braking by I.M. Sechenov; - Identify blood groups Identify the SOE by Panchenkov; - determine the amount of blood haemoglobin using Sali's method; - interpret the general blood test and the leukocyte formula; - identify rhesus factor; determine the specificity of urine (urometry); - Conduct and analyze ECG; - Analyze the pulse - to conduct spirometry and breathing samples of Stange and Gencha to calculate the main exchange on the table and formula of Harris-Benedict, approximate formula, data from the body surface; - Calculate the specific-dynamic action of food by formula; - Calculate the student's diet Olfatometry; - To conduct a density. - To perform aesthetics; - Reproduce Galvani's experiments; to investigate tendon reflexes in humans (knee, achilles); - to investigate samples for the detection of cerebellar ataxia (Romberg, finger-nosed, knee-heel); - to investigate orthostatic and cuneiform samples.
	<p>Own:</p> <ul style="list-style-type: none"> - technique of preparation of the nerve-muscle drug frog; - Method of determining the time of the reflex on the Turk; - method of determining muscle strength (with the help of carpal and pitch dynamometers); - method of determining blood groups and rhesus factor using tsolyclone; - The method of determining AD; probing and counting of arterial pulse; - Pulsoxymetry technique; - The method of counting the CHD; - Ashner's eye-heart reflex technique; - Technique for determining acuity and fields of vision; - The method of determining color perception; - technique of counting the number of red blood cells and white blood cells; - determining the time of blood clotting, E.C., haemoglobin content); - a methodology for assessing the osmotic resistance of red blood cells; - Method to evaluate the results of the general urine test; - methodology for determining the types of GNI (Eisenka test).

II. CURRENT ASSESSMENT

№	Discipline section name	Activities (in hours)					Assessments for ongoing performance control
		L	LW	PC	SES	total	
1	2	3	4	5	6	7	8
1	Introduction to the subject. Physiology of excitable tissues	4		15	7	23	Tests, situational tasks, control work, oral survey.
2	General and private neurophysiology. Vegetative nervous system	6		15	7	27	-//-
3	Endocrine System Physiology	2		6	8	12	-//-
4	The physiology of the blood system	2		9	7	18	-//-
5	Cardiovascular Physiology	4		9	7	28	-//-
Total:		18		54	36	108	
5	Vascular Physiology (Hemodynamics) Regulation of the CVS	2		8	5		
6	Breathing physiology	4		8	5	15	-//-
7	Digestive Physiology	8		8	5	21	-//-
9	Nutrition and thermoregulation physiology	2		4	6	14	-//-
10	The physiology of selection	4		8	5	15	-//-
11	Physiology of analyzers	8		18	5	31	-//-
12	Physiology of higher neural activity (HNA)	8		18	5	31	-//-
Total:		36		72	36	142	

Formed in the process of studying the academic discipline of competence (GC-1, GPC-9)

Thematic plan of lectures

№ Section	Lecture topics	Number of hours per semester	
		III	IV
1	Introduction to physiology. The physiology of excitable tissues. Bioelectric phenomena in tissues. Laws of irritation and excitable tissues.	1	
-//-	Nerve fibers. Myoneural synapses. Muscle physiology. The mechanism of muscle contraction. Indicators of physical muscle activity (strength, work and muscle fatigue).	1	
2	General physiology of the central nervous system. Neuron, reflex, reflex arc. Excitement and inhibition in the central nervous system.	2	
-//-	Private physiology of the CNS. The role of different parts of the central nervous system in the regulation of muscle tone and phase movements.	2	
3	Physiology of the autonomic (autonomous) nervous system. The physiology of the glands of internal secretion. Hypothalamic-pituitary system.	2	
4	The physiology of the blood system.	2	

5	The physiology of the cardiovascular system. Properties of the heart muscle, ECG, tones of the heart.	1	
-//-	Clinical and physiological methods of heart research: phonocardiography, reography, ultrasound of the heart, balistocardiography. Cardiovascular regulation.	1	
-//-	Hemodynamics. System circulatory regulation.	2	
6	Breathing physiology. Essence and meaning. External breathing, breathing volumes. Mechanisms of inhalation and exhalation. Pleural cavity.		2
-//-	Transport of gases with blood, alveolar-capillary barrier. Breathing regulation. Features of breathing in different conditions.		2
7	The physiology of digestion, essence and importance. I.P. Pavlov's role in the study of digestion. Digestive and non-food functions.		2
-//-	Digestion in the mouth and stomach. The composition of saliva, gastric juice. The role of HCl in digestion.		2
-//-	The mechanism of evacuating food from the stomach. Digestion in the 12-fingered intestine. The role of pancreatic juice and bile in digestion.		2
-//-	Digestion in the large and small intestine. Strip and wall digestion (Ugolev). The role of the microflora of the large intestine. The absorption of the gastrointestinal tract.		2
8	The physiology of exchange and energy. The plastic and energy value of proteins, fats, carbohydrates. Introductory and salt exchange. Regulation.		2
9	The physiology of a rational diet. Diet requirements. Thermoregulation (physical, chemical).		2
10	The physiology of the excretion system. Renal, extrastural selection pathways. Nefront.		2
	Urinary mechanisms: glomerular filtration, canal reabsorption and secretion. Regulation of kidney function.		2
11	Physiology synthesis of analyzer systems. Pavlov's teaching about analyzers. Common properties of analyzers. The receptors, their classification.		2
-//-	Sas. Physiology of tactile, temperature, olfactory, motor and taste analyzers. Pain analyzer, pain classification. Nociceptors are their species, the body's anti-nociceptive system.		2
-//-	Visual analyzer. Optical eye system. Refractive anomalies, their correction. Retinal physiology, photoreceptors. Theories of color perception.		2
-//-	Auditory and vestibular analyzers. The structure of the auditory analyzer. The mechanism of sound perception. The concept of a visceral analyzer.		2
12	Higher Nervous Activity (HNA). The physiology of the cerebral cortex. Electroencephalography (EEG), the clinical significance of cortical rhythms. I.P. Pavlov's role in the study of HNA.		2
-//-	HNA. Methods and rules of conditioning reflexes (Pavlov). Temporary communication, mechanisms of education. The architectecture of the behavioral act on Anohin.		2
-//-	HNA. Cortical braking, its views. Types of HNA by Hippocrates and Pavlov. Sleep, species, phases and sleep mechanisms. Dreams.		2
-//-	Features of HNA in a person. The teachings on the I and II signal systems on Pavlov. Functional asymmetry of large hemispheres.		2

Thematic plan of practice

№ Sec tio n	The name of the topics of practice	Number of hours per semester	
		III	IV
1	Introductory class. Excitable fabrics, excitability parameters. The experiences of Galvani and Matteuchy.	3	

	The laws of irritation and arousal. Myoneural synapses.	3	
	Muscle physiology: types of muscle contraction, tetanus. Dynamometry in humans.	3	
	Final class: "The physiology of excitable tissues».	3	
2	Analysis of the reflex arc. Determining the time of the reflex on the Turk. The main properties of nerve centers. Braking in the central nervous system. Sechenov and Holtz' experiences.	3	
	The physiology of the spinal cord, spinal shock, tendon reflexes in humans. Tonic reflexes. Trials to detect static and dynamic ataxia.	3	
	Physiology of the cerebellum, sterhopalida and limbic system.	3	
	Vegetative nervous system. Vegetative reflexes in humans.	3	
3	Human endocrine system. The effect of adrenaline on the pupil and the isolated heart of the frog. Simol's iodine reaction.	3	
	Final class: "General and private neurophysiology. Vegetative nervous system." "Neurohumoral function regulation"	3	
4	Clinical-physiological methods of blood research, determination of hemoglobin, SEE, counting of formal elements	3	
	Determining blood type, rhesus factor, clotting time	3	
	Final class: "The physiology of the blood system"	3	
5	Myocardial physiology. Features of the heart muscle. Heart automation, Stannius experience. Clinical-physiological methods of heart research: listening to tones, defining boundaries, analysis of ECG.	3	
	Heart regulation: reflexes, hormones and electrolytes.	3	
	Final class: "The Physiology of the Heart" (theoretical parsing).	3	
	The final lesson: "The Physiology of the Heart" (research methodology).	3	
	Hemodynamics. Methods of measuring AP. Pulse analysis, sphygmography.	3	
	Regulation of hemodynamics. Factors influencing the amount of blood pressure. The effect of physical activity on the pulse and blood pressure in the volunteer.		2
	The final lesson: "The physiology of the vascular system."		2
6	The physiology of external breathing. Respiratory volumes, spiograph.		4
	Transport of gases by blood, oxyhemometry. Calculating the partial pressure of gases. Pulsoxymetry.		2
	Breathing regulation. A test for breathing (Stange and Gencha). Effect of physical activity (squats) on human breathing.		2
	The final lesson: "Breathing Physiology."		2
7	Digestive physiology. Experimental and clinical methods of studying the physiology of digestion. Demonstration of various fistulas, gastric and duodenal probes.		2
	Digestion in the mouth and stomach. Determining the digesting strength of gastric juice in different conditions. Masticiography.		2
	Parsing Pavlov's classic experiences: "Imaginary Feeding," the experience of an isolated ventricle.		2
	Pavlovsk curves of gastric juice separation into various food substances.		2
	Duodenal drainage		2
	Analysis of endoscopic methods of patient research: esophagescopy, gastroscopy, duodenoscopy, colonoscopy, rectoromanoscopy.		2
	Observing the intestinal automatization and the movement of esophagus cilia in the frog.		2
	The final lesson: "Digestive physiology."		2
8	The physiology of metabolism and energy. Calculating the main exchange based on weight, height and age data.		2
	Calculating the percentage of deviation of the main exchange of the patient from due. SDTP calculation. Calculation of the total (gross exchange).		2
9	Final class: "Metabolism and Energy Physiology"		2
	Nutrition physiology. Compiling a daily diet for representatives of different occupational groups.		2

	The physiology of thermoregulation. Analysis of the temperature map of the human body surface, daily temperature fluctuations. Measuring the patient's temperature.		2
	The final lesson: "The physiology of nutrition and thermoregulation."		2
10	Determining the specific weight of urine (urometry). Extrarenal pathway of excretion (study of sweat glands by Sniakin).		2
	Calculating the speed of tubular filtration (Clearance). Familiarity with the principle of the "artificial kidney" apparatus.		2
	The final lesson: "The physiology of the excretion system."		2
11	Sas. Taste study (gustometry), study of sense of smell (olfactorometry), study of tactile sensitivity (esthesiometry).		2
	Aristotle's experience. Weber-Figsner's law. Dealing with the physiology of pain and anesthesia.		2
	Determining visual acuity, determining the field of vision (perimeter).		2
	Marriott's experience. Study of the pupil reflex. Determining the patient's color perception by Rabkin's tables.		2
	The physiology of the auditory and vestibular analyzer. Determining hearing acuity. Comparison of air and bone conductivity.		2
	Physiology of auditory and vestibular analyzers. Adaptation of the auditory analyzer. Features of binaural hearing.		2
	The final lesson: "The Physiology of the Analyzers."		2
12	HNA. The physiology of the cortex. Electroencephalography (EEG). The development of a conditional flashing reflex in a person.		2
	Exploring the functional system of behavioral act on Anohin. Study of short-term visual and auditory memory in students.		2
	Definition of the type of HNA (Isaac test). Determining the type of HNA of a person by the way words are grouped. A test to determine the dominant hemisphere of the brain.		2
	The final lesson: "Physiology of higher neural activity."		2

№ Section	Forms of control	
	Current	midterm
1	Oral survey, written survey	Tests, interview, colloquium
2	Oral survey, written survey	Tests, interview, colloquium
3	Oral survey, written survey, role-playing games	Tests, interview, colloquium
4	Oral survey, written survey	Tests, interview, colloquium
5	Oral survey, written survey	Tests, interview, colloquium
6	Oral survey, written survey	Tests, interview, colloquium
7	Oral survey, written survey	Tests, interview, colloquium
8	Oral survey, written survey	Tests, interview, colloquium
9	Oral survey, written survey	Tests, interview, colloquium
10	Oral survey, written survey	Tests, interview, colloquium
11	Oral survey, written survey	Tests, interview, colloquium
12	Oral survey, written survey, role-playing games.	Tests, interview, colloquium

LABORATORY WORK

There are no separate laboratory sessions at the department. Practical classes include studies of certain human physiological indicators, reflexes on volunteers, experiments and experiments on frogs.

Educational and methodical support for self-discipline work

Self-employed student in discipline

№	Section	Types of SES	Total hours	Forms of control
1	2	3	4	5
1	1	Provision of classes with frogs; preparation of oral reports on dynamometry, preparation for practical lessons - provision of the main terms of the section in the workbook; study of educational and scientific literature;	7	checking the protocol
2	2	Preparing for practice - filling in the working notebook the basic terms of the section; Study of academic and scientific literature; presentation on tendon reflexes.	7	Checking the terminology of the section
3	3	Preparing for practice - filling in the working notebook the basic terms of the section; Study of academic and scientific literature; preparation of reports with a presentation on endemic goiter, diabetes, adrenal pathology.	8	filling out a questionnaire to identify the risk of SD
4	4	preparing for hands-on classes by definition. blood groups by tsoliclone, solving situational problems in determining blood group, filling in the working notebook of the main terms of the section;	7	anti-A, anti-B, anti-AB.
5	5	The student has to perform all ECG registration procedures on their own. Preparing for practice sessions - filling in the working notebook the basic terms of the section; Study of academic and scientific literature;	7	introduction to THE ECG
6	6	Preparing for practice - filling in the working notebook the basic terms of the section; Study of academic and scientific literature; Solving problems issued in practice sessions report on spirometry.	5	Introduction to the spirometer
7	7	Reference messages on Pavlov's work on digestion. Preparing for practice sessions - filling in the working notebook of the main terms of the section; Study of academic and scientific literature;	5	to familiarize with Pavlov's work.
8	8	Preparing for hands-on sessions and filling in the working notebook of the main terms of the section; solving situational problems on the topic, calculating the OO on the tables of family members at home.	5	Checking protocols
9	9	Preparing for hands-filling in the working notebook of the main terms of the section; preparing abstracts on nutrition, dieting at home.	6	dietary requirements
10	10	Preparing for hands-filling in the working notebook of the main terms of the section; referral messages on methods of determining different indicators of kidney function: clearance, by PAH, concentration index	5	introduction to hemodialysis
11	11	Preparing for hands-filling in the working notebook of the main terms of the section; refer to the topics: "Refraction anomalies and corrections," "Theories of color perception"	5	introduction to Foster's perimeter device
12	12	Preparing for practice - filling in the working notebook the basic terms of the section; Determining the types of GNI on the Eisenka test at home in family members.	5	Checking protocols
		Total:	72	

The subject of abstract works

№	Sec	Competen	Subject
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	tion	ce	
1	1	GC-1	Nobel laureates in physiology, their contribution to science
2	1	GPC-9	Cell physiology. The cell membrane, its structure and function. Modes of transport through membranes. Classification of ion channels.
3	1	GPC-9	The concept of synapses. Classification of synapses and mediators. Nature of EPCP and TPP
4	1	GPC-9	Muscle physiology. Motor units. Electromyography.
5	2	GPC-9	The concept of a nervous center in a broad and narrow sense. The physiological properties of nerve centers. The concept of a nervous center in a broad and narrow sense. The physiological properties of nerve centers.
6	2	GPC-9	The value of braking in the central nervous system. The history of the discovery of braking. A modern interpretation of the braking process.
7	2	GPC-9	The vegetative nervous system and its functions. The main types of mediators and receptors. Vegetative reflexes in humans and their clinical significance.
8	3	GPC-9	Endocrine system. Classification of biologically active substances. Stress, mechanisms. Hans Selier's role in the development of the stress teaching.
9	4	GPC-9	The types of blood group systems, their characteristic. Basic and additional agglutinogens.
10	4	GPC-9	Identify blood groups and rhesus factor using tsolyclone.
11	4	GPC-9	Functional system that ensures the maintenance of liquid blood condition (RASB - regulation of the aggregate state of blood).

Guidelines for students in the discipline.

(appendix no.3, teaching guide to practical lessons for students in 2 parts).

Part 1: The physiology of excitable tissues. General and private neurophysiology. endocrine system physiology. physiology of the blood system. The physiology of the cardiovascular system.

Part №2: Breathing physiology. Digestive physiology. Metabolism physiology и энергии. Nutrition and thermoregulation physiology. The physiology of selection. Physiology of synthesis-analyzer systems. Physiology of higher neural activity.

Authors of teaching manuals: the staff of the department.

ASSESSMENT TOOLS FOR ONGOING PERFORMANCE CONTROL AND INTERIM CERTIFICATION ON THE RESULTS OF DISCIPLINE

Current performance control

A list of competencies showing the stages of discipline formation in the process of mastering the work program

Competence code			
GC-1	the ability to abstract thinking, analysis, synthesis.		
GPC-9	the ability to evaluate morphofunctional, physiological states and pathological processes in the human body to solve professional problems.		
<i>№ Section</i>	<i>Controll ed compet encies</i>	<i>Discipline section name</i>	<i>Estimated funds</i>
<i>Текущий контроль</i>			
1	GC-1, GPC-9	Hominal physiology as a science. Levels of organization of the human body. The unity of the body with the external environment.	Colloquium interview

2	GPC-9	Integrative function of the central nervous system. Principles of coordination of the central nervous system. The plasticity of the cortex of the big brain. Functional asymmetry of the hemispheres of a large brain in humans.	Tests Interview Control work
3	GPC-9	The body's neuroendocrine system. The role of neuropeptides in regulating physiological functions.	Roundtable Interview
4	GPC-9	The body's internal environment and homeostasis. Mechanisms of hemostasis and febrile response.	Control Work Tests Interview
5	GPC-9	Clinical-physiological methods of heart research. Heart reflexes. Intro and extracardiac mechanisms of regulation of the CVS.	Tests Interview
6	GPC-9	Breathing, gas exchange in lungs and tissues, atmospheric air composition, respiratory regulation, mountain and caesarean disease.	Summary on the topic of classes, interviews, tests.
7	GPC-9	Pavlov's role in the study of digestive physiology. Neurohumoral regulation of digestive function.	Tests Interview
8	GPC-9	Exchange of substances and energy, calculation of the main metabolism, professional groups, the basics of adequate nutrition.	Control Work Tests Interview
9	GPC-9	Principles of rational nutrition. Nutrition mode. The permanence of the temperature of the internal environment to the body is the conditions of normal metabolism.	Control Work Tests Interview
10	GPC-9	The renal and extrarenal mechanisms maintain the permanence of the internal body. The principle of the "Artificial Kidney" machine works.	Tests Interview
11	GC-1, GPC-9	The concept of the analyzer from the position of the teaching of I.P. Pavlov. Receptor and generator potentials. Principles of encoding signals of information in analyzers.	Control Work Tests Interview
12	GC-1	HNA. Types of human HNA. Differences between human HNA and animals. Memory, kinds of memory.	Control Work Tests Interview
All competencies formed in the process of mastering discipline Hominal Physiology		Exam	
GC-1, GPC-9,		Hominal Physiology Exam	Tests and/or oral interviews on tickets in face-to-face format or online mode.

Forms of control of self-study

№	раздел	Types of SES	Total hours	Forms of control
1	2	3	4	5
1	1	Providing classes with frogs; preparing oral reports on dynamometry, preparation for practice sessions - filling in the working notebook the main terms of the section; study of academic and non-fiction;	7	checking the protocol
2	2	Preparing for practice - filling in the working notebook the basic terms of the section; Study of academic and scientific literature; presentation on tendon reflexes.	7	Checking the terminology of the section
3	3	Preparing for practice - filling in the working notebook the basic terms of the section; Study of academic and scientific literature; preparation of reports with a presentation on endemic goiter, diabetes, adrenal pathology.	8	filling out a questionnaire to identify the risk of SD
4	4	preparing for hands-on classes by definition. blood groups by tsoliclone, solving situational problems in determining blood group, filling in the working notebook of the main terms of the section;	7	introduction to anti-A, anti-B, anti-AB.
5	5	The student has to perform all ECG registration procedures on their own. Preparing for practice sessions - filling in the working notebook the basic terms of the section; Study of academic and scientific literature;	7	introduction to THE ECG
6	6	Preparing for practice - filling in the working notebook the basic terms of the section; Study of academic and scientific literature; Solving problems issued in practice sessions report on spirographs.	5	Introduction to the spiograph
7	7	Reference messages on Pavlov's work on digestion. Preparing for practice sessions - filling in the working notebook of the main terms of the section; Study of academic and scientific literature;	5	to familiarize himself with Pavlov's work.
8	8	Preparing for hands-on sessions and filling in the working notebook of the main terms of the section; solving situational problems on the topic, calculating the OO on the tables of family members at home.	5	Checking protocols
9	9	Preparing for hands-filling in the working notebook of the main terms of the section; preparing abstracts on nutrition, dieting at home.	6	dietary requirements
10	10	Preparing for hands-filling in the working notebook of the main terms of the section; referral messages on methods of determining different indicators of kidney function: clearance, by PAH, concentration index	5	introduction to hemodialysis
11	11	Preparing for hands-filling in the working notebook of the main terms of the section; refer to the topics: "Refraction anomalies and corrections," "Theories of color perception"	5	introduction to Foster's perimeter device

12	12	Preparing for practice - filling in the working notebook the basic terms of the section; Determining the types of GNI on the Eisenka test at home in family members.	5	Checking protocols
		Total	72	

LIST OF POSSIBLE FORMS OF DISCIPLINE CONTROL

Name forms of control	Summary of the appraisal material	Presentation of appraisal to EAF
Testing	A system of standardized tasks that allows you to automate the procedure of measuring the level of knowledge and skills of the learner.	Test assignment fund
Control interview	Средство контроля, организованное как специальная беседа педагогического работника с обучающимся на темы, связанные с изучением дисциплины, и рассчитанное на выяснение объема знаний обучающегося по определенному разделу, теме, проблеме и т.п.	Вопросы по темам/разделам дисциплины
Situational tasks solving	A problem task in which the student is offered to understand the real professional-oriented situation necessary to solve the problem.	Situational tasks
Business and/or role-playing	Joint activities of a group of students and a teacher to solve educational and professional-oriented tasks by playing simulation of a real problem situation. Allows you to evaluate the ability to analyze and solve typical professional problems.	Theme (problem), concept, roles and expected result for each game
Summary	The product of the student's independent work, which is a summary in writing of the results of the theoretical analysis of a certain scientific (educational and research) topic, where the author reveals the essence of the problem under study, gives different points of view, as well as his own views on it.	Subject topics
Colloquium	A means of monitoring the assimilation of a topic, section or section of a discipline organized as a training session in the form of an interview of a teacher with trainees.	Issues on topics/sections of discipline
Control work	A tool for verifying the ability to apply the acquired knowledge to solve	A set of options control jobs

	problems of a certain type by topic or section.	
Assessment of practical skills/abilities	Evaluation of the use of theoretical and practical knowledge in practice, i.e. the transformation of knowledge into skills, including the use of physiological devices.	List of practical skills
Report, announcement	A product of independent student work, which is a public presentation on the presentation of the results of the decision of a certain educational and research or scientific topic.	Topics of reports, messages
Workbook	A didactic complex intended for the independent work of a student and allowing him to evaluate the level of assimilation of educational material.	Sample work notebook
Tasks of creative nature	Partially regulated task, which has a non-standard solution and allows to diagnose skills, integrate knowledge of different areas, argue your own point of view. Can be performed on a case-by-case basis or by a group of students	Topics of group and/or individual creative tasks
Roundtable, discussion, polemics, debates	Assessment tools allow students to be included in the discussion of a controversial issue, problems their ability to argue their own point of view.	List of discussion topics for roundtable, discussion, polemics, debates, debates

CURRENT AND BOUNDARY CONTROL, INTERIM CERTIFICATION ON THE RESULTS OF THE DISCIPLINE

List of examination questions on normal physiology for oral (online) conversation with medical students

Typical tasks to evaluate competency formation results at the "able to" level, "to know".

I. Introduction to the subject. Physiology of excitable tissues (GPC-9)

1. Excitability and excitable tissues. Power and temporal parameters of excitability.
2. Irritants and their classification.
3. Electrical phenomena in living tissues.
4. The history of their discovery (I and II experiments of L. Galvani).
5. Membrane-ion theory of the origin of biopotentials.
6. The nature of membrane potential. The role of the ions.
1. The potential of the action and its phases. The importance of registering biopotentials in medicine.
2. The patterns of arousal on nerve fiber.
3. The laws of irritation of excitable tissues (the law of "power," the law of "power-time," the law of "gradient," the law of "all or nothing," the polar law).

4. Types of muscles in the body. Physiological properties of muscles.
5. Types of muscle contraction.
6. Single muscle contraction, phases (pictured as a graph). Tetanic muscle contraction. Species of tetanus.
7. Mechanism of muscle contraction (myofibrills, sarcomers, contractile proteins).
8. Muscle strength, work and fatigue.

II. General and private neurophysiology. Vegetative nervous система (GPC-9)

1. Neuron as a structural-functional unit of the central nervous system.
2. Functional classification of neurons.
3. The concept of reflex, reflex theory by I.M. Sechenov, I.P. Pavlov.
4. Reflex arc, its links. Feedback view.
5. The concept of a nerve center. Features of excitation by nerve impulses.
6. Classification of synapses in the CNS: excitatory and inhibitory; their mediators.
7. Summation of excitation in the Central Nervous System, its types (I.M. Sechenov).
8. The principle of dominance in the Central Nervous System (A.A. Ukhtomsky), its role in reflex activity.
9. Opening of central braking. The classic experience of I.M. Sechenov on a talamic frog.
10. Types of braking in CNS. Brake synapses and their mediators.
11. Metameric (segmental) principle of spinal cord innervation. Reflex and conductor functions of the spinal cord.
12. Clinically important spinal cord reflexes, ways to investigate them.
13. Spinal shock, nature, duration in various animals, as a result.
14. Functions of the oblong brain.
15. Decerebration rigidity, developmental mechanism.
16. Static and statokinetic reflexes of the posterior brain.
17. Cerebellum, structure and functions. Symptoms of cerebellar injury.
18. Intermediate brain. Functions of thalamus nuclei.
19. Hypothalamus as the highest subcortical center for the regulation of vegetative functions.
20. Limbic system, its departments. Functional significance of limbic system structures.
21. Basal ganglia, functional role. The idea of hypo- and hyperkinesias.
22. Departments of the autonomic nervous system. Differences in the arch of the vegetative reflex from the somatic one.
23. Effects of sympathetic and parasympathetic nervous system on organs and tissues. Understanding functional antagonism and synergism of vegetative nervous system departments.

III. Physiology of the endocrine system (GPC-9)

1. Features of hormonal regulation of functions. Types and mechanisms of action of hormones. Classification of hormones by chemical structure.
2. Thyroid gland. The role of her hormones in regulating the growth and development of the body.

3. Hormones of the anterior pituitary gland, their role in the regulation of functions.
4. Functions of posterior pituitary lobe hormones.
5. Pancreatic hormones and their role.
6. Sex hormones are male and female. Their functions.
7. Adrenal hormones (cortical and cerebral layers).

IV. Physiology of the blood system (GPC-9)

1. Blood. Blood functions, their characteristics.
2. The composition and amount of blood in a person.
3. Hematocrit score. Blood plasma and its composition.
4. Blood plasma proteins, basic functions.
5. Red blood cells, their functions. The concept of erythrocytosis and erythropenia.
6. Hemoglobin, its physiological and pathological compounds.
7. White blood cells, quantity, species. Leukocytosis, leukopenia.
8. Leukocyte formula (left, right shift).
9. Phagocytosis, phagocytosis stages. Immunity and its types.
10. Blood groups (according to the ABO system). Resus factor.
11. Rhesus factor, its role in blood transfusion. Resus conflicts.
12. Blood transfusion rules. Procedure for biological sampling.
13. Blood buffer systems, their role in maintaining blood pH.
14. Blood coagulation, phases. The concept of coagulants and anticoagulants.

V. Cardiovascular Physiology (GPC-9)

1. Methods for investigating heart activity.
2. Physiological properties of heart muscle.
3. An idea of the conducting system of the heart. Automatic gradient.
4. The cycle of cardiac activity and its phases. Role of heart valves.
5. Heart tones, their origin. Heart auscultation.
6. Nerve-reflex regulation of cardiac activity.
7. Humoral regulation of heart activity.
8. Functional classification of vessels. Factors that provide blood movement through vessels.
10. Blood pressure, his research methods.
11. Properties of the arterial pulse. Study of pulse properties by palpation and sphygmography.
13. Blood movement through capillaries and veins. Factors that provide blood movement through veins.
15. Nerve reflex and humoral regulation of vascular tone. An idea of the vasomotor center.

VI. Respiratory physiology (GPC 9)

1. Breathing, essence, basic stages. Types of breathing.
2. Lung ventilation (inhalation and exhalation mechanisms).
3. Factors constituting elastic pulmonary traction (EPT). Intrathoracic thoracic pressure, role in the process of respiration.
4. Vital capacity of lungs (VC), pulmonary volumes. Spirometry.

5. Dead airway space, its physiological significance.
6. Gas exchange in the lungs. Transport of gases with blood. The concept of oxygen capacity of blood.
7. Gas exchange between blood and tissue. Oxyhemoglobin dissociation curve.
8. Respiratory center, its structure and functions.
9. Effect of gas blood composition on respiratory center activity.
10. Reflex regulation of respiration (Goering-Breyer reflex). Protective respiratory reflexes.
11. Breathing at rest and during muscle work.
12. Peculiarities of breathing in conditions of high and low atmospheric pressure.

VII. Digestive Physiology (GPC 9)

1. The essence and meaning of digestion. Digestive and non-nutritional functions of the gastrointestinal tract.
2. Characterization of secretory function of the digestive tract.
3. Motor function of the digestive tract and its value.
4. Characteristics of digestive absorption function. Suction mechanisms.
5. Digestion in the oral cavity. Chewing system, chewing regulation.
6. Major salivary glands. Saliva composition and properties. Regulation of salivation.
7. Digestion in the stomach. Gastric secretion phases.
8. Experience of "imaginary feeding" (I.P. Pavlov).
9. Gastric juice composition. Role of HCl in digestion.
10. Features of digestion in the duodenum.
11. Composition and properties of pancreatic juice. Regulation of pancreatic secretion.
12. Liver functions. The role of bile in digestion.
13. Digestion in the small intestine. The concept of cavity and wall food. Suction.
14. Digestion in the colon. Microflora participation in digestion

VIII. Metabolism and energy physiology (GPC-9)

1. Protein metabolism, the role of proteins in the body. Understanding the nitrogen balance.
2. The role of fats and carbohydrates in the body. Mechanisms of regulation of fat and carbohydrate metabolism.
3. Basic energy exchange, standard conditions for its definition. Straight and non-straight calorimetry.
4. Working energy exchange. Energy demand depending on the nature of work.

IX. Nutrition and thermoregulation physiology (GPC-9)

1. Mechanisms for maintaining the constancy of body temperature.
2. Chemical and physical thermoregulation.
3. Daily diet
4. Requirements for a daily food diet.

X. The physiology of the excretion system (GPC-9)

1. The entity of the excretion function. Characteristics of renal and extra-renal isolation systems.
2. Kidney functions (excretory, endocrine, homeostatic), their characteristics.
3. Nephron - as a structural-functional unit of the kidneys. The role of various departments of the

nephron in urination.

4. Characteristics of the main processes of urination.

5. Glomerular filtration. Composition of primary urine.

6. Reabsorption and secretion processes in the nephron tubule apparatus. Final urine formation. Quantity and composition.

XI. Physiology of analyzers (GC-1, GPC-9)

1. The value, functions and general properties of synthesis-analyzer systems (SAS). Characteristics of SAS departments (receptor, conductor, cortical).

2. The olfactory synthesis-analyzer system, its departments. Olfactrometry. Classification of primary odors.

3. Taste synthesis-analyzer system, its departments. The method of determining taste sensitivity (gustometry).

4. Localization of taste buds and their role.

5. The physiology of the auditory synthesis-analyzer system. Mechanisms of sound conduction and sound recording. Air and bone transmission of sounds.

6. Visual synthesis-analyzer system. Characteristics of receptor, conductor and cortical departments.

7. The visual analyzer's receptor department. Photoreceptors, visual pigments.

8. Theories of color. Color vision anomalies.

9. Optical eye systems. Accommodation mechanism. Old farsightedness (presbyopia).

10. Anomalies of eye refraction (short-sightedness, farsightedness, astigmatism).

11. Pain (nociceptive) synthesis-analyzer system. Species and pain theories. Classification of nociceptors.

12. Interaction of nociceptive and anti-nociceptive systems. Physiological basics of anesthesia.

XII. Physiology of higher neural activity (GC-1, GPC-9)

1. Structural and functional organization of the cortex of the large hemispheres. Electroencephalography (EEG), cortical rhythms.

2. Congenital and acquired forms of behavior. Conditional reflex as one example of information storage. Differences of conditioned reflexes from unconditional reflexes.

3. Types and mechanisms of memory.

4. Inhibition in the cerebral cortex (unconditional and conditional). Protective inhibition. 5. Types of higher nervous activity (classification according to Hippocrates and I.P. Pavlov).

5. Physiological foundations of sleep and dreams. Types and phases of sleep.

6. Signal systems for reflecting reality (I and II according to I.P. Pavlov). The nature of higher nervous activity in humans.

7. Emotion physiology. Emotional stress and its phases.

COMPETENCE ACHIEVEMENT

<i>Competences are not mastered, the assessment is «unsatisfactory»</i>	No answers received on basic discipline issues
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«Satisfactory»	The answers to questions and tasks are not sufficiently complete. Logic and sequence in solving problems have violations. No findings in responses.
«Good»	Complete answers are provided to the questions raised. The ability to distinguish cause-effect link is shown. When solving problems, minor errors were made, corrected with the help of "guiding" questions of the teacher.
«Full mark»	The answers to the questions are complete, clear and detailed. Problem solving is logical, provable and demonstrates the analytical and creative abilities of the student.

Typical tasks to assess the results of competency formation in the current and frontier control at the level of "know" and "be able"

Situational tasks

№ course section/ Compet.	The content of the task
1 / GPC-9	<ol style="list-style-type: none"> 1. Nerve fiber placed in distilled water is not activated by the stimulus of any force. Explain the reason. 2. The occurrence of action potential is explained by membrane-ion mechanisms. What experiment proved this? Name the authors. 3. Hunters used curare poison during hunting. For what purpose it was used?
2 / GPC-9	<ol style="list-style-type: none"> 1. The animal's spinal cord was transected. Only diaphragmatic breathing was preserved. At what level transection performed? 2. Do the animal retain any reflexes, except for spinal cord, after cutting the spinal cord under the oblong? Breathing is artificially maintained. 3. In front of you are two animals - bulbar and mesencephalic. Can you distinguish them by appearance? 4. The dog has a brain stem cut. When the animal came out of anesthesia, he was sent a bright light and inflicted pain irritation. At the same time the pupils narrowed, but there were no reactions accompanying the sensation of pain. At what level the cut was made? 5. When the muscle is stretched, for example, extensor, it responds with reflex shortening (myotatic reflex). At the same time, extensor is reduced and flexor reduction is inhibited. EPCP is registered in motor neurons, which innervate extensors and IPCP in motor neurons, innervating flexors. Which of the responses (EPCP or IPCP) will be registered later? 6. Why it is not possible to coordinate motor activities without inhibition? 7. With cerebellar disorders, atonia develops among other symptoms - a violation of maintaining normal muscle tone and asthenia - rapid fatigue. However, the biochemical processes in the muscles themselves are not disturbed. In this case, what can be explained by asthenia? 8. The patient complains about the shaky gait. The examination revealed a decreased muscle tone, asythergia in hand movements, trembling of the hands, increasing with purposeful movements (intentional tremor). What kind of brain structure can be assumed in the patient? List its features.

	<p>9. A skater is required to work his legs particularly clearly when running at the turn of the stadium track. Does it matter in this situation what position the athlete's head is in?</p>
3 / GPC-9	<p>1. The patient complains of dry mouth, thirst, increased appetite, weakness. Daily urine excretion is increased (up to 3 liters). Urine analysis showed: relative density of 1,032; glucose in the urine - 9 mmol/L. Give an opinion, what is the disease and what symptoms it manifests.</p> <p>2. In a child of 5 years there is an arrest of development, specific changes in skin, hair, muscles, a sharp decrease in the speed of metabolic processes, deep mental disorders. Your conclusion: the deficiency of which hormones leads to the symptoms described above. What is the name of this disease?</p> <p>3. The patient complains of excessive body weight, thirst, unquenchable hunger, fatigue, muscle weakness. On inspection - a moon-shaped face. During the examination - hyperglycemia, hypertension, increased secretion of adrenocorticotrophin and cortisol. Which gland of internal secretion is impaired in the patient? Explain the mechanism of the described symptom complex.</p> <p>4. 25 years old patient complains about heartbeat, short temper, irritability, poor sleep, weight-giving, shaking hands (changed handwriting). Appetite is increased, but at the same time there is a loss of body weight. During the examination: negative nitrogen balance, body temperature increased, skin wet, thyroid increased, pulse 118 in min. Name the disease and explain the mechanisms of the symptoms described above?</p> <p>5. The patient has polyuria, polydipsia and sleep disturbance. The relative density of urine is from 1,001 to 1,003. Daily diuresis ranges from 5 to 20 liters. Hyposecretion of which hormone leads to these symptoms. What are its main effects?</p> <p>6. During the preventive examination of the inhabitants of southern Dagestan, most of them were seen to have an increase in the thyroid gland. A blood test showed low levels of thyroxine and triiodothyronine. In some cases, there are bouts of suffocation, coughing, hoarseness of the voice. What is the disease, what is its etiology? Why there is an increase in thyroid size?</p> <p>7. During the resection of the thyroid gland, the thyroid glands were accidentally removed. After the operation, the patient began to have attacks of apyretic tetanus. Often tetany attacks were preceded by harbingers: cooling of limbs, numbness, tingling, feeling of crawling goosebumps, spasms. What hormone deficiency is associated with these symptoms? Explain the reason for the sharp increase in neuromuscular excitability.</p> <p>8. The frequency of urination in a newborn baby reaches 20 times a day. Urine specific gravity is 1004 - 1008. Which of the regulatory mechanisms of urination is untenable in the early postnatal period?</p> <p>9. In transplantation after organ transplantation (for example, a donor kidney) is mandatory course of hormone therapy. What hormones are prescribed and for what purposes?</p> <p>10. In obstetric and gynaecological practice, women's urine is used for a number of tests for detecting pregnancy. What is it based on?</p>
4 / GPC-9	<p>7. The patient T. (45 years), by profession of X-ray technician, entered the clinic with suspected chronic radiation sickness. The following results were obtained during the blood test: Hb - 117 g/l; red blood cells - 32,000,000 in 1 ml; CPU - 0.9; white blood cells - 2500 in 1 ml; Basophils - 0%; eosinophils - 1%; platelets - 75,000 in 1 ml; SEE - 16 mm/h. What is the difference between the blood of this patient and the norm? Can this picture of blood be a consequence of the effects on the body of ionizing radiation?</p>

8. A woman, 35, complained of acute abdominal pain. Pain is permanent, amplified by movement and walking. Palpation notes local soreness in the right iliac region. There was an increase in body temperature to 38 C. In blood tests: Hb - 110 g/l; leukocytes - 14,000 per 1 ml; SEE - 14 mm/h. What changes from the blood are available to the patient? What is the left deviation?
9. Patient V. (54 years old) complains of frequent suffocation attacks that occur suddenly and are not associated with a certain time of day. During the attack, it is difficult to exhale, and the patient takes a forced position to relieve exhalation: looking for a rest for the hands. According to the blood test: Hb - 130 g/l; red blood cells - 4200,000 in 1 ml, CPU - 0.8; white blood cells - 5000 per 1 ml; Basophils - 5%; eosinophils - 18%; lymphocytes - 21%; monocytes - 7%. What changes are there on the blood side of the patient and what they can testify to?
10. The animal during the experiment had a change in genes, which led to a violation of the structure of hemoglobin. At the same time there were signs of hypoxia (increase in heart rate and respiratory rate). According to the blood test, there was a decrease in the content of hemoglobin in red blood cells. After 2 weeks in the blood there was an increase in the number of red blood cells, signs of hypoxia disappeared. What blood function occurred in the experiment, what was the reason for it? What compensatory reactions led to a decrease in hypoxia in the body, in which they were manifested?
11. During a preventive examination, a woman of 27 years old, during a survey, it turned out that she began to have small hemorrhages after minor bruises. He considers herself healthy and explains this condition with a "tough diet," which she began to observe. It turned out that fats are completely excluded from the diet. Relatives have no blood diseases, there are no harms at work and place of residence. After a consultation with a nutritionist, the question arose about vitamin deficiency, in particular vitamin K. What kind of blood function is impaired when vitamin K is deficient, and why? What will be your recommendations in this case and why?
12. An athlete who participates in a marathon race in Death Valley (USA) at an air temperature of 50 C, after 1 hour of running took a blood test. What homeostatic blood parameters could change and why?
13. Transfusion of citrate blood to the patient during the operation is accompanied by the simultaneous transfusion of a certain amount of CaCl₂ (a solution of calcium chloride). For what purpose it is transfused?
14. In situations accompanied by increased activity of the sympathetic department of the autonomic nervous system, for example, in case of danger, pain, emotional stress (stress), blood clotting increases. What is the biological meaning of increasing blood clotting in stressful situations? What negative consequences can lead to increased clotting in emotional stress?
15. In the patient, bleeding stop time and prothrombin time are within normal limits; blood clotting time is significantly increased. What kind and what phase of hemostasis suffer in the patient with this pathology?
16. Patient K., 28, needs a blood transfusion for medical reasons. When determining the group and Rh affiliation of the patient's blood: blood II (A), Rh (+). Taking into account the results of laboratory analysis, the patient was transfused with 150 ml of blood of group II (A), Rh (+). However, 40 minutes after the transfusion, the patient had hemotransfusion reactions: the temperature increased to 38.5 C, breathing and pulse increased, shortness of breath, chills, headache, low back pain, AP = 160/100 mm Hg appeared. What are the probable causes of hemotransfusion reactions? What needed to be done to prevent such a reaction?

5 / GPC-9	<ol style="list-style-type: none"> 1. The heart of the warm-blooded animal is extracted from the body. What are the conditions for the isolated heart to continue to shrink? Why it is shrinking when the conditions are right? 2. How you can restore the activity of the stopped heart? 3. A person periodically experiences sudden short-term cardiac stops. How this can be explained? 4. The dog had a heart transplant, and after her recovery she was released into the enclosure to the usual dogs. When chasing a hare, she first lags behind in running from other dogs, and then catches up with them. What explains it? 5. What reactions from the heart can be observed when pressed and stopped pressing on the eyeballs? 6. What does this indicate? Who first described this reaction? 7. The patient was diagnosed with a hyperfunction of the thyroid gland. How it affects the heart's activities? 8. What changes will occur in the cardiovascular system when blood pressure increases in the aortic arc? Name the author who described the reflex influence from this reflexogenic zone. 9. In healthy individuals, light physical activity causes a moderate increase in systolic and a slight decrease in diastolic pressure. What are the mechanisms of these changes?? 10. Training load in the form of 800 m run is performed by two healthy men. One of them was an athlete, the other - did not play sports. Due to which the minute volume of blood flow (MVBF) in the first (athlete) and the second (physically untrained) person is changed.? 11. In the experiment, a dog weighing 15 kg had a blood-letting up to 500 ml. What changes in hemodynamics in an animal will this lead to? 12. In the hot season, due to intense sweating, the viscosity of the blood was elevated. How it affected blood pressure? 13. With physical exertion, the need for tissues for oxygen increases. How it is satisfied?
6 /GPC-9	<ol style="list-style-type: none"> 1. Assess the effectiveness of pulmonary ventilation in two people. It is known that the minute volume of breathing in both is 8 liters, but the breathing rate in the first of them - 20 per minute, the second - 16 per minute. 2. Determine the pulmonary ventilation factor (CVV) at rest in a middle-aged person if the air volume is 460 ml and the functional residual capacity (FOE) is 2,400 ml. Give them definition. 3. Intra-light pressure in a healthy person is 758 mmHg. Art, intra-pleural pressure - 730. What's this breathing phase? 4. How will the external breathing change in the experiment in the dog, which under local anesthesia made a two-way cut of the vagus nerves. Explain the mechanism. 5. The world record for diving without suit is 106 m. The time of diving and climbing takes 4.5 minutes. Does air embolism develop? 5. Explain the fact that despite the low O₂ content in the mother's blood, the fetus has a high degree of oxygen saturation of the blood. Why? 6. What happens to breathing if an animal cuts its spinal cord below the IV cervical segment? 7. What compensatory reactions will the climber's body respond to during the climb of Elbrus (height 5633 m)?
7 / GPC-9	<ol style="list-style-type: none"> 1. Why is the effect of taking drugs subglossally in terms of the speed of onset and severity practically not inferior to the effect of their intravenous administration?

	<p>(For example, to stop an attack of angina pectoris, patients are advised not to swallow nitroglycerin, but put it under their tongue).</p> <p>2. What can explain the development of anemia in patients who have undergone resection (partial removal) of the stomach? Your recommendations to prevent this complication.</p> <p>1. How will the removal of the antral mucous department affect gastric secretion?</p> <p>2. How the secretory function of the stomach will be impaired during resection of the area of its fundus?</p> <p>3. What food would you not recommend to a patient with hypersecretion of gastric juice?</p> <p>4. How the surgical removal of the pyloric department of the stomach will affect digestion?</p> <p>5. As a result of surgery, the patient's duodenum was removed, and the ducts of the pancreas and liver are sewn to the skinny intestine. Will digestion be disrupted in these conditions?</p> <p>6. Violation of the functions of which parts of the digestive system can be assumed if in the laboratory analysis of the patient's feces there is fat (steatoria)?</p> <p>7. Violation of the function of which parts of the digestive system can be assumed if in the laboratory analysis of the patient's feces there is a protein (creatoria)?</p> <p>8. How and why digestive processes change in patients with reduced flow of bile to the intestine (for example, when the lumen of the common bile duct is reduced)?</p> <p>9. What is the physiological justification for the use of medicinal enema?</p>
9/ GPC-9	<p>1. What substances are oxidized in the body if the amount of oxygen absorbed and the released carbon dioxide in five minutes is equal in determining energy exchange?</p> <p>2. In two of the patients examined, the size of the main exchange was equal. However, the result is considered normal only for one of them. On what basis was such a conclusion made?</p> <p>3. How does the type of professional activity affect the level of basic exchange?</p> <p>4. Why do nutritionists recommend to observe a temporary diet, i.e. to eat at strictly defined hours?</p> <p>5. What are the ratios of heat formation in the calculation of one kg per hour in an elephant and mouse?</p> <p>6. Will the level of heat formation change with thyroid hyperfunction?</p> <p>7. Why do cheeks blush in the cold?</p> <p>8. Why can human mineral metabolism be disrupted at high ambient temperatures?</p> <p>9. What should the doctor provide for the case of artificial hypothermia?</p>
10 / GPC-9	<p>1. What part of the nephron is affected by the appearance of protein in the urine?</p> <p>2. How will diuresis be affected by reduced blood protein?</p> <p>3. Why is anuria observed during blood loss?</p> <p>4. Why is reabsorption in the proximal tubule called mandatory?</p> <p>5. What laboratory studies are needed to distinguish diabetes mellitus from diabetes mellitus?</p> <p>6. How will diuresis change if you introduce a drug that blocks V2 prescriptions?</p> <p>7. One of the most characteristic clinical manifestations of diabetes mellitus is a significant increase in diuresis, thirst, dry mouth. How can the cause of these symptoms be explained?</p> <p>8. What osmotic pressure does the liquid come from the proximal Go the tubule into the thin downward part of the Genle loop? Which solutions have the same osmotic pressure?</p>

	<p>9. A healthy person is administered a drug which is an inhibitor of an angiotensin-converting enzyme (ACE inhibitor). What happens to renin secretion?</p> <p>10. Substance X clearance is greater than inulin clearance. What urination process does this substance undergo in the kidney?</p> <p>11. Substance X clearance is less than inulin clearance. What urination process does this substance undergo in the kidney?</p> <p>12. A substance is introduced that blocks all sodium channels and transporters on the luminal membrane along the entire canal. What happens to the reabsorption of sodium and water?</p> <p>13. When conducting a concentration test, they cause dehydration of the body: the subject does not receive liquid and food containing a large amount of water for 36 hours. Explain how and why diuresis will change in a healthy person under these conditions.</p> <p>14. How will kidney activity change with a sharp decrease in systolic blood pressure to: a) 75 mm Hg; b) 65 mm Hg</p>
11 / GC-1, GPC -9	<p>1. When the eye is illuminated with bright light, reflex narrowing of the pupil occurs. Explain the mechanism of pupil reflex disappearance after the solution of atropine is instilled in the eye.</p> <p>2. What hormone can cause pupil dilation? Why?</p> <p>3. Can a person who has lost an eye at a young age restore the perception of the remoteness of the object? Why?</p> <p>4. Dogs lack color vision. However, they can differentiate, for example, cards of different colors. Due to what abilities?</p> <p>5. In older people, auditory bones often cease to perform functions (due to sclerosis). What body reserves can be used to return hearing to a person?</p> <p>6. What hearing pathologies can most likely be expected in an elderly normally healthy patient: lowering the perception of high frequencies, lowering the perception of low frequencies, general hearing reduction, and impairment of air conduction only, violation of bone conduction only? Why?</p> <p>7. What sensory capabilities will a person suffer after a skin burn? Why?</p> <p>8. Will the secretory function of the gastric glands change with impaired taste omissions in humans? Why?</p> <p>9. What will change in the extrasecretory activity of the pancreas when the oral receptors work?</p> <p>10. The activity of which sensory systems will change after a traumatic rupture of the spinal cord at the level of 6-7 thoracic segments?</p> <p>11. Smokers often have tobacco angina - heart pain after smoking. What is pain? What is its origin and significance for the body?</p>
12 / GC-1, GPC-9	<p>1. Is it possible to develop a conditional reflex against the background of strong noise?</p> <p>2. What is the difference in the meaning of a verbal irritant when producing a conditional reflex on a word in humans and animals?</p> <p>3. Is it possible to develop a food conditional reflex in a dog after horizontal cutting of anatomical connections with neighboring areas of the cortex?</p> <p>4. Your family moved to a new place of residence. Are young or older family members adapting faster to the new environment?</p> <p>5. Is it possible to develop a conditional food reflex in a fed animal?</p> <p>6. Will a conditional reflex be generated if an unconditional signal precedes a conditional one?</p> <p>7. One of the effective methods of treating fears (phobias) is the generation of new conditional reflexes with other reinforcements and in a different environment</p>

	<p>for conditional signals that cause fear. Give a physiological justification for this method.</p> <p>8. Why was one of the stages of sleep called paradoxical? How to objectively determine the period of dreams in a sleeping person?</p> <p>9. How can one explain the absence of fear in a person at the sight of a predator sitting in a zoo cage?</p> <p>10. Should man be artificially protected from negative emotions?</p> <p>11. Do people with which type of GNI more easily develop neurosis?</p> <p>12. In patients with which type of GNI in neurosis, the recovery of conditional reflex activity occurs faster?</p> <p>13. From the point of view of physiology, explain the meaning of the proverb: "the tongue always returns to the sore tooth"?</p> <p>14. Is it possible to generate two different reflexes on the same conditional signal?</p> <p>15. Is it possible to develop one reflex for several conditional stimuli?</p> <p>16. Does the age of the patient matter when compensating for the lost functions of various parts of the brain?</p> <p>17. In what simple way can the ability to reproduce forgotten information from memory be enhanced?</p>
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Typical tasks to assess competency formation results at the "own" level

Own:

- technique of frog nerve-muscle preparation;
- method of determining the time of the reflex on the Turk;
- method of determining muscle strength (with the help of carpal and thous dynamometers);
- method of identifying blood groups and factor rhesus using tsolyclone;
- AP determination methodology;
- probing and counting of arterial pulse;
- pulsoximetry technique;
- the method of calculation of respiratory rate ;
- Ashner's method of determining the ocular-cardiac reflex;
- technique for determination of acuity and visual fields;
- The method of determining color perception;
- a technique for counting the number of red blood cells and white blood cells;
- determination of blood clotting time, ESR, haemoglobin content;
- procedure for evaluation of erythrocyte osmotic stability
- Methodology for the evaluation of the results of the general urine test;
- procedure for determination of HNA types (Eisenk test)

Criteria for assessing the control of academic performance by discipline

"Unsatisfactory": the student does not have practical skills in the study of physiological functions on this topic or section of physiology.

"Satisfactory": the student has basic practical skills on the topic or section of the discipline, but performs them only with outside help, makes mistakes and inaccuracies when performing independently, using terminology.

"Good": the student has a sufficient skill in working with tools, wax-perform experiments on a living object, but performs using a guide to practical lessons.

"Excellent": the student has the skill of demonstrating a physiological experiment and methods of clinical research of human physiological functions, shows deep and complete knowledge of skills for a topic or section of discipline.

Typical tasks for assessing the results of competency formation during milestone control and intermediate certification at the level "to know"

TEST: specialty «Medical care», hominall physiology 2 course THE PHYSIOLOGY OF THE BLOOD SYSTEM (GPC-9)

? OSMOTIC BLOOD PLASMA PRESSURE WILL NOT CHANGE WHEN INTO BLOOD IS TRANSFUSED SOLUTION OF

- ! GLUCOSE 40%
- ! SODIUM CHLORIDE 0.2%
- ! CALCIUM CHLORIDE 20%
- +! SODIUM CHLORIDE 0, 9%

? IN THE BLOOD OF A HEALTHY MAN, THE AMOUNT OF HEMOGLOBIN IS

- ! 170 - 200 g/l
- ! 100 - 110 g/l
- ! 90 - 100 g/l
- +! 130 -160 g/l

? TOTAL AMOUNT OF PLASMA PROTEIN IS

- !21-27%
- !10-12%
- !2-5%
- + !7-8%

? ACTIVE BLOOD RESPONSE (PH) IN NORMAL EQUALS

- !7.0-7.5
- !7.25-7.85
- !7.9-8.0
- + !7.35-7.45

? IN THE BLOOD OF A HEALTHY PERSON, MONOCYTES OF TOTAL WHITE BLOOD CELLS MAKE UP

- !20-30%
- !50-75%
- !10-18%
- + !2-9%

? IN THE BLOOD OF A HEALTHY PERSON, BASOPHILES OF TOTAL WHITE BLOOD CELLS MAKE UP

- !3-5%
- !10-12%
- !20-25%
- + !0-1%

? IN THE BLOOD OF A HEALTHY PERSON, EOSINOPHILS OF TOTAL LEUKOCYTES MAKE UP

- !10-12%
- !25-30%
- !40-45%
- + !1-5%

? in the blood of a healthy person, lymphocytes of the total number of white blood cells are

- !0.5-1%
- !60-70%
- !75-85%
- + !18-40%

? 1 microliter of healthy male blood contains red blood cells

- !8 500 000 - 8 900 000
- !3 700 000 - 5 000 000

!4 000 – 6 000

+ !4 500 000 - 5 500 000

? thrombocytes quantity in 1 microliter of healthy person's blood is

- !140 000 – 150 000
- !100 000 – 120 000
- !90 000 – 100 000
- + !180 000 – 320 000

? white blood cell quantity in 1 microliter of healthy person's blood is

- !10 000 - 12 000
- !2 000 - 3 000
- !20 000 – 25 000
- + !4 000 – 9 000

? the primary function of red blood cells is

- ! carbohydrate transport
- ! participating in blood buffering reactions
- ! participation in digestive processes
- +! transport of oxygen and carbon dioxide

? neutrophils participate

- ! in antibody production
- ! in heparin transport
- ! in lymphocyte activation
- +! in phagocytosis and destruction of microorganisms

? blood function is due to the presence of antibodies in it and the phagocytic activity of white blood cells

- ! trophic
- ! transport
- breathing!
- +! protective

? respiratory function of blood is ensured....., contained in erythrocytes

- ! heparin
- ! plasma
- ! prothrombin
- +! hemoglobin

? thanks to..... function. Blood provides all cells of the body with nutrients

- breathing!
- ! excretory
- ! thermoregulatory
- +! trophic

? blood plasma proteins create..... pressure

- ! osmotic
- ! hydrostatic
- ! hemodynamic
- +! oncotic

? muscles contain....., performing functions similar to hemoglobin

- ! carbbhemoglobin
- ! oxyhemoglobin
- ! deoxyhemoglobin
- +! myoglobin

? presence in the blood..... maintained acid - basic equilibrium

- ! osmotic pressure
- ! uniform blood elements
- ! nutrients
- +! buffer systems
- ? the percentage of individual forms of white blood cells is called
- ! color blood indicator
- ! hematocrit number
- +! leukocyte formula
- ? increased white blood cell content in peripheral blood is called.....
- ! leukopoiesis
- ! leukopenia
- ! thrombocytosis
- +! leukocytosis
- ? lymphocytes play an important role in the processes.....
- ! blood clotting
- ! hemolysis
- ! fibrinolysis
- +! immunity
- ? grainy white blood cells with phagocytic activity and toxin binding properties are called.....
- +! neutrophils
- ! monocytes
- ! lymphocytes
- +! eosinophils
- ? to count red blood cells in the counting chamber. Hot blood is bred.....
- ! 0.1 N HCl solution
- ! distilled water
- ! 5% acetic acid solution
- +! 3% sodium chloride solution
- ? agglutinogens are included in the next constituent
- ! plasma
- ! leukocytes
- ! platelets
- +! red blood cells
- ? in the blood of a person having group IV, there are agglutinogens
- AND!
- IN!
- !0
- +! AB
- ? rhesus antigen is part of
- ! plasma
- ! white blood cells
- ! platelets
- +! red blood cells
- ? all haemocoagulation phases require ion participation
- ! sodium
- ! potassium
- ! fluorine
- +! calcium
- ? conversion of soluble fibrin monomer to insoluble fibrin polymer provides factor
- ! prothrombin (II)
- ! convertin (VII)
- ! anti-hemophilic globulin C (IX)
- +! fibrin stabilizing (XIII)
- ? prothrombin is formed
- ! in the red bone marrow
- ! in erythrocytes
- +! in the liver
- ? clotting post-phase includes
- ! platelet adhesion and aggregation
- ! prothrombinase formation
- ! thrombin formation
- +! clot retraction and fibrinolysis
- ? as a result of the second phase of clotting occurs
- ! platelet adhesion and aggregation
- ! fibrin formation
- ! clot retraction and fibrinolytic state
- + ! thrombin formation
- ? the result of the third phase of clotting is
- ! platelet adhesion and aggregation
- ! prothrombinase formation
- ! thrombin formation
- +! fibrin formation
- ? primary anticoagulants include substances of
- ! heparin, dicumarin
- ! antithrombin I, fibrin stabilizing factor
- ! hirudine, thrombin
- +! antithrombin III, IV, heparin
- ? a collection of physiological processes that ensure stop of bleeding is called
- ! plasmolysis
- ! fibrinolysis
- ! hemolysis
- +! hemostasis
- ? in the processes of self-regulation of internal medium constants, the blood is..... link
- ! nervous
- ! receptor
- external!
- +! humoral
- ? specify the third phase of coagulation hemostasis
- ! thrombin formation
- ! prothrombinase generation
- +! conversion of fibrinogen to fibrin
- ? denuclear discs having a biconcave shape and having deformability are called
- ! leukocytes
- ! platelets
- +! red blood cells
- ? small nuclear-free plates of irregular shape are
- ! red blood cells
- ! leukocytes
- +! platelets
- ? nuclear blood cells, colorless, having several species different in structure are
- ! red blood cells
- ! platelets
- +! leukocytes
- ? they participate in blood coagulation and fibrinolysis, maintain in a spasmodic state the muscles of damaged vessels the following form elements of blood
- ! red blood cells
- ! leukocytes
- +! platelets
- ? in the transport of oxygen and carbon dioxide and the regulation of acid-basic equilibrium are involved
- +! red blood cells
- ! leukocytes
- ! platelets
- ? protect the body from microbes, viruses, foreign substances, i.e. provide immunity
- ! red blood cells
- ! platelets
- +! leukocytes
- ? in the first 7-12 weeks of intrauterine development of the embryo, its red blood cells contain hemoglobin
- !Hb F
- + !Hb P

!Met Hb

? blood indicator color shows

! amount of hemoglobin in the blood

! quantity in blood

+! on the degree of red blood cell saturation with hemoglobin

? the total amount of blood in the adult body as a percentage of body weight is

!40 - 50%

!55 - 60%

!15 - 17%

+ !6 - 8%

? osmotic erythrocyte hemolysis occurs as a result of

! strong mechanical impacts

! low and high temperature effects

! transfusions of incompatible blood

+! red blood cell swelling in hypotonic solutions

? chemical hemolysis occurs

! as a result of snake bites

! influenced by immune hemolysins

! the result of strong mechanical effects

+! as a result of exposure to substances destroying the protein-lipid membrane of erythrocyte

? biological hemolysis occurs as a result of

! strong mechanical impacts

! low and high temperature effects

+! transfusions of incompatible blood, snake bites, insects

! actions of ether, chloroform

? in the blood of a healthy woman, the amount of hemoglobin is

! 170-200 g/l

! 90-100 g/l

+! 120-140 g/l

? 1 microliter of healthy woman's blood contains red blood cells:

!4 000-5.800

!2 000 000-3.100 000

!7.600 000-8. 000 000

+ !3.700 000-4.700 000

? a reagent is used to determine hemoglobin by the Sali method

! 3% acetic acid solution

! 3.5% sodium chloride solution

! 3.7% sodium citrate solution

+! 0.1N hydrochloric acid solution

? to count white blood cells in the Goryaev's count chamber blood is diluted with

! isotonic sodium chloride solution

! 0.15% hydrochloric acid solution

! 3.5% sodium citrate solution

+! 5% acetic acid solution with methylene blue

? counting of red blood cells is done in... large squares of Goryaev's counting chamber:

+ !5

!2

!10

!3

? leukocyte counting is done in.... large squares of the Goryaev's counting chamber

!2

!15

!30

+ !25

? to automatically count the uniform blood elements are used

! Panchenkova device

! Sahli hemoglobinometer

! calorimeters

+! celloscopes

? haemoglobin amount in blood is determined by means of

! Goryaev's counting chamber

! celloscope

! Panchenkova device

+! photoelectrocorimeter, Sahli hemoglobinometer

? the ratio between the amount of blood hemoglobin and the number of red blood cells is called

! relative erythrocytosis

! absolute erythropenia

! hematocrit number

+! blood color index

? to calculate the blood color index, you need to know

! quantity

! quantity

+! number of red blood cells in 1 mcl, hemoglobin concentration in g/l

? erythrocyte sedimentation rate (ESR) is determined using

! Shklyar centrifuge

! celloscope

! Sahli hemoglobinometer

+! Panchenkov device

? a reagent is used to determine the sedimentation rate of red blood cells

! 0.5% sodium chloride solution

! 3% acetic acid solution

! 1.7% hydrochloric acid solution

+! 5% sodium citrate solution

? physiological and physicochemical properties of red blood cells are all..... except

! plasticity

! osmotic persistence

! aggregation

+! excitability

! destruction

? erythrocyte subsidence rate in healthy men is

! 18-24 mm/h

! 25-30 mm/h

! 30-40 mm/h

+! 2-10 mm/h

? erythrocyte subsidence rate in healthy women is

! 25-30 mm/h

! 15-30 mm/h

+! 2-15 mm/h

? agglutination reaction when determining blood type from standard sera occurs through

! 10-15 min.

! 7-8 min.

! 6-10 min.

+! 2-5 min

? lack of agglutination when determining the blood group from standard sera suggests the absence of agglutinogens in the studied blood, which is a property of red blood cells.... groups

+! first

! second

! third

fourth!

? if agglutination occurred with group I and III serum, then the blood studied belongs to.....

! to the first group

! to the fourth group

! to the third group

+! to the second group

? if agglutination occurred with group I and II serum, then the blood studied belongs to the..... group

!first

! second

+! third

fourth!

? blood of the second group - can be transfused to recipients
! of the first group
! third group
+! fourth group, second group

? blood of the third group can be transfused to recipients of the group
! first
! second
+! fourth, third

? blood of the fourth group can be transfused to recipients of the group
first!
! second
! third
+! fourth

? recipients with the first blood type may be transfused blood of a group donor
+! first
! second
! third
fourth!

? normal blood coagulation rates according to the Althausen technique are
! 1-3 min.
! 2-4 min.
! 7-8 min.
+! 5-6 min

? normal blood coagulation rates according to Sukharev's method are
! 10-12 min.
! 6-8 min.
! 7-8 min.
+! 2-5 min

? in the blood of a person having group III, there are agglutinins
! beta
! alpha, beta
! 0
+! alpha

? in the blood of a person having group III, there are agglutinogens AND!
+! B
! 0
! AB

? in the blood of a person having group II, there are agglutinins
! alpha
+! beta
! alpha, beta
! 0

? in the blood of a person having group II, there are agglutinogens
+! A
IN!
! 0
! AB

? in the blood of a person having group IV, there are agglutinins
! alpha
+ ! 0
! beta
! alpha, beta

? in the blood of a person having group I, there are agglutinins
! alpha
! 0
! beta
+! alpha, beta

? in the blood of a person having group I, there are agglutinogens
! A

! И
+! 0
! AB

? healthy person's blood color index is
! 0,5-0,6
! 1,3-1,5
! 1,8-2,0
+ ! 0,8-1,0

? the life expectancy of red blood cells in the bloodstream is
! 40 days
! 60 days
90 days!
+! 120 days

? the internal environment of the body is all,.... except blood!
! fabric fluid
! lymph
! liquor (cerebrospinal fluid)
+! bile

? blood buffer systems are all.... except
! hemoglobin
! protein
! phosphate
+! acetate
! carbonate

? in the first phase of hemocoagulation occurs
! fibrin formation
! clot retraction
! thrombin formation
+! prothrombinase formation

? pathological hemoglobin compounds are
! oxyhemoglobin
! carbohemoglobin
! myoglobin
+! carboxyhemoglobin

? absolute compensatory erythrocytosis in healthy persons -
highlands residents are associated
! with heart failure
! with tumor lesions of the kidneys, adrenal glands, pituitary gland
+! with erythropoiesis stimulation

? "regeneration index" refers to the relation
! neutrophils, eosinophils, basophils
! monocytes and lymphocytes
+! young and mature forms of neutrophils
! individual forms of white blood cells

? "janitors" of the body are called form elements of blood:
! eosinophils
! platelets
+! monocytes
! red blood cells

? the amount of arterial blood pH normally is:
! 8,1
! 7,33
+ ! 7,4
! 6,8

? osmotic blood plasma pressure is:
! 6.5 atm.
! 7.1 atm.
! 8.5 atm.
+! 7.6 atm.

? in the blood of a healthy person, neutrophils of the total number of white blood cells are
! 30-40%!
! 5-10%
! 10-20%
+ ! 47-72%

? blood plasma oncotic pressure is
 +! 25-30 mm Hg
 ! 7 atm.
 ! 120 mm Hg. St
 ! 0.03 atm.

? white blood cells perform the following functions
 ! transport SO₂ and O₂
 ! hormone transport
 ! maintaining blood plasma oncotic pressure
 +! immune responses

? non-grained white blood cells capable of ameboid movement and phagocytosis are called:
 ! red blood cells
 ! neutrophils
 ! platelets
 +! monocytes

? granulocytes are form elements of blood
 ! lymphocytes, monocytes
 +! stick-nuclear neutrophils, segmentonuclear neutrophils, basophils, eosinophils
 ! platelets, red blood cells, lymphocytes

? agranulocytes are form elements of blood
 ! platelets
 ! neutrophils, red blood cells
 ! eosinophils, basophils
 +! lymphocytes, monocytes

? protective antibodies synthesize blood cells
 ! red blood cells
 ! eosinophils
 +! in lymphocytes
 ! platelets

? the most capacious (powerful) buffer system is
 ! carbonate
 ! phosphate
 ! protein
 +! hemoglobin

? the most "mobile" buffer system is
 ! protein
 ! phosphate
 ! hemoglobin
 +! carbonate

? defenses against foreign proteins are blood plasma proteins:
 ! albumins
 +! globulins
 ! fibrinogen

? erythrocytes when entering hypotonic solution
 ! shrivel
 +! swell
 ! remain unchanged

? erythrocytes in hypertensive solution:
 ! swell
 +! shrivel
 ! remain unchanged

? erythrocytes in saline
 ! swell
 ! shrivel
 +! remain unchanged

? the function of phagocytosis is inherent in the form elements of blood, except
 ! basophilam
 ! eosinophilam
 +! erythrocytes
 ! platelets
 ! monocytam

? the function of eosinophils is:
 ! transport SO₂ and O₂
 ! maintaining osmotic pressure
 ! antibody production
 +! detoxification in allergic reactions
 ? basic lymphocyte function consists in:
 ! maintaining osmotic pressure
 ! participation in maintaining blood pH
 ! bactericidal action
 ! phagocytosis and providing reparative stages of inflammatory process
 +! antigen recognition and production immunoglobulins (antibodies)

? physiological leukocytosis is observed in
 +! pregnancy, eating
 ! inflammatory processes
 ! infectious diseases

? name the location of agglutinins and agglutinogens
 +! agglutinins are in the blood plasma;
 agglutinogens are found in erythrocytes
 ! agglutinins and agglutinogens are in blood plasma
 ! agglutinins and agglutinogens are in erythrocytes

? agglutinins are included in the next blood component
 ! red blood cells
 ! leukocytes
 ! platelets
 +! plasma

? the first blood type corresponds to a combination of agglutinogens and agglutinins
 ! ABO
 !B, alpha
 !A, beta
 +! O (alpha, beta)

? an incompatible blood transfusion can cause
 ! reduced osmotic resistance of red blood cells
 ! increase of oncotic pressure
 ! ECS deceleration
 +! hemotransfusion shock

? a person with blood type I can be transfused
 ! any blood group
 ! blood of group IV
 ! group III blood
 +! blood group I

? blood clotting accelerates with increased blood content
 ! potassium ions
 ! insulin
 ! sodium ions
 +! adrenaline

? factors that accelerate blood clotting include all....., except
 ! temperature rise
 ! calcium ions
 ! blood contact with rough surface
 +! sodium citrate and oxalate

? substances that promote blood coagulation are called
 ! antibodies
 +! coagulants
 ! anticoagulants
 ! hematopoietins

? anti-coagulation substances are called
 ! coagulants
 ! erythropoietins
 ! antibodies
 +! Anticoagulants

? additional agglutinogens are all blood systems except:

!Kell Cellano
! rhesus
!Kidd
!Duffy
+! ABO

? the main function of platelets is to
! participation in non-specific protective reactions
! histamine synthesis
+! participation in hemostasis
! serotonin synthesis

? primary (vascular-platelet) hemostasis provides
! tight closure of damaged vessels with thrombus
+! stop of bleeding when small vessels are injured, with low BP
! protection against blood loss in case of muscle-type vascular damage

? coagulants are all but
! fibrinogen
! accelerine
+! heparin
! proconvertine
! antihemophilic factor A

? correct combinations of agglutinogens and agglutinins of the ABO system are all but
+! A, alpha
!A, beta
!B, alpha
! O (alpha, beta)

? blood belongs to... group if agglutination in determining group affiliation occurred with standard group I, II, III sera
first!
! second
! third
+! fourth

?flexible blood constants (fluctuating widely, not leading to serious life disorders) are all except:
! hemoglobin content
+! Environment pH
! number of uniform blood elements
! ESR
! blood viscosity

? rigid blood constants (deviation of which even in insignificant limits lead to disruption) are all except
+! circulating blood volume
! blood pH
! osmotic pressure
! plasma blood ionic composition
! gas composition of blood

? the meaning of proteins as a buffer system is that they are
! maintain osmotic pressure
! participate in ion exchange
+! in an acidic environment behave like alkalis, binding acids, and in alkaline react as binding acids alkalis

? erythrocyte subsidence rate depends mainly on age!
! circulating blood volume
! red blood cell numbers
+! protein composition of blood plasma
! erythrocyte sizes

? color index 1, 3 indicates
+! hyperchromia
! normochromies
! hypochromia

? mark the norm in the following blood indicators
+! red blood cells - 4.500 000 in 1 mcl
! leukocytes - 11,000 in mcl
! hemoglobin - 63 g/l
! blood color index - 1.2

? erythrocyte sheath destruction and hemoglobin release into plasma by various factors is called....
! plasmolysis
! fibrinolysis
! hemostasis
+! hemolysis

? when forming functional systems that support the constancy of composition, blood provides.... regulation in the body
! nervous
! reflex
! local
+! humoral

? in a holistic organism take place.... hemolysis species
! mechanical
! osmotic
+! biological, exchange
! chemical
! thermal

? blood is.... a link in the processes of self-regulation of the functions of respiration, digestion, discharge, circulation
! nervous
! receptor
! paracrine
+! humoral

? factors slowing down and preventing the blood clotting process (hemocoagulation) include all,..... except:
+! calcium ions
! temperature drop
! sodium citrate and oxalate
heparin!
! smooth surface

? relative erythrocytosis occurs when the number of erythrocytes per unit blood volume increases in association
! with erythropoiesis suppression
! activation of erythropoiesis
+! with blood thickening without erythropoiesis enhancement

? absolute erythrocytosis is a condition characterized by an increase in the number of erythrocytes in peripheral blood due to
! blood thickening
! erythropoiesis suppression
+! erythropoiesis enhancement

? deficit.... plasma coagulation factor causes hemophilia C
! Kristmas factor (IX f.)
! anti-hemophilic globulin a (VIII f.)
+! plasma precursor of thromboplastin (XI f.)
! prothrombin (II f.)

? in the process of blood coagulation from a soluble state, the extravaluble transitions:
! anti-hemophilic globulin a
! prothrombin
! tissue thromboplastin
+! fibrinogen

? compounds of protein nature play an important role in the exchange of endogenous iron,..... except
+! lactoferrin
! transferrin
! ferritin
! hemosiderin

? mature segmentonuclear neutrophils linger in bone marrow sinuses during

! 1-2 days
 +! 3-4 days
 ! 5-6 days
 ! 12-16 days

? in peripheral blood basophils circulate on average about
 ! 2 days
 +! 6 h
 ! 5 days
 ! 40 days

? functions of basophils are associated with participation in allergic and inflammatory reactions due to their content of biologically active substances
 ! thyroxine
 ! serotonin
 ! adrenaline
 +! heparin, histamine

? the production, differentiation and functioning of lymphocytes occur in lymphoid organs,... except
 +! liver
 ! bone marrow
 ! timusa
 ! lymph nodes
 ! spleen

? the blood studied belongs to..... group, if agglutination when determining group affiliation, occurred with standard group I and III sera
 first!
 +! second
 ! third
 fourth!

? the blood studied belongs to..... group if agglutination occurred with standard group I and II sera
 first!
 ! second
 +! third
 fourth!

? the blood studied belongs to..... group, if agglutination is not present in standard sera of groups I, II, III:
 +! first
 fourth!
 ! second
 ! third

? erythrocyte hemolysis begins at sodium chloride solution concentration:
 !0,65%
 + !0,48%
 !0,92%
 !0,32%

? thrombocytosis is observed under physiological conditions
 ! for asphyxiations
 ! in injuries with muscle thawing
 +! after exercise
 ! after bleeding

? the length of platelet stay in peripheral blood is
 ! 2-3 days
 ! 10-14 days
 +! 5-8 days
 ! 20-25 days

? when setting ESR, it is important to observe the accuracy of the ratio of sodium citrate to plasma
 !1:5
 !1:2
 !2:3
 + !1:4

? an increase in ESR under physiological conditions is noted
 ! with amenorrhea

! with dry eating and starvation
 +! due to digestion, during pregnancy
 ! when taking drugs
 ! for rheumatism and kidney disease

? an increase in the content of large-dispersed proteins.... leads to an increase in ESR
 ! albumins
 +! globulins, fibrinogen

? solution, with higher osmotic pressure than osmotic blood pressure is called
 ! hypotonic
 ! isotonic
 +! hypertensive

? the first phase of vascular-platelet hemostasis is called
 ! platelet thrombus retraction
 ! irreversible platelet adhesion
 +! reflex spasm of damaged vessels
 ! platelet adhesion
 ! platelet aggregation

? the second phase of vascular-platelet hemostasis is called
 ! platelet thrombus retraction
 ! reflex spasm of damaged vessels
 +! platelet plug formation due to platelet adhesion and aggregation

? daily need for free folic acid for a healthy person is
 ! 5-7 mg
 ! 3-4 mg
 ! 8-10 mg
 +! 1-2 mg

? inhibit blood clotting
 ! vasopressin
 +! insulin
 ! adrenaline
 ! mineralocorticoids

? stimulate the blood clotting process all hormones,..... except
 ! vasopressin
 +! insulin, lipocaine
 ! adrenaline
 ! estrogens
 ! oxytocin

? upon arousal of the parasympathetic nervous system, the blood coagulation process
 ! does not change
 +! slowing down
 ! accelerates

? arousal of the sympathetic nervous system causes
 ! hypocoagulemia
 +! hypercoagulemia
 ! blood clotting does not change

? determining factor in ESR change is
 ! shape of red blood cells
 ! presence of bile acids
 ! carbon dioxide presence
 + !plasma protein profile
 ! red blood cells count

? rhesus-positive blood is available in.... Percentage of Caucasian :
 !90%
 !44%
 + !85%
 !100%

? the rhesus factor do not have....% of Caucasian
 !50%
 + !15%
 !32%
 !8%

? ESR value depends more on properties of
 ! red blood cells
 ! white blood cells
 ! platelets
 +! blood plasma

? erythropoiesis regulators include all,..... except
 ! erythropoietins
 ! folic acid
 +! leukocyte decay products
 ! vitamin B 12
 !STH, ACTH

? what rule should be followed when transfusing blood of another group so that the agglutination reaction does not occur?
 ! Landsteiner
 !Pfluger
 +!Ottenberg

? which factor corresponds to factor III?
 ! convertin
 +! tissue thromboplastin
 ! Hageman factor
 ! prothrombin

? in which phase of blood coagulation occurs the transition of soluble fibrinogen plasma protein to insoluble fibrin?
 ! I - phase
 ! II - phase
 +! III - phase
 ! IV - phase

? postphase hemocoagulation includes?
 ! prothrombinase formation
 ! platelet adhesion and aggregation
 +! clot retraction and fibrolysis
 ! fibrin formation
 ! thrombin formation

? pH-drift to the acidic side is called?
 ! alkalose
 ! alkaline blood reserve
 +! acidosis

? erythrocyte destruction may be caused by a decrease in osmotic pressure, which at the beginning leads to swelling and then breaking red blood cells, is that?
 ! mechanical hemolysis
 ! thermal hemolysis
 ! chemical hemolysis
 +! osmotic hemolysis
 ! biological hemolysis

? the phenomenon of phagocytosis discovered?
 !Claude Bernard
 ! K. Landsteiner
 +! I.I. Mechnikov
 !I. Wiener

? the granulocyte group includes?
 ! neutrophils, lymphocytes and monocytes
 ! basophils, eosinophils and lymphocytes
 +! neutrophils, eosinophils and basophils
 ! lymphocytes, monocytes, neutrophils

? name stage II phagocytosis?
 +! attraction stage
 ! killing stage
 ! approach stage
 ! particle absorption stage

? what is the percentage in the blood plasma volumes and form elements, and what's called blood serum?
 ! plasma 40-45%, form elements 60-55%, defibrinated blood

+! plasma 55-60%, form elements 45-40%, defibrinated plasma
 ! plasma 40-45%, form elements 60-55%, defibrinated plasma
 ! plasma 55-60%, form elements 45-40%, defibrinated blood

? from the given constants, determine What kind of fluid is blood plasma?
 !d - 1,090. ph - 7,35. osmotic pressure - 7.8 atm. Oncotic pressure - 30 mmHg
 !d - 1,030. ph - 7,35. osmotic pressure - 7.8 mmHg oncotic pressure - 25 mmHg
 + !d - 1,030. ph - 7,35. osmotic pressure - 7.8 atm. Oncotic pressure - 25 mmHg
 !d - 1,090. ph - 7,00. osmotic pressure - 7.8 atm. Oncotic pressure - 30 mmHg

? which of the listed combinations blood buffer systems have largest capacity?
 ! bicarbonate system + phosphate system
 ! phosphate system + buffer system
 plasma proteins
 +! phosphate system + buffer system
 hemoglobin
 ! bicarbonate system + buffer
 plasma protein system

? which blood corpuscle have the greatest ability in phagocytosis.
 ! lymphocytes, basophils
 ! monocytes, lymphocytes
 +! neutrophils, monocytes
 ! eosinophils, basophils

? where granulocytes and agranulocytes are formed?
 ! granulocytes - in the spleen and l/n
 agranulocytes - in the spleen and l/n
 ! granulocytes - in the red bone marrow
 agranulocytes - in the spleen and l/n, red bone marrow
 +! granulocytes - in the red bone marrow
 agranulocytes - in the spleen and l/n
 ! granulocytes - in the spleen and l/n
 agranulocytes - in the red bone marrow

? where are blood plates formed?
 ! in spleen
 ! in the liver
 +! in the red bone marrow
 ! in lymph nodes

? what is the normal hemoglobin content of a person's blood?
 +! 120-140 g/l
 ! 80-120 g/l
 ! 70-130 g/l
 +! 140-160 g/l

? which form of hemoglobin should not be contained in normal blood conditions
 +! carboxyhemoglobin
 ! carbohemoglobin
 ! oxyhemoglobin
 ! reduced hemoglobin
 +! methemoglobin

? which blood type gives agglutination with standard sera of groups I, II and III?
 ! I group
 ! II group
 ! Group III
 +! IV group

? in which case can a fetal hemolytic disease occur in pregnancy?
! fetal blood Rh + maternal blood Rh +
+! fetal blood Rh + mother's blood Rh-
! fetal blood Rh- mother's blood Rh-
! fetal blood Rh- mother's blood Rh +

? name stage IV phagocytosis?
! particle absorption stage
! attraction stage
+! killing stage
! approach stage

? in which of the above cases, when blood is stirred, can the recipient be at risk?
! Rh + recipient to transfuse Rh + blood
! Rh + recipient to transfuse Rh blood
+! Rh- recipient to transfuse Rh + blood
! Rh- recipient to transfuse Rh- blood

? select from these blood components those involved in the blood clotting process
+! Ca ions
! Mg ions
+! thrombin
+! fibrinogen
+! tissue thromboplastin

? fluid separating from the blood clot after its retraction (compression) is called?
! fibrin
! blood
+! blood serum
! clot

? in which case does pregnancy not cause fetal hemolytic disease?
+! fetal blood Rh + maternal blood Rh +
! fetal blood Rh + mother's blood Rh-
+! fetal blood Rh- mother's blood Rh-
+! fetal blood Rh- mother's blood Rh +

? which factor corresponds to factor XIII:
! Stuart Praura
! proconvertin
+! fibrin stabilizing
! fibrinogen

? platelets perform a number of functions?
+! viscous metamorphosis
+! hemostatic
+! angiotrophic
+! vascular wall tone regulation
+! participation in the blood clotting process

? Rh system is open?
! C. Bernard
+! I. Wiener
! I.I. Mechnikov
+! K. Landsteiner

? in the blood of a person with group II, are agglutinins?
! alpha, beta
+! beta
! alpha

? a device is used to determine the amount of hemoglobin?
! Panchenkova device
! celloscope
+! Sali gemometer
! Goryaev's counting chamber

? color index 0.9-1 indicates:
! hypochromia
+! normochromia
! hyperchromia

? the color blood score is judged by:
! amount of hemoglobin in the blood
! red blood cells count

! ratio of Hb to red blood cells
+! red blood cell saturation with hemoglobin

PHYSIOLOGY OF HIGHER NERVOUS ACTIVITY (HNA) (GC-1, GPC-9)

? AN IDEA OF THE REFLEX NATURE OF HIGHER BRAIN ACTIVITY FIRST PUT FORWARD (GC-1)

! I.P. Pavlov
! P.K. Anokhin
+! I.M. Sechenov

? eye closure when light flashes is reflex (GPC-9)
! conditional
! artificial
+! unconditional

? saliva secretion reflex in a hungry person when remembering food is (GC-1)
! unconditional
! artificial
+! conditional

? differentiating inhibition (GC-1)
! protects nerve centers from excess information
! saves energy resources
! promotes the development of social skills such as prohibition
+! allows you to distinguish between closely related stimuli

? Ashner's oculo-cardiac reflex is (GC-1)
! reflex of second order
! conditional
+! unconditional

? blood pressure can change conventionally (GC-1)
! no
+! yes

? most unconditional reflexes appear (GPC-9)
! at school age
! in an adult
+! immediately after birth

? for a calm type of higher nervous activity are characteristic (GPC-9)
! low strength, low mobility, balance
! low strength, high mobility, balance
+! high strength, low mobility, balance

? for "vivacious" type of higher nervous activity characterized (GPC-9)
! low strength, low mobility, balance
! low strength, high mobility, balance
+! high strength, high mobility, balance

? reflexes that arise during the evolution of a living organism and are hereditarily transmitted are called (GC-1)
! dynamic stereotype
! conditional
! 3 orders
+! unconditional

? a reflex produced in ontogenesis under the condition of repeatedly combining an unconditional stimulus with an indifferent signal is called (GC-1)
! defensive
! spinal
! indicative
+! conditional

? a complex chain of unconditional reflexes is (GPC-9)
! dynamic stereotype
! defensive reflex
+! instinct

? involvement of the new cortex of the big brain is necessary for formation (GC-1)
! instinct

! food, sex reflex
+! conditional reflex

? ocular reflex is a reflex (GC-1)
! of second order
! arising during the individual life
! simple spinal
+! unconditional

? decorticated animal has blood pressure that (GC-1)
! cannot change
! can change conditionally reflexively
+! can change unconditionally reflexively

? the runner's breath increases before the start due to the formation of a reflex (GC-1)
! indicative
! statokinetic
+! conditional

? reflexes arising on direct signals from the habitat, this (GPC-9)
! reflexes of the second signal system
! dynamic stereotype
+! reflexes of the first signal system

? instincts in humans (GPC-9)
! missing
! produced throughout life
+! exist since birth

? conditional reflex is reinforcement during production (GPC-9)
! dynamic stereotype
! instinct
+! conditional reflex of the second, third and other orders

? inhibition occurring under influence of external, external for this conditional reflex stimuli, called (GPC-9)
! differential, conditional brake
! lateral, late, presynaptic
! prohibitive, fading
+! external (unconditional)

? inhibition produced during individual life, occurring in response to any stimuli from any receptive field (GPC-9)
! approximate research response
! prohibitive
! reciprocal
+! conditional

? conditional braking refers to (GPC-9)
! recycle, lateral, return, translational
! prohibitive, extinguishing brake
+! fading, differentiating, conditional brake, late

? unconditional inhibition refers to (GPC-9)
! fading, differentiating, permanent inhibition
! late, prohibitive
+! prohibitive, blanking inhibition, permanent inhibition

? attenuation or disappearance of conditional reflex occurs as a result of inhibition, except (GPC-9)
! external (unconditional)
! pessimal
! prohibitive
! internal (conditional)
+! reciprocal

? the person himself can work out inhibition (GC-1)
! pessimal
! external!
+! delayed

? when the force of the conditional stimulus increases, the time of generation of the conditional reflex (GC-1)
+! decreases
! does not change

! increases

? adult has unconditional reflexes (GPC-9)
! cannot appear
! can be formed again
+! are manifested in full

? watchdog stops eating at the sight of an outsider due to (GC-1)
! reciprocal
! conditional inhibition
! differentiation
+! external (unconditional)

? braking occurring on an excessively strong stimulus is called (GC-1)
! differentiation
! conditional inhibition
! delayed
+! prohibitive

? strong emotions are characteristic
! lowering blood sugar, pulse stabilization, non-rhythm breathing (GPC-9)
! shift the leukocyte formula to the left
lowering hell, extrasystolia
+! arousal of sympathetic nervous systems, increase of HR, RR, ABP

? secretion of catecholamines in emotional arousal (GPC-9)
! decreases
! does not change
+! increments

? motivation is based on (GC-1)
! emotions
! attention
+! needs
! views

? the main reason for the emergence of biological motivations are (GPC-9)
! emotions
! memory
! inhibition in CNS
+! shifts of blood constants

? a person may have both motivations (GPC-9)
! one
! two
+! a few

? most biological motivations are formed with mandatory participation (GC-1)
! large brain cortex
! thalamus
! spinal cord
+! hypothalamus

? in analysis and synthesis of signals from specific subjects dominates (OK-1)
! left hemisphere
! midbrain reticular formation
! hypothalamus
+! right hemisphere

? I.P. Pavlov divided people into "thinkers" and "artists" according to the principle (GPC-9)
! excitation and braking force ratios
! forces of emotional reactions
+! predominance of the first or second signal system

? the third stage of Selye stress development is called (GPC-9)
! paradoxical
! equalizing
+! exhaustion

? hormones are most important in developing stress for the body (GPC-9)
! mineralocorticoids
! insulin and thyroxine
+! glucocorticoids

? in humans, changes in blood constants are most pronounced in the state of (GC-1)
! calm wakefulness
! mental relaxation
! sleep
+! emotional tension

? the property of the organism to capture events that took place in its life is called (GC-1)
! emotion
! consciousness
+! memory

? reactions reflecting a pronounced subjective attitude to stimuli are called (GPC-9)
! representations
! consciousness
needs!
+! emotions

? physiological state, formed on the basis of the bodyneeds , is (GC-1)
! emotion
! afferent synthesis
!memory
+! motivation

? blood pressure at prolonged emotional stress (GPC-9)
! does not change
! decreases
+!increases

? negative emotions in a person arise when (GPC-9)
! thinking stereotypically and template
! attitude to stimulus effects indifferently
+! there is motivation, but there is less information, energy, strength and time than is necessary to achieve the goal

? stress, accompanied by a state of anger, rage, a significant increase in the activity of organs and systems, an increase in concentration, this (GPC-9)
! neurosis
! asthenic negative emotion
+! stenic negative emotion

? for asthenic negative emotions are characteristic (GC-1)
! increase memory mobilization, attention, activity
! a state of anger, rage, etc., increasing body resources, contributing to the solution of delivered tasks
+! sharp decline in energy and immunological resources, emergence fear, longing, undoing the current activity

? for stenic emotions is characteristic (GC-1)
! reducing intelligent and energy resources, emergence of fear, longing, sadness
! drop in the tone of sympathetic nervous systems and increased tone parasympathetic nervous system
+! increased operability, concentration attention, enhancing the functioning of the heart of the lungs, activating current activity

? the state of the organism contributing to its active mobilization to meet the leading need is (GPC-9)
!memory

! thinking
!speech
! emotion
+! dominant motivation

? a physiological condition that occurs if it is impossible for a long time to achieve vital results for the body, this is (GPC-9)
! motivation
! need!
!fear
+! emotional stress

? the left hemisphere of the large brain dominates in (GPC-9)
! regulation of functions of the entire left half of the body
! signal analysis and synthesis of the first signal system
+! speech and letter

? the right hemisphere of the large brain dominates in (GPC-9)
! verbal signal analysis
! regulation of functions of the entire right half of the body
+! perception, processing, analysis and synthesis of signals of the first signal system

? in persons with a predominance of the figurative (according to Pavlov) type of thinking dominates (GPC-9)
! midbrain reticular formation
! hypothalamus and rhinencephalon
! left hemisphere
+! right hemisphere

? type of persons (according to I.P. Pavlov), distinguished by the predominance of logical thinking in them (GPC-9)
! "artists"
! "musicians"
+! "thinkers"

? the highest mental function, characteristic only of a person, which is a means of communication and a mechanism of intellectual activity, is (GPC-9)
! long-term memory
! training
+! speech

? during formation and emotion, arousal is necessary (GPC-9)
! reticular formation of trunk, thalamus, hypothalamus
! cortex of large hemispheres, spinal cord, thalamus
+! hypothalamus, limbic brain

? to generate arbitrary attention should be paid to participation (GPC-9)
! middle brain reticular formation, pale ball and striped body
! hypothalamus, oblong brain
! occipital and temporal cortex lobes, spinal cord
+! frontal cortex lobes, reticular brain formations

? distinguish between the following forms of attention (GPC-9)
! social and biological
! Sthenic and Asthenic
! emotional and indifferent
+!voluntary and involuntary

? thinking functions are (GPC-9)
! analysis and synthesis signals of the first signal system
! short-term memory generation
! needs and motivations
+! reflection of the phenomena of the world in concepts, judgments, conclusions

? in the afferent synthesis stage, the role of memory is (GC-1)
! in consolidating a positive experience
! in stimulating the trigger stimulus
+! in retrieving demand-related information

? dominant motivation in the afferent synthesis stage (GC-1)	! muscle strength
! consolidates the positive experience	! sensorimotor response time
! activates the trigger stimulus	+! breathing
+! activates memory	
? the result of a behavioral act is influenced by components of afferent synthesis (GC-1)	? a dynamic self-regulating system, all components of which interact to achieve a useful adaptive result, is (GC-1)
! mood, functional state of the body, time	! dynamic stereotype
! result acceptor, action program, action	! reflex arc
+! dominant motivation, ambient afferentiation, memory	! conditional reflex
	+! functional system
? afferent synthesis changes with fatigue, as	
! action result acceptor generation stage falls out (GC-1)	? the system-forming factor of the functional behavior system from the point of view of P.K. Anokhin is (GPC-9)
! there are new stages in its development	! action result acceptor
! reflex time lengthens	! trigger stimulus
+! memory deteriorates	! making a decision
	+! useful adaptive result
? active rest is most effective after (GPC-9)	
! very tedious work	? decision making, as a component of the functional system, is (GPC-9)
! little intensive work	! composite link of afferent synthesis
+! moderate work	! system-forming factor
	! neural model of future result
? higher recovery during active recreation explained by (GPC-9)	+! due to afferent synthesis
! heterochronism	
! occlusion	? the ability of the body in the process of individual life to capture, store and reproduce perceived information is (GPC-9)
! spatial summation	! need
+! negative induction	! motivation
	! ambient afferentiation
? the phenomenon of active recreation has opened (GPC-9)	+! memory
! Lomonosov M.V.	
! Pavlov I.P.	
! Sherrington C.	
+! Sechenov I.M.	? dominant motivations in the afferent synthesis stage may be (GPC-9)
	two!
? in the functional system of the behavioral act, inverse afferentiation (GC-1)	! none
! consolidates the positive experience	a lot
! retrieves needs-related information	+! one
+! carries information about the result	
? the potential of a person to do work is called (GPC-9)	? a person may have both motivations (GPC-9)
! talent	! one
! dynamic stereotype	two!
! training	+! a lot
+! operability	
	? in the functional system of behavior (according to P.K. Anokhin) severe toothache forms (GPC-9)
? is characteristic of the processing stage (GPC-9)	! approximate reflex
! stabilizing the level of functional and labor indicators	! making a decision
! formation of dominant source of excitation	! result acceptor
+! sharp fluctuations in the level of functional and labor indicators	+! dominant motivation
? stable operability stage is characteristic (GPC-9)	? in the functional system of behavior (according to P.K. Anokhin) after afferent synthesis, (GPC-1) occurs the stage of:
! gradual increase in attention	! stable operability
! generating an action result acceptor	! anxiety
+! stabilizing the level of functional and labor indicators	! paradoxical
	+! decision making
? the teacher is mostly needed in the attention property such as: (GPC-9)	
! great stability	? in the functional system of behavior (according to P.K. Anokhin) emotions arise at stage (GPC-9)
! great power	! afferent synthesis
! high reliability	! making a decision
+ !great attentional set-shifting	! acceptor generation
	+! result estimates
? the most energy intensive in physical labor is (GPC-9)	
! excitation by nerve fibers	? emotions perform such functions as: (GPC-9)
! generation of commands in nerve centers	! conceptual, communicative
+! muscle contraction	! demand generation
	! afferent synthesis
? energy recovery is more intense after ... work (GPC-9)	+! signal, regulatory, compensating, reinforcing
! brainwork	
+! physical	? the subjective state that helps to assess the result of the activity is called (GPC-9)
? "heterochronism" of restorative processes is	! motivation
! alternating in the recovery period of positive induction	! result acceptor
! alternation in the recovery period of different types of recreation	consciousness!
+! non-simultaneous restoration of different systems of the organism	+! emotion
? first after prolonged physical exertion is restored (GC-1)	
! pulse	

? emotions in the functional behavior system serve for (GPC-9)	+! mobility
! create an action program	? differentiation braking production rate is strongly affected (GPC-9)
! making a decision	! excitation force
! motivation formation	! mobility
+! activity results evaluations	! balance
	+! braking force
? positive emotions function (GPC-9)	? for a person with choleric temperament characteristic (GPC-9)
! shaping biological and social needs	! great strength of nervous processes, high mobility, balance
! creating an afferent synthesis	! great strength of nervous processes, low mobility, balance
+! consolidating a positive experience	+! great strength of nervous processes, imbalance, high mobility
? motivations are (GPC-9)	? braking, ensuring that the response is timed, is (GPC-9)
! positive, negative	! extinguishing tomrosis
! objective, subjective	! differentiation
! real, perfect	! fading
+! biological, social, ideal	+! late
? human performance assessment is carried out according to (GPC-9)	? inhibiting the development of social skills that are prohibited (GPC-9)
! anthropometric indicators	! fading
! level of oxidative processes	! differentiation
+! indicators of the functional state of the body, speed and quality of work	! blanking brake
	+! conditional brake
? most needed to make a decision in time-deficit settings (GC-1)	? inhibition, allowing to distinguish between properties of stimuli similar in parameters (GPC-9)
! balance of nervous processes	! reciprocal
! predominance of excitation processes over braking	! external
! good visual acuity	! conditional brake
+! high strength and mobility of nervous processes	! lag
	+! differentiation
? the person is most needed to work as a proofreader (OK-1)	? resistance of brake conditional reflexes, speed and strength of differentiation and delay production reflect the property of nervous processes (GPC-9)
! good visual acuity	! mobility
! great strength of nervous processes	! balance
+! predominance of excitation processes over braking	+! power
? central architectonics functional system of conduct (by P.K. Anokhin) (GPC-9) includes	? the biological significance of the conditional stimulus as compared to the unconditional must be (GPC-9)
! treatment, stable working capacity, fatigue	!more
! anxiety, resistance, exhaustion	+! less
+! afferent synthesis, decision making, action result acceptor, program actions, action	? the following phases are observed during the conditional reflex (GPC-9)
	! generalization
? the student most needs a high level of attention property (GPC-9)	! excitation concentration
! strength!	! stabilization
! reliability	+! all of the above
! switchability	? conditional reflexes of the first order occur when one conditional signal is reinforced with an unconditional stimulus (GC-1)
+! stability	+! this statement is true
	! this statement is incorrect
? a condition that occurs in a person with a long, excessive or irrational load, characterized by a decrease in performance, is called (GPC-9)	? conditional reflexes of higher orders arise on the basis of conditional reflexes of the first, second, third, etc. orders (GC-1)
! emotion	+! this statement is true
! hypokinesia	! this statement is incorrect
! making a decision	? in an adult, reflexes can be developed in.... order (GPC-9)
+! fatigue	!the first
	! second-fifth
? ability to produce conditional reflexes quickly and firmly observed (GPC-9)	! sixth-tenth
! at choleric	+! up to twentieth or more
! melancholic	? in the infant (GPC-9)
! phlegmatic	! conditional reflexes are not produced
+! at the sanguine	! only 1-st order conditional reflexes can be generated
? ability to quickly convert positive conditional reflexes into negative ones is determined by the characteristic of nervous processes (GPC-9)	
!by force	
! balance	
+! mobility	
? sanguine from phlegmatic are distinguished by the following properties of nervous processes (GPC-9)	
! balance	
!power	

+! you can develop conditional reflexes of 5-6 order
! you can develop conditional reflexes up to 20 order or more

? enrichment of vocabulary in an adult is the formation of a huge chain of conditional reflexes that do not require special reinforcement. (GC-1)
+! this statement is true
! this statement is incorrect

? having a strong salivating conditional reflex in a dog for a flash light and then, applying light without reinforcements, you can get sequentially following conditional responses - 10, 8, 6, 4, 5, 2, 0, 0.0 drops of saliva such a response is called: (GPC-9)
! dynamic stereotype
! differentiating inhibition
+! extinctive inhibition
! delayed inhibition

? severe flooding happened in 1924 in Leningrad threatened to flood cages with experimental dogs. Dogs experienced severe stress. Next the day it turned out that some of them had well-developed conditional ones disappeared reflexes, but others have reflexes preserved. This led I.P. Pavlov to thought (GC-1)
! about the presence of conditional reflexes inhibition
! about the presence of a special breed stress-resistant dogs
+! about different types of higher nervous activity

? a system of conditionally unconditional reflexes, which is produced in athletes when repeating the same movements and related to the chain of motor acts called motor dynamic stereotype (GC-1)
+! this statement is true
! this statement is incorrect

? the basis of written and oral speech is made by the ... signal system (GPC-9)
!first
+! second

? nonverbal intelligence is characteristic of a person with a predominance (GPC-9)
! "thought" type of nervous system
+! "artistic" type of nervous system

? among adults, the number of persons dominated by the second signal system is (GPC-9)
+! about 50%
!25%
! about 1%

? among adults, the number of persons dominated by the first signal system is (GPC-9)
! about 10%
+! about 25%
! about 100%

? the number of adults with balance of both signal systems is (GPC-9)
+! about 25%
! about 10%
! about 100%

? specify an invalid response. In the centralnervous system to provide complex forms of human physiological behavior are used mechanisms of manifestation: (GC-1)
! conditional reflexes
! unconditional reflexes

! prudent thinking
! instincts
+! tendon and vestibular reflexes

? main distinctive characteristics of the conditional reflex: (GPC-9)
+! acquired, individual, reflex arc is formed during training
! congenital, species, congenital-conditioned interaction of neurons in the reflex arc

? main distinctive characteristics of unconditional reflex: (GPC-9)
! purchased, individual, reflex arc is formed in training process
+! innate, species, congenital-conditioned interaction of neurons in reflex to arch

? specify an incorrect answer. One of the forms that allow interaction between organism and environment, are instincts. They are characterized by: (GC-1)
! congenital-conditioned interaction of neurons in reflex to arch
! congenital
+! individual
! species

? one form that ensures the interaction of the body and the environment is instinct. When they occur, you can distinguish the phases: (GPC-9)
! motivation and sealing
+! search and finishing

? the initial, search phase of instinct manifestation starts with formation in the CNS: (GPC-9)
+! motivational arousal
! sealing processes
! rhythm transformation
! effects phenomena

? CNS centers in which motivational arousal arises for the manifestation of instincts are localized: (GPC-9)
! in the cerebellar cortex and cerebellar cortex
! in cerebellar cortex
+! in the hypothalamus and limbic system
! in the oblongata

? what type of inhibition develops in a person who is long-term in a room with a high level of noise: (GPC-9)
+! prohibitive
! external!
!internal
? characteristic features of the hypothalamus are: (GPC-9)
! the presence of a cluster of neurons that form the nuclei
! presence of glial cells
! participation in reflex regulation
+! integration of neurogenic and endocrine regulation

? indicate which features of the nervous system correspond to choleric temperament: (GPC-9)
! strong, balanced, mobile
! strong, unbalanced, inert
+! strong, unbalanced, mobile
! weak excitation and inhibition processes

? specify an incorrect answer.
spontaneously emotions arise: (GPC-9)
! when the body gets into unusual terms
! when information is scarce for organizing behavior in specific conditions
! with excess information for organizing behavior in specific conditions
+! when the body enters the usual, routine conditions

? physiological purpose of emotions consists of: (GPC-9)
! in the "removal" of stresses

! in the separation of individual CNS departments
to better organize behavior
+! in involuntary consolidation of departments
cents for a better organization of behavior and
improving instinctive behavior

? emotions are divided into: (GPC-9)
+! positive and negative
! gaming and research
! vital and zoosocial
! innate and acquired

? if a person is going to solve a difficult
task, worried, it increases attention, the manifestation of which stage
and what emotions this is characteristic of: (GC-1)
! positive emotions
+! voltage stage I negative
emotions
! voltage stage II negative
emotions
! voltage stage III negative
emotions
! voltage stage IV negative
emotions

? indicate which features of the nervous system correspond to the
sanguine temperament: (GPC-9)
+! strong, balanced, mobile
! strong, unbalanced, inert
! strong, unbalanced, mobile
! weak excitation and inhibition processes

? indicate which features of the nervous system
system corresponds to melancholic
temperament:
! strong, balanced, mobile
! strong, unbalanced, inert
! strong, unbalanced, mobile
+! weak excitation processes and
inhibition

? indicate which features of the nervous system correspond to the
phlegmatic temperament:
! strong, balanced, mobile
+! strong, unbalanced, inert
! strong, unbalanced, mobile
! weak excitation and inhibition processes

? how emotions affect the functions of the frontal lobe of the cerebral
cortex:
+! improve thinking processes
! enable more active processing
various sensory signals
! improve memory processes
! provide fast ANS activation
when emotion occurs
! no correct answer

? how emotions affect hypothalamus functions: (GPC-9)
! improve thinking processes
! enable more active processing
various sensory signals
! improve memory processes
+! provide fast switching on of ANS
in the formation and manifestation of emotions
! no correct answer

?how do moderate-intensity emotions affect the motor
system?(GPC-9)
! reduce the strength and accuracy of movements
+! increase the strength and accuracy of movements
! only positive emotions increase
force and accuracy of movements
! only negative emotions increase
force and accuracy of movements
! no correct answer

? conscious suppression of manifestation
emotions can lead: (GC-1)
! to stress generation
! to increasing disease risk
internal bodies
! to increasing glucocorticoid levels
blood
+! to lower adrenaline levels in the blood

? cortical departments of the left ("logical")
hemisphere: (GPC-9)
+! have a greater impact on formation of positive emotions
! have a greater impact on formation of negative emotions
! do not affect emotion formation
! accelerate emotion formation
! slow emotion formation

? cortical departments of the right
("artistic") hemisphere: (GPC-9)
! have a greater impact on formation of positive emotions
+! have a greater impact on formation of negative emotions
! do not affect emotion formation
! accelerate emotion formation
! slow emotion formation

? one form used by the CNS to organize behavior is imprinting. It
is: (GPC-9)
+! passive form of training
! active form of training
! a variety of unconditional reflexes
! a variety of instincts
! no correct answer

? one form used by the CNS to organize behavior is imprinting. It is
formed: (GPC-9)
! constantly
+! in critical periods of early postnatal ontogenesis
! during prenatal development
! no correct answer

? specify an incorrect answer.
To generate conditional reflexes, the following conditions are
required: (GPC-9)
! appearance of conditional stimulus
must precede unconditional
+! the appearance of unconditional
irritant must precede to conditional
! active state of cerebral cortex
! normal tone reticular
formations

? long-term failure to attach a conditional signal unconditionally
leads to development: (GPC-9)
! prohibitive inhibition
+! extinctive inhibition
! differentiative inhibition
! external inhibition

? most typical physiological
short-term memory mechanism
is: (GPC-9)
! structural and functional changes
synapses
+! reverberation of pulses by neural
chains ("traps")
! ionic shifts in receptor membranes and
afferent neurons
! neuronal structural rearrangements
! functional changes of synapses
newly formed neural circuits

? most typical physiological
long-term memory mechanisms
are all except: (GPC-9)
! structural and functional changes
synapses
+! ionic shifts in receptor membranes
and afferent neurons

! neuronal structural rearrangements
! functional changes of synapses
newly formed neural circuits

? Most typical physiological
result acceptor mechanisms
actions are: (GPC-9)
! biological interaction
motivation, afferentiation, and memory
! reflex command set
+! feedback afferentiation (communication)
! reverberation of pulses by "neural traps "
! no correct answer

? Most typical physiological
mechanisms of afferent synthesis
are: (GPC-9)
+! biological interaction
motivation, afferentiation, and memory
! reflex command set
! feedback afferentiation (communication)
! reverberation of pulses by "neural
traps "
! no correct answer

? increase of force and duration of conditional stimulus can lead to
development: (GC-1)
+! prohibitive braking
! fading braking
! differentiation braking
! external braking

? the appearance of an extraneous stimulus during the
implementation of the conditional reflex leads to development
of: (GC-1)
! prohibitive inhibition
! extinctive inhibition
! differentiative inhibition
+! external inhibition

PHYSIOLOGY OF ANALYZERS, GC-1, GPC-9.

? lowering receptors sensitivity to stimulus is called (GPC-9)
! blockade
! sensitization
+! desensitization

? increasing receptor sensitivity to stimulus is called (GPC-9)
! desensitizing
! excitability
+! sensitization

? irritant strength is encoded in the receptor with (GC-1)
! amplitude of action potentials
! frequency of receptor potential occurrence
+! amplitude of the receptor potential

? receptors specialized in the perception of several types of stimuli
are called (GC-1)
! specific
! adequate
+! polymodal

? process of active selection of information by sensor systems in
case of targeted activity is called (GC-1)
! encoding information
! adaptation
+! perceptual acceptance

? stimulus strength is encoded in the neuron (GPC-9)
! amplitude of action potentials
+! frequency of action potentials

? the transition of stimulus energy into the neural process in the
receptor is called (GC-1)
! adaptation
! sensitization
+! primary encoding

? adaptation of the receptor with the long-term action of the stimulus
on it is (GPC-9)
! in sensitization
! in increasing excitability
+! in reducing excitability

? the stimulus to which the receptor is adapted during evolution is
called (GPC-9)
physical!
! biological
! physiological
+! adequate

? the smallest stimulus force capable of causing receptor excitation
is called (GC-1)
! minimal
! adequate
+! liminal

? the selective sensitivity of the receptor to the action of a certain
stimulus is called (GPC-9)
! adequacy
! adaptation
! excitability
+! specificity

? the ability of receptors to adapt to the long-term effects of the
stimulus is called (GPC-9)
! encoding
! modality
! accommodation
+! adaptations

? analyzer property to change the number of active receptors is
called (GPC-9)
! specificity
! integration
! modality
+! functional mobility

? receptors that have little or no adaptation include (GPC-9)
! tactile
! taste
! temperature
+! vestibular

? frequency of pulses in receptors during their adaptation (GC-1)
! increases
! does not change
+! decreases

? secondary sensing receptors include (GPC-9)
! tactile receptors
! muscle spindle
+! retinal photoreceptors

? receptor potential has character (GPC-9)
! phasic
! spreading
+! local

? interoperability of analyzers at cortical level is ensured with (GPC-9)
! analyzer core cells
! glial cells
+! scattered elements of the analyzer center link

? inter-analyzer interaction is ensured with (GPC-9)
! monomodal sensory neurons
! interneurons
+ ! polymodal sensory neurons

? with myopia, the main focus is (GC-1)
! behind the retina
! on the retina
+! in front of the retina

- ? in presbyopia, the main focus is (GC-1)
 - ! on the retina
 - ! in front of the retina
 - +! behind the retina
- ? in myopia, correction of eye refraction by lenses is required (GC-1)
 - ! biconvex
 - ! cylindrical
 - +! biconcave
- ? hypermetropia requires correction of eye refraction by lenses (GC-1)
 - ! cylindrical
 - ! biconcave
 - +! biconvex
- ? the mechanism of eye accommodation is change (GC-1)
 - ! pupil diameter
 - ! number of active receptors
 - +! lens curvature
- ? yellow retinal spot makes up cells (GPC-9)
 - ! horizontal
 - ! sticks
 - +! cones
 - ! amacrine
- ? on the periphery of the retina more receptors (GPC-9)
 - ! cones
 - +! sticks
- ? optic nerve form axons of retinal cells (GPC-9)
 - ! amacrine
 - ! bipolar
 - +! ganglion
- ? size of receptive ganglion cell fields from the center of the retina to the periphery (GPC-9)
 - ! decreases
 - ! does not change
 - +! increments
- ? increased eye sensitivity in the dark is associated with (GC-1)
 - ! with the collapse of rhodopsin
 - ! with iodopsin decay
 - +! with rhodopsin synthesis
- ? binocular vision provides (GPC-9)
 - ! focusing the rays on the retina
 - ! focusing the rays behind the retina
 - ! focusing the rays in front of the retina
 - +! voluminous vision
- ? retinal pigment layer plays a role (GPC-9)
 - ! light reflector
 - ! light flux stabilizer
 - +! light absorber
- ? the place where the optic nerve exits the eyeball is called (GPC-9)
 - ! yellow spot
 - ! end path
 - ! central pit
 - +! blind spot
- ? the record of total electrical activity of retinal photoreceptors is called (GPC-9)
 - ! plethysmogram
 - ! electrocogologram
 - ! electroencephalogram
 - +! electroretinogram
- ? a collection of receptors whose irritation causes the excitation of one retinal ganglion cell is called (GPC-9)
 - ! yellow spot
 - ! central pit
 - +! receptive field
- ? the space seen by one eye when the gaze is fixed at one point is called (GPC-9)
 - ! visual acuity
 - ! receptive field
 - ! spatial threshold
 - +! field of view
- ? the center of the visual analyzer is localized in the cortex region
 - ! somatosensory (GPC-9)
 - ! temporal
 - ! parietal
 - +! occipital
- ? the ability of the eye to tune to a clear vision of objects depending on their distance is called (GC-1)
 - ! sensitization
 - ! by mobilizing photoreceptors
 - ! visual acuity
 - +! accommodation
- ? achromatic field of view compared to chromatic (GPC-9)
 - ! identical
 - ! less than
 - +! more
- ? a simplified eye model in which all media have the same refractive index is called (GPC-9)
 - ! perfect eye
 - ! artificial eye
 - +! reduced eye
- ? the ability of the eye to distinguish between two luminous points whose projections fall on the retina at an angle of one minute is called (GPC-9)
 - ! accommodation
 - ! sensitization of photoreceptors
 - ! refraction
 - +! normal visual acuity
- ? the ability of the eye to distinguish between two luminous points with a minimum distance between them is called (GPC-9)
 - ! sensitization of photoreceptors
 - ! accommodation
 - ! refraction
 - +! visual acuity
- ? the norm of visual acuity is taken as the ability of the eye to distinguish between two luminous points, the projection of which falls on the retina at an angle of (GPC-9)
 - ! 10 min
 - ! 30 s
 - +! 1 min
- ? visual impairment associated with loss of lens elasticity in old age is called (GC-1)
 - ! myopia
 - ! hypermetropia
 - ! astigmatism
 - +! presbyopia
- ? deuteranopia is a color vision anomaly associated with impaired light perception (GPC-9)
 - ! blue
 - ! purple
 - ! orange
 - +! dark green
- ? protanopia is a color vision anomaly associated with impaired color perception (GPC-9)
 - ! blue
 - ! purple
 - ! orange
 - +! dark red
- ? color vision anomaly associated with impaired perception of blue and purple colors is called (GPC-9)
 - ! deuteranopia
 - ! protanopia

! achromasia
+! tritanopia

? presbyopia is due to (GC-1)
! uneven corneal curvature radius
! changing lens transparency
+! reduced lens elasticity

? unequal refraction of rays by different areas of the cornea of the eye is called (GPC-9)
! myopia
! accommodation
! presbyopia
+! astigmatism

? the pupil's reaction to the action of light manifested in its narrowing is called (GPC-9)
! accommodation
! astigmatism
! eye refraction
+! pupil reflex

? achromatic vision due to (GPC-9)
! cones
! pigment cells
+! rod of the retina

? the receptor part of the auditory analyzer includes (GPC-9)
! collection of inner ear formations
! eardrum
! semicircular channels
+! hair cells

? sound-conducting formations of the middle ear include (GPC-9)
! Eustachian pipe, snail vestibule
! cortical organ, semicircular channels
! vestibule and semicircular channels
+! eardrum, hammer, anvil, stremecho

? human auditory analyzer perceives sounds in the frequency range (GPC-9)
! 6-2,000 hz
! 10-2,000 hz
! 6-10,000 hz
+! 16-20,000 hz

? cortical representation of the auditory analyzer is located (GPC-9)
! in the occipital area
! in parietal lobes
+! in the temporal area
! somatosensory zone

? thanks to binaural hearing, a person can (GPC-9)
! hear low tones
! hear high tones
+! localize sound source

? at the tip of the tongue are taste receptors, sensitive mainly (GPC-9)
! to acidic
! to bitter
! to salty
+! to sweet

? on the lateral surfaces of the tongue are taste receptors, sensitive mainly (GPC-9)
! to bitter
! to sweet
+! to acidic

? at the root of the tongue are taste receptors that are sensitive mainly to (GPC-9)
! acidic
! salty
sweet!
+! bitter

? the first neuron of the taste analyzer localizes to
! solitary tract core (GPC-9)
! thalamus
! large hemispheres
+! sensitive ganglia taste nerve fibers

? the second neuron of the taste analyzer localizes to
! hemispheric crust (GPC-9)
! thalamus
! sensitive ganglia taste nerve fibers
+! solitary tract core

? the third neuron of the taste analyzer localizes to (GPC-9)
! solitary tract core
! crust of large hemispheres
! sensitive ganglia taste nerve fibers
+! thalamus

? receptor potential arises (GPC-9)
! in the support cells of the taste bulb
! in the taste pore
+! in the taste cage

? taste buds of the front two-thirds of the tongue innervates (GPC-9)
! linguosyngeal nerve
! vagus nerve
+! drum string

? taste buds located in the pharynx, epiglottis and larynx area innervates (GPC-9)
! drum string
! linguosyngeal nerve
+! upper laryngeal nerve

? taste sensitivity does not have language receptors (GPC-9)
! leaf-shaped
! trough-shaped
! mushroom-shaped
+! filamentous

? adaptation of taste papillae of the tongue after eating is expressed in their (GPC-9)
mobilization!
! activation
! sensitization
+! demobilization

? the number of functioning taste receptors in a person is greater in condition (GPC-9)
! sleep!
! saturation
+! hunger

? the method of determining taste sensitivity by the sensation threshold is called (GPC-9)
! adaptometry
! olfactometry
! esthesiometry
+! denseness

? olfactory analyzer receptors refer to (GPC-9)
! to secondary-sensitive
+! to primary-sensitive

? crust representation of olfactory analyzer is located (GPC-9)
! in the parietal region of the cortex
! in the occipital region of the cortex
+! in the hippocampus, periform cortex

? method for determining olfactory sensitivity by sensation threshold is called (GPC-9)
! adaptometry
! gustometry
! esthesiometry
+! olfactometry

? adaptation of taste receptors develops slowest on (GPC-9)
 ! salty
 ! sweet
 ! acidic
 +! bitter

? the first neuron of the spinothalamic pathway localizes to
 ! spinal cord (GPC-9)
 ! reticular formation
 ! thalamus
 +! spinal ganglia

? The cortical representation of the thermal analyzer is in (GPC-9)
 ! temporal area
 ! occipital area
 ! parietal area
 +! somatosensory zone

? the device used to determine the number of heat and cold points on the skin is called (GPC-9)
 ! electrothermometer
 ! esthesiometer
 +! thermoesthesiometer

? the maximum area of the somatosensory cortex is occupied by the representation of body sites (GC-1)
 ! backs, abdomen, necks
 ! backs, hips, shins
 +! lips, face, hands

? somatotopic organization of skin sensitivity projections is characteristic of all levels of the conducting system (GPC-9)
 ! extralemniscal
 ! extrapyramidal
 +! lemniscal

? slowly adapting tactile receptors include (GPC-9)
 ! pacinian corpuscles
 ! photoreceptors
 +! Merkel's disk

? rapidly adapting tactile receptors include (GPC-9)
 ! nociceptors
 ! Merkel's disk
 +! pacinian corpuscles

? the minimum distance between two points, with the simultaneous irritation of which there is a feeling of two touches, is called a ... threshold (GPC-9)
 ! sensitive
 ! irritation
 +! spatial

? minimal spatial threshold has skin on (GPC-9)
 ! back
 ! foot soles
 ! forearms
 +! fingers

? when air temperature decreases, active cold receptors become (GC-1)
 ! less
 ! far less
 +! more

? Krause's bulbs absorb (GPC-9)
 ! heat
 ! pressure
 ! vibration
 +! cold

? Ruffinian corpuscles absorb (GPC-9)
 ! pressure
 ! vibration
 ! cold
 +! heat

? pain receptors are (GPC-9)

! Meissner's corpuscle
 ! Krause's bulbs
 ! Ruffinian corpuscles
 +! free nerve endings

? the highest level of analyzer interaction is (GC-1)
 ! receptor
 ! thalamic
 ! truncal
 +! cortical

? receptors specialized in the perception of stimuli of the same species are called (GPC-9)
 ! sensory
 ! polymodal
 +! monomodal

? demobilization has a mechanism of (GPC-9)
 ! increase the excitability of receptors
 ! increase the number of active receptors
 +! decrease in the number of active receptors

? in the auditory analyzer, the second neurons are represented by cells of (GPC-9)
 ! thalamus
 ! ganglion
 +! cochlear nuclei

? in the olfactory analyzer, the second neurons are represented by cells of (GPC-9)
 ! solitary tract cores
 ! hippocampus
 +! olfactory bulbs

? Golgi receptors are localized in (GPC-9)
 +! tendons
 ! muscles
 ! fascia

? vestibular receptors by rate of adaptation refer to (GPC-9)
 ! fast-adapting
 ! slowly adapting
 +! practically non-adaptable

? thermosets are - (GPC-9)
 ! Merkel disks
 ! hair cells
 +! Krause bulbs

? muscle stretching receptors are (GPC-9)
 ! Meissner's corpuscles
 ! Merkel disks
 ! Krause bulbs
 +! muscle spindle

? proprioceptors include (GPC-9)
 ! photoreceptors
 ! hair cells
 +! muscle spindle

? specify correct distribution of retinal cell layers: (GPC-9)
 ! photoreceptors, pigment layer, two layers of neurons
 +! pigment layer, photoreceptors, two layers of neurons
 ! two layers of neurons, pigment layer, photoreceptors

? the somatovisceral sensor system includes analyzers, except: (GPC-9)
 ! skin
 ! proprioceptive
 + ! vestibular
 ! visceral

? specialized structures that perceive the effects of the stimulus are called: (GPC-9)
 ! analyzers
 +! receptors
 ! sensor systems

- ? auditory analyzer receptors are called: (GPC-9)
 - ! rods
 - +! hair cells
 - ! ruffinian corpuscles
- ? excitation of receptors in the cortical organ occurs in: (GPC-9)
 - +! hair cell deformations
 - ! eardrum deformations
 - ! main membrane oscillations
 - ! perilymph fluctuations
- ? nociception is: (GPC-9)
 - ! tactile sensitivity
 - +! pain sensitivity
 - ! temperature sensitivity
- ? under the influence of sound stimuli, electrical phenomena arise in the snail, except: (GC-1)
 - ! summation potential
 - ! auditory nerve action potential
 - +! membrane potential of hair cells
 - ! microphone potential
- ? auditory adaptation is defined by: (GPC-9)
 - +! reduced auditory sensitivity
 - ! increased auditory sensitivity
- ? the level of redox reactions in the endolymph of the cochlea is determined by: (GPC-9)
 - ! membrane potential of hair cells
 - +! endocochlear potential
 - ! auditory nerve action potential
- ? the otolite apparatus is a receptor structure: (GPC-9)
 - ! auditory analyzer
 - +! vestibular analyzer
 - ! somatosensory analyzer
- ? audibility speech zone is the range of sounds with oscillation frequency: (GPC-9)
 - +! 200 to 3,000 Hz
 - ! 20 to 16,000 Hz
 - ! above 16,000 Hz
- ? in primary-sensing receptors, impulse activity occurs directly as a result: (GC-1)
 - ! stimulus interactions with the receptor membrane
 - ! emergence of receptor potential
 - +! generating action potential
- ? myopia corrected with ... lenses: (GC-1)
 - ! convex
 - +! concave
- ? hypermetropia is corrected using ... lenses: (GC-1)
 - +! convex
 - ! concave
- ? when generating the receptor potential in the receptors of the visual analyzer, the membrane is in the state of: (GPC-9)
 - ! depolarization
 - +! hyperpolarization
 - ! static polarization
- ? when generating receptor potential in the receptors of the auditory analyzer, the membrane is in the state: (GPC-9)
 - +! depolarization
 - ! hyperpolarization
 - ! static polarization
- ? the phenomenon of a decrease in the number of functioning receptors is called: (GPC-9)
 - ! desensitizing
 - ! accommodation
 - +! demobilization
 - ! mobilization
- ? when illuminating photoreceptors, hyperpolarization occurs
 - because their membrane in the light reduces the permeability to: (GC-1)
 - ! potassium ions
 - +! sodium ions
 - ! chlorine ions
 - ! magnesium ions
 - ? rod's photopigment - rhodopsin sensitive to: (GPC-9)
 - ! red and green light
 - ! purple and green light
 - ! red and blue light
 - +! blue and green
 - ? sound vibrations from the eardrum through the auditory bones are transmitted to: (GPC-9)
 - +! oval window membrane
 - ! hair cells
 - ! main membrane
 - ? retinal bipolar neurons: (GPC-9)
 - ! combine neurons horizontally
 - ! perform lateral inhibition
 - +! bind photoreceptors to ganglion cells
 - ? in the visual analyzer, the second neurons are represented by cells: (GPC-9)
 - ! thalamus
 - +! ganglion
 - ! bipolar
 - ? oscillations of the oval window membrane cause oscillations: (GPC-9)
 - +! perilymphs in the upper and lower canal of the snail
 - ! endolymphs in the lower and upper channels of the snail
 - ? the cortical representation of the taste analyzer is located: (GPC-9)
 - ! in the parietal region of the cortex
 - ! hippocampus, peripheral cortex
 - +! cortex somatosensory zone
 - ! occipital cortex region
 - ? the vestibular system plays a leading role in: (GPC-9)
 - ! tactile reception
 - +! definition of the position of the body in space
 - ! in proprioception
 - ? the light-receiving structure of the eye is: (GPC-9)
 - ! lens
 - ! cornea
 - +! retina
 - ? retinal brake neurons: (GPC-9)
 - ! bipolar
 - +! amacrine
 - ! ganglion
 - ? eardrum is located: (GPC-9)
 - ! in the inner ear
 - +! at the boundary between the outer and middle ear
 - ! on the boundary between the middle and inner ear
 - ? Sound-perceiving apparatus is : (GPC-9)
 - ! outer ear
 - ! middle ear
 - +! inner ear
 - ? eustachian tube connects nasopharynx to cavity of: (GPC-9)
 - ! outer ear
 - +! middle ear
 - ! inner ear
 - ? a collection of formations including receptors, afferent neurons, conducting pathways and projection zones of the cortex of the hemispheres are called: (GPC-9)
 - +! analyzers
 - ! sensory organs
 - ! receptors

? dioptria is the refractive force of a lens with a focal length: (GPC-9)
 ! 10 cm
 +! 100 cm
 ! 100mm

? myopia is a violation of: (GPC-9)
 +! refractions
 ! color vision
 ! accommodation
 ! increased intraocular pressure

? glaucoma is (GPC-9)
 ! color vision impairment
 +! increased intraocular pressure
 ! refraction disorder

? cones contain visual pigments except: (GPC-9)
 ! chlorolab
 ! iodopsin
 +! rhodopsin
 ! erythrolab

?Corti's organ is located: (GPC-9)
 +! in the cochlea
 ! in semicircular channels
 ! vestibule of the ear

? What scala is filled with endolymph: (GPC-9)
 ! scala tympani
 ! scala vestibuli
 +! cochlear duct

? above the Corti's organ is a membrane: (GPC-9)
 ! basic
 +! tectorial
 ! vestibular

? helicotrema is (GPC-9)
 ! fluid filling the cochlear duct
 +! connecting the vestibular and scala tympani at the top of the cochlear
 ! sound-perceiving apparatus

? the first neuron of the auditory analyzer is localized: (GPC-9)
 ! in cochlear cores
 ! in the superior olive
 +! in the spiral ganglion of the cochlear

? Central auditory analyzer localized: (GPC-9)
 ! in the occipital area
 +! in the temporal area
 ! in the hippocampus area

? auditory or cochlear nerve form axons: (GPC-9)
 +! spiral snail ganglion cells
 ! cochlear nucleus cells
 ! neurons of the nuclei of the lower humps of the quaternary

? the second neuron of the auditory analyzer is localized: (GPC-9)
 ! in the spiral ganglion of the snail
 +! cochlear cores
 ! in the cores of the lower tuber of the quadrigemina

? бинауральный слух определяется работой нейронов: (GC-1)
 ! нижних бугров четверохолмия
 ! спирального ганглия улитки
 + !слуховой коры

? binaural hearing is determined by the work of neurons: (GC-1)
 ! lower tuber of the quadrigemina
 ! spiral ganglion
 +! auditory cortex

? upper and lower channels of the cochlea are filled with: (GPC-9)
 +! perilymph
 ! endolymph

! lymphoma

? desensitization is (GPC-9)
 ! increase the excitability of receptors
 ! increase the number of active receptors
 ! reducing the number of active receptors
 +! reduced excitability of receptors

? mobilization is (GPC-9)
 ! increase the excitability of receptors
 +! increase in the number of active receptors
 ! reducing the number of active receptors
 ! reduced excitability of receptors

PHYSIOLOGY OF EXCRETORY SYSTEM, GPC- 9

? urination provide processes of
 ! filtering, reabsorption
 +! filtration, reabsorption, tubule secretion of synthesized substances
 ! filtration, reabsorption, excretion

? reabsorption during urination is called
 ! plasma transition to capsule cavity
 +! the process of reabsorption of substances from the renal tubules into the blood
 ! active transport of substances into the lumen of tubules

? reabsorption of water in the kidneys is done by
 ! active transport
 +! passive transport
 ! filtrations

? the process of secreting urine components is
 ! in filtration into renal glomerulus capsule cavity
 +! in active removal of substances into the lumen of tubules
 ! in filtering into the lumen of tubules

? renin is formed in cells
 ! Henle loops of juxtamedullary nephron
 +! granular cells of afferent arterioles
 ! renal glomerular capsule podocytes

? daily diuresis is normally
 ! 15-20 l
 +! 1.5-2.0 l
 ! 150-180 l

? hydrostatic pressure in tangle glomerule
 ! 80 - 100 mm Hg.
 ! 10 - 30 mm Hg.
 +! 45 - 50 mm Hg.

? the ultrafiltrate pressure in the glomerulus capsule is normally
 ! 70-80 mm Hg.
 +! 10-20 mm Hg.
 ! 50-60 mm Hg.

? blood plasma oncotic pressure is equal to
 ! 80-100 mm Hg. Art.
 +! 25-30 mm Hg. Art.
 ! 50-70 mm Hg. Art.

? mandatory protein reabsorption occurs
 ! in the loop of Henle
 +! proximal convoluted tubule
 ! in the collecting duct

? glucose reabsorbed
 ! in the loop of Genle
 ! in the distal tubule
 +! in the proximal tubule

? mandatory water reabsorption mainly occurs
 ! in the upstream section of the Genle loop

+! in the proximal tubule ! in distal crimped tubule	? activation of the antidiuretic mechanism occurs at ! water load +! eating salty food, fluid loss ! eating spicy food
? optional water reabsorption mainly occurs ! in proximal crimped tubule +! in collecting tubes ! in the distal tubule	? urine sodium content increases under the influence of +! natriuretic peptide ! aldosterone ! insulin
? K value in final urine by aldosterone ! decreases +! increments ! does not change	? renin involved in regulating water-salt homeostasis and maintaining blood pressure constancy is secreted +! juxtaglomerular apparatus ! Genle loop ! collecting tubes ! tubing set
? the permeability of water collection tubes is affected by the enzyme ! carboanhydrase +! hyaluronidase ! adenosine triphosphatase	? secretion of aldosterone stimulates ! thyroid hormone +! angiotensin II ! renin
? threshold refers to a substance ! insulin +! glucose ! creatinine	? the physiological role of renin is ! in maintaining the cellular composition of blood +! in blood pressure regulation ! in blood clotting
? filtering rate is determined using clearance calculation ! glucose +! inulin ! paraaminohippuric acid	? sodium reabsorption in the kidneys regulates hormones ! antidiuretic, aldosterone +! aldosterone, natriuretic peptide ! antidiuretic, actg
? threshold does not include a substance ! glucose +! sulfates ! urea	? antidiuretic hormone affects water permeability ! proximal tubule +! collecting tubes ! Genle loops
? in normal human urine has a reaction ! neutral +! acidic ! alkaline	? thirst center is located ! in pituitary gland +! in the hypothalamus ! in basal ganglia
? a filtrate is formed in the kidneys ... per day ! 1.5 - 2.0 liters +! 150 - 180 liters ! 15 - 20 liters	? basic homeostatic functions of the kidney - this is the maintenance of constancy ! biologically active substances +! osmotic pressure, acid-base equilibrium, BP ! metabolism products
? urine formation is the result of ! filtering, reabsorption, active transport +! filtration, reabsorption, tubule secretion ! filtration, reabsorption, pinocytosis	? the process of urine formation in the Schumlyansky-Bowman capsule is called ! tubule excretion +! glomerular ultrafiltration ! tubule secretion ! tubule reabsorption
? kidney involvement in metabolism, blood clotting processes, BP regulation, erythropoiesis is a function of ! trophic +! non-excreting ! excreting	? formation of primary urine from blood plasma is a function of ! proximal nephron tubules +! capillaries of the glomeruli of the renal body ! collecting tubes ! distal tubules
? absorption back into the blood of water, glucose, amino acids, trace elements, salts and low molecular weight proteins occurs ! in capillaries of glomeruli of renal body +! in the proximal tubule ! in collecting tubules	? the size depends on the lumen of the arterioles bringing and carrying and the permeability of the membranes of the capillaries of the renal glomerulus ! oncotic pressure +! filtering ! reabsorption ! secretions
? reabsorbed throughout all nephron tubules ! glucose +! water ! vitamins ! proteins	? the filtrate formed in the renal glomeruli is called ! final urine +! primary urine ! secondary urine
? determination of the value of effective renal plasma is carried out by calculating EDTA clearance +! paraaminohippuric acid ! inulin ! glucose	? filtrate is formed per day, on average, ! 1.5-2 l
? non-threshold includes a substance ! glucose +! sulfates ! urea	

! 10-15 l
+! 150-180 l

? renal epithelial cells stabilize the acid-base plasma equilibrium constant by secreting ions

! Na⁺, K⁺
+ ! H⁺, NH₄
! K⁺, Ca⁺⁺

? formation of a major amount of ammonia is associated with amino acid conversion

! leucine
+! glutamine
! deoxyribonucleic
! tryptophan

? removal of the main amount of H⁺ ions is provided by the buffer system

! plasma proteins
+! bicarbonate
! phosphate
! hemoglobin

? transport of sodium from the tubule cell to the intercellular fluid is

! passive
+! active
! lightweight

? sodium and potassium reabsorption is affected by the hormone

! thyroxine
+! aldosterone
! antidiuretic hormone
! adrenaline

? inhibits the reverse absorption of calcium and magnesium ions in the proximal parts of nephron hormone

! adrenaline
+! calcitonin
! corticosterone
! thyroxine

? mandatory reabsorption of water, glucose, sodium and potassium ions is a function of

! capillaries of glomeruli of renal body
+! proximal tubing
! distal section of tubules

? natriuretic peptide is produced in

! right atrium
+! left atrium
! aortic arc
! hypothalamus

? volume receptors (volumoreceptors) triggering the antinatriuretic mechanism are located in

! aortic arc
+! left atrium
! right atrium
! carotid bifurcations

? when the uretic mechanism antinatrias are activated

! urine volume and density will increase
+! urine volume will increase, density will decrease
! urine volume will decrease, density will increase

? the transport of glucose from the tubule cell to the intercellular fluid is

! passive
+! secondary-active
! primary-active

? stimulation of Na-adenosine triphosphatases in cells of distal renal tubules occurs under the influence of

! renin
+! aldosterone
! insulin

? antidiuretic mechanism is triggered at

! reducing osmotic blood pressure, BP
+! increased osmotic pressure, decreased blood volume and BP
! reducing osmotic pressure, increasing blood volume and BP

? increased blood flow to the heart causes

! reduction of natriuretic peptide secretion
+! reduced ADH secretion
! increase ADH secretion

? antidiuretic hormone activates enzyme

! maltase
+! hyaluronidase
! trypsin
! enterokinase

? angiotensin causes

! inhibition of ADH and aldosterone secretion, dilation of vessels
+! activation of ADH and aldosterone production, vasoconstriction
! hyaluronidase activation

? central osmoreceptors are located

! in pituitary gland
+! in the hypothalamus
! in the thalamus
! in the cerebral cortex

? exit of the central osmoreceptor vacuum causes

! osmoreceptor braking
+! excitation of osmoreceptor

? collection tube function

! renin formation
+! urine concentration
! metabolite excretion
! protein synthesis

? in renal tubule cells synthesized

! creatinine
+! paraaminohippuric acid, ammonia
! renin
! natriuretic peptide

? permeability of distal crimped tubules and collecting water tubes increases

! aldosterone
+! antidiuretic hormone
! renin
! natriuretic peptide

? secrete renin cells of the juxtaglomerular apparatus

! juxta-vascular
+! granular afferent arterioles
! mesangial

? stopping the formation of urine is called

! proteinuria
+! anuria
! polyuria
! glucosuria

? renin acts on blood protein

! calcium binding
+! angiotensinogen
! fibrinogen
! albumin

? with exercise diuresis

! increases
+! decreases
! does not change

? which of the answers is correct? Re-suction of substances occurs in the following sections of the nephron:

! in the proximal department
! in the loop of Henle
! in distal areas
+! in all sections of nephron tubules

? what is renal plasmotic?
 Select the correct answer:
 ! absorption from the primary urine into the blood and lymph some vital substances
 +! is the amount of plasma that flows through the vessels of the cortex of the kidney and washes the cells of the proximal segment nephron
 ! trapping some substances from the blood and transferring them to the lumen of the tubules

? the magnitude of renal plasmotococcus in men is:
 ! 125 ml/min
 +! 650 ml/min
 ! 1.5 liters

? what is glomerular speed filtering? Select the correct answer:
 ! difference between hydrostatic blood pressure in glomerular capillaries and sum of plasma oncotic pressure blood and hydrostatic pressure filtrate in glomerular capsule
 +! is the volume of filtrate formed in kidneys per unit of time
 ! this is the plasma concentration of the substance blood

? where are the superficial and juxtamedullary nephrons located?
 Select the correct answer:
 ! superficial in the cortical part, juxtamedullary in the cerebral matter
 ! near the brain matter of the kidney
 +! all glomeruli are located in the crust part

? substance T is present in the final urine.
 is it proof that is it filtered in glomeruli?
 ! yes
 ! it is secreted into tubules
 +! no, this is possible, but there is another factor: substance T may still secreted in the tubule

? information received from the laboratory, that the patient's creatinine clearance is 120 g/day. Do you think this value is:
 ! normal!
 ! substantially lower than normal
 +! apparently some nonsense, for clearance measured in units of volume per unit time, not in units of mass per unit time

? in which point are correctly named effects of aldosterone on renal channel:
 ! increases sodium and potassium reabsorption
 ! reduces sodium reabsorption and increases potassium reabsorption
 +! increases sodium reabsorption, increases potassium and ion secretion hydrogen

? what will change in the secretion of substances at complete inhibition of active sodium reabsorption in tubules? Which one from answers is correct:
 ! decreases
 +! increased excretion of water, glucose, amino acids, bicarbonate, water, urea

? What accompanies the primary increase in parathormone secretion?
 ! lower phosphate content in urine
 ! increase of calcium content in urine, reduction of phosphates content in plasma
 +! increase in plasma content calcium, increased content phosphates in urine
 ! increasing plasma content phosphates, increased urine content

calcium,
 ? in the patient, adrenal tumor and the phenomenon of increased aldosterone secretion (primary hyperaldosteronism). How will the rate of potassium excretion with urine change?
 ! will remain normal
 ! will decrease
 +! will be promoted
 ? control of potassium excretion is achieved mainly by affecting the rate of which of the following processes:
 ! potassium filtration
 ! potassium reabsorption
 +! potassium secretion

? which of the main regulators of antidiuretic hormone (ADH) secretion is incorrectly listed:
 ! osmolarity of body fluids
 +! influence via tactile receptors
 ! plasma volume

? highlight from the above the functional feature of the downstream Genle loop department:
 ! impermeable to water
 ! permeable to sodium
 +! permeable to water

? an adult or child has swelling and a fever condition faster after eating a piece of salted fish:
 ! no one will have
 ! in an adult
 +! at the child

? select one correct answer. The concentration of sodium ions in the blood plasma meq/l is:
 !3,5-5
 !95-108
 + !135-145

? select one correct answer. The specific gravity of urine in a healthy adult after fluid restriction is:
 + !1,025-1,035
 !1,005-1,010
 !1,040-1050

? select one correct answer. The osmolarity of blood plasma is within:
 ! 150 mosm/kg water
 +! 280-300 mosm/kg water
 ! 200-250 mosm/kg water

? the child is 10 days old. He has to change diapers every hour. Is this normal?
 ! urinary discharge increased
 +! diuresis is normal

? what percentage of blood ejected by the heart passes through the vessels of both kidneys in a person:
 !80-90 %
 + !20-25 %
 !50-60 %

PHYSIOLOGY OF DIGESTION - GPC 9

? emotionally colored physiological state reflecting the body's nutrient needs is called
 ! food need
 ! appetite
 +!hunger motivation

? the main humoral factors governing GIT activities are
 ! electrolytes and metabolites
 ! mediators and modulators
 +! nutrients and gastrointestinal hormones

? paracrine effects of gastrointestinal hormones on GI target cells are performed through

blood!	? excretory function of salivary glands consists in removal from the body
! synapses	! enzymes
+! interstitial fluid	! hormones
? adaptation of digestion to a certain nature of food is called	+! metabolic and toxic products
! periodic activity	? centers of sympathetic innervation of salivary glands are located
! specificity	! in the midbrain
+! adaptation	! in the oblong brain
? continuity of food processing processes in various departments of the GI reflects the principle	+! in the spinal cord
! phased metabolism	? the secret of the sublingual salivary gland and glands, located at the root of the tongue and sky is
! three stages of digestion	! protein
+! digestive conveyor	+! mucous
? the final adaptive result of the functional power system is	! mixed
! tissue metabolism change	? saliva alpha-amylase activity decreases
! nutrient intake from depot	! in alkaline medium
+! a certain level of nutrients in the blood	! in a neutral environment
? endocrine GIT cells secrete peptides under the influence of	+! in acidic environment
! hydrostatic pressure chimus	? one chewing period has duration
! temperature, osmotic pressure of chemus	! 1.5-3 sec
+! hydrolysis products, chymus Pn	! 40-50sek
? salivation center is located	+! 15 - 20 sec
! in the intermediate brain	? saliva is released when rejected substances are introduced into the oral cavity
! in the midbrain	! mixed
+! in the oblong brain	! thick
? proteolytic enzymes in the oral cavity	+! liquid
! missing	? swallowing center is located
+! available	! in the intermediate brain
? when food enters the oral cavity, mucosal receptors are excited in the following sequence	! in the midbrain
! temperature, tactile, taste	+! in the oblong brain
! temperature, taste, tactile	? using the Pavlov isolated ventricle technique, it is possible to study gastric secretion phases
+! tactile, temperature, taste	! brain
? abundant secretion of liquid saliva causes irritation	! gastric
! extra nerve	! intestinal
! sympathetic nerve	+! all phases
+! parasympathetic nerve	? using the Heidengain isolated ventricle technique, one can study..... mechanisms of gastric secretion
? an adaptive result in a functional chewing system is	! nervous
! tentative chewing	! complex reflex
! true chewing	! neurogumoral
+! formation of food lump	+! humoral
? receptors whose irritation causes swallowing reflex are located	? digestion of carbohydrates in the stomach occurs due to the influence of amylase
! on the lateral surface of the language	! gastric juice
! in the front third language	! pancreas
+! at the root of the language	+! saliva
? in relation to blood plasma saliva is	? regulation of gastric secretion the intestinal phase is mainly carried out
! hypertensive	! complex reflector mechanisms
! isotonic	! local nerve mechanisms
+! Hypotonic	+! hydrolysis products and gastrointestinal hormones
? some substances are absorbed in the oral cavity	? in the experience of "fictitious feeding," it is possible to study the phases of gastric secretion
! no	! gastric
+! yes	! intestinal
? saliva reaction is	+! cerebral
! acidic	? under the influence of gastrin gastric motor activity
+! neutral	! decreases
! alkaline	! does not change
? saliva enzymes mainly act	+! intensifies
! on proteins	? conversion of pepsinogen to pepsin activated with
! on fats	! gastrin
+! for carbohydrates	
? vascular lumen submandibular salivary gland sympathetic nerves	
! do not change	
! expand	
+! constrict	

! enterokinase	+! hydrochloric acid
+! pepsin and HCl	
? all gastric juice acid-reacting compounds are determined	? secretion of monitor peptide is stimulated
! bound acidity	! trypsinogen
! free HCl	! hydrochloric acid
+! total acidity	+! hydrolysis products
? denaturation and swelling of proteins in the stomach causes	? trigger effects on pancreatic activity have factors
! pepsin	! humoral
! mucus	! trophic
+! HCl	+! reflex
? evacuate at the lowest speed from the stomach	? pancreatic activities are influenced by humoral factors
! proteins	! reflex
! carbohydrates	! start-up
+! fats	+! corrective
? evacuate at the highest rate from the stomach	? trypsinogen is activated under the influence of
+! carbohydrates	! secretine
! fats	! HCl
! proteins	+! enterokinases
? gastric secretion is inhibited by	? trypsin activates the following pancreatic juice enzymes
! proteins	! chymotrypsinogen and trypsinogen
! carbohydrates	! enterokinase
+! fats	+! all except amylase and lipase
? gastric juice has the greatest acidity while digesting	? in the regulation of pancreatic secretion leading are influences
! fats	! nervous
! carbohydrates	+! humoral
+! proteins	
? gastrin secretion stimulates	? in an active state, pancreatic enzymes are produced
! HCl	+! amylase, lipase
! pepsin	! nuclease, pepsinogen
+! hydrolysis products	! trypsinogen, chymotrypsinogen
? gastrin is formed in one of the parts of the stomach	? pancreatic enzymes are produced as zymogens
! fundal	! amylase, lipase
! cardiac	! nuclease
+! pyloric	+! trypsinogen, chymotrypsinogen
? secretion of gastric glands excite	? bile regulates bile formation when
! secretin, monitor peptide, VIP, GIP	! interacts with the chymus
+! gastrin, histamine	! emulsifies fats
	+! is absorbed into the blood and enters the liver
? HC secretion! stomach glands inhibit	? periodic process occurs
! gastrin, histamine	! bile formation
+! secretin, monitor peptide, VIP, GIP	+! bile secretions
? digestion of proteins in the stomach intensively occurs only in	? hepatic and cystic bile have different composition
some layers of the chymus	! no
! fundal	+! yes
! pyloric	
+! primucosal (adjacent to the mucosa)	? components of bile, absorbed into the blood, are again included in
	the composition of bile, which is called
? gastric motility stimulates	! bile transport
! GIP	! bile acid disposal
! monitor peptide	+! hepatic-intestinal circumference of bile
+! gastrin	
? secretin stimulates the release of pancreatic juice, which is	? bile pigments are formed
dominated by	! from cholesterol
! enzymes	! from bilirubin
! mucus	+! from hemoglobin
+! Bicarbonates	
? monitor peptide stimulates pancreatic juice release, which is	? under the influence of bile are absorbed
predominant	! monosaccharides, amino acids
! bicarbonates	! protein hydrolysis products
! mucus	+! fat-soluble vitamins, cholesterol, calcium salts
+! enzymes	
? secretin production stimulates	? regulatory functions of bile are
! hydrolysis products	! pepsin inactivation
! trypsinogen	! effect on the absorption of fat hydrolysis products
	+! stimulation of bile secretion and bile formation
	? in liver diseases, patients in the blood determine the content of
	proteins and their fractions, because
	! proteins are disposed of in the liver

! increased extraction of proteins by hepatocytes
 +! protein synthesis in liver is impaired

? inactivation of HCl and pepsin in the duodenum is influenced by
 ! enterokinases
 ! trypsin
 +! bile and juice bicarbonates

? bile formation stimulates
 ! GIP
 ! VIP
 +! secretine

? bile release stimulates
 ! VIP
 ! glucagon
 +! monitor peptide

? fats in the duodenum emulsifies
 ! lipase
 ! mucus
 ! elastase
 +! bile

? secretin inhibits secretion
 ! pancreatic enzymes
 ! pepsinogen
 +! hydrochloric acid

? trypsinogen does not activate
 ! enterokinase
 ! trypsin
 +! hydrochloric acid

? the inhibitory effect of secretin and monitor peptide on gastric secretion is observed in one phase
 ! brain
 ! gastric
 +! intestinal

? with irritation of the distal part of the intestine secretion and motility of the proximal part
 ! intensifies
 ! does not change
 +! slowing down

? intestinal juice reaction is:
 ! neutral
 ! acidic
 +! alkaline

? acetylcholine stimulates intestinal motility
 ! no
 +! yes

? transport of micromolecules is carried out by
 ! endocytosis and persorption
 ! filtering and reabsorption
 +! active and passive transport

? cavity digestion is carried out by enzymes
 ! glycocalix
 ! enterocytes
 +! intestinal and pancreatic juices

? unlike the small intestine, contractions are observed in the colon
 ! peristaltic
 ! pendulum-shaped
 +! antiperistaltic

? circuit of sequentially excited or inhibiting nerve centers, in which the activity of each automatically triggers the subsequent is characteristic of:
 +! 1) dynamic stereotype
 ! 2) differentiation braking
 ! 3) fading

! 4) delayed

? the secret of the parotid salivary gland and glands located on the lateral surfaces of the tongue is
 ! mucous
 ! mixed
 +! protein (serous)

? the secret of the underlying salivary gland is
 ! protein (serous)
 ! mucous
 +! mixed (protein - mucous)

? stomach examination technique and gut that allows along with visual observation behind mucosa receive biopsy material, called
 ! gastric and duodenum intubation
 ! electrogastography
 ! radiological research
 +! endoscopic examination

METABOLISM AND ENERGY PHYSIOLOGY, NUTRITION AND THERMOREGULATION PHYSIOLOGY, GPC- 9

? in the forward part of the hypothalamus is the center
 ! chemical thermoregulation
 ! thirst
 ! sleep and evocation
 +! physical thermoregulation

? in the back of the hypothalamus is the center of
 ! thirst
 ! physical thermoregulation
 ! saturation and hunger
 +! chemical thermoregulation

? comfort zone is called ambient temperature
 ! the 16-18th
 ! the 22-24th
 +! the 18-20th

? heat formation in mice during heavy muscle work increases
 ! by 10%
 ! by 50-80%
 +! by 400-500%

? daily body temperature in a person normally ranges from
 ! 35.6-36.6s
 ! 36.4-37.5s
 +! 36.5-36.9s

? heat shock can occur at body temperature
 ! the 37-38th
 ! the 38-39th
 +! the 40-41st

? most heat generated
 ! in the lungs
 ! in the kidneys
 ! in connective tissue
 +! in a working skeletal muscle

? heat return at comfort temperature goes more intensively
 ! convection
 ! evaporations
 +! radiation

? with lower ambient temperature, internal organ vessels
 ! narrow
 ! do not change the lumen
 +! expand

? as the ambient temperature rises, skin capillaries
 ! narrow
 ! do not change the lumen
 +! expand

? the lowest body temperature observed in the skin area of
 ! cheeks

- ! backs
- +! toes and hands
- ? the highest human body temperature is observed
 - ! at 7 a.m.
 - ! at 13 p.m.
 - ! at 7 p.m.
 - +! at 6-8 p.m.
 - ! at 3 p.m.
- ? the lowest body temperature of a healthy person is observed
 - ! at 7 a.m.
 - ! at 13 p.m.
 - ! at 19 p.m.
 - +! at 4 - 6 a.m.
- ? under the influence of thyroxine body temperature
 - ! freeze down
 - ! does not change
 - +! rises
- ? physical thermoregulation mechanisms include
 - ! enhancing metabolism
 - ! muscle shivers
 - +! evaporation of moisture from the surface of the body
- ? isothermal is characteristic of ... animals
 - ! poikilothermic
 - ! heterothermal
 - +! homoiothermal
- ? the highest temperature in the body has
 - ! brain
 - ! stomach
 - +! liver
- ? thermal dissipation in a person in the water goes the way of
 - ! evaporations
 - ! radiation
 - +! heat supply
- ? main thermoregulation centers are located
 - ! in the thalamus
 - ! in the cerebral cortex
 - +! in the hypothalamus
- ? the constancy of body temperature is called
 - ! hyperthermia
 - ! hypothermia
 - +! isothermia
- ? processes of heat formation in the body united into the concept of
 - ! thermal stabilization
 - ! heat transfer
 - +! heat production
- ? changing metabolic intensity in body cells affects processes of
 - ! heat transfer
 - ! heat lines
 - ! heat radiation
 - +! heat generation
- ? the largest proportion of heat in the body is generated
 - ! in the heart, kidneys
 - ! in connective tissue, muscles
 - ! in bone tissue, liver
 - +! in muscles, liver, kidneys
- ? in cold conditions heat formation in muscles
 - ! increases gradually
 - ! does not change
 - ! goes down
 - +! rises sharply
- ? processes of heat release by the body combine the concept of ...
 - thermoregulation
 - ! chemical
 - ! metabolic
- +! physical
- ? heat return by the body is carried out by
 - ! increase the tone of muscles and shivers
 - ! muscle activity
 - ! main exchange changes
 - +! heat radiation, convection, heat transfer, evaporation
- ? the return of heat by the body to the environment by radiation is called
 - ! convection
 - ! evaporation
 - ! heat transfer
 - +! radiation
- ? body temperature rise above 37C is called
 - ! hypothermies
 - ! isothermal
 - +! hyperthermia
- ? fall of body temperature to 35C is called
 - ! heterothermia
 - ! hyperthermia
 - ! isothermal
 - +! hypothermia
- ? the largest number of central thermosets is
 - ! in the oblong brain
 - ! in the spinal cord
 - +! in the hypothalamus
- ? heat return by the body by contact with streams of air or liquid is called
 - ! heat radiation
 - ! evaporation
 - +! convection
- ? heat return to the object when it contacts the surface of the body is called
 - ! heat radiation
 - ! evaporation
 - ! convection
 - +! heat supply
- ? heat return by evaporation at 100% relative humidity
 - ! high
 - ! low
 - +! completely absent
- ? most intense heat transfer path at comfort temperature
 - ! convection
 - ! heat supply
 - +! radiation
- ? when the ambient temperature increases, heat is released from the skin surface
 - ! is unchanged
 - ! decreases
 - +! increments
- ? the mechanism of physical thermal regulation includes
 - ! enhancing metabolism
 - ! changing the main exchange
 - ! muscle shivers
 - +! evaporation of moisture from the surface of the body
- ? heat return by evaporation with increased air humidity
 - ! increases
 - ! does not change
 - +! decreases
- ? internal gland hormones of ... are predominantly involved in thermoregulation
 - ! pancreas, adrenal glands
 - ! pituitary gland, thyroid gland
 - ! parathyroid, genital glands

+! thyroid, adrenal glands	!A, D, E !E, K, P +! B, C, P
? ... hormone takes part in thermoregulation	? the formation of complex organic compounds from simple with a cost of energy is called
! vasopressin	! main exchange
! testosterone	! dissimilation
! insulin	+! assimilation
+! thyroxine	
? under the influence of thyroxine and adrenaline heat formation	? decay complex organic compounds to simple with energy release called
! does not change	! assimilation
! decreases	! main exchange
+! increments	+! dissimilation
? constriction of peripheral vessels under the influence of adrenaline leads to a change in heat transfer	
! raise	? the ratio of the amount of nitrogen introduced into the body with food and its amount excreted from the body is called
+! downgrading	! nitrogen retention (delay)
? with a decrease in ambient temperature, the amount of thyroxine and adrenaline in the blood	! protein minimum
! goes down	+! nitrogen balance
! does not change	
+! rises	? unity of organism and environment manifested in continuous
? the daily need of a middle-aged person for carbohydrates is	! energy exchange between the organism and
! 70-100 g	
! 150-200 g	! metabolism between the body and environment
+! 400-450 g	+! metabolism of substances, energy, information between the body and the environment
? the daily need of a middle-aged person for proteins is	! intake of substances and release of toxic substances
! 150-200 g	
! 400-450 g	? organism energy costs can be determined by measuring
+! 80-120 g	! HR and BP
? the daily need of a middle-aged person for fats is	! blood glucose and free fatty acids levels
! 100-150 g	+! amounts of heat released
! 400-450 g	
+! 70-100 g	? energy costs to perform muscle load
? ... hormone has a predominant effect on carbohydrate metabolism	!main
! thyroxine	! energy
! aldosterone	+! work
! antidiuretic	
+! glucagon	? knowing the volume of oxygen absorbed, it is possible to determine the value of the main exchange method
? ... hormone has a preferential effect on protein metabolism	! direct calorimetry
! insulin	! complete gas analysis
! adrenaline	+! incomplete gas analysis
! antidiuretic	
+! thyroxine	? the ratio of the volume of carbon dioxide released to the volume of oxygen absorbed is called
? increase the breakdown of protein tissues hormones as	! calorical value of the substance
! vasopressin, somatotropin	! calorical equivalent of oxygen
+! adrenaline, noradrenaline	+! respiratory coefficient
! insulin, somatostatin	
? stimulates protein synthesis in hormone tissues	? general exchange after ingestion of protein food
! hydrocortisone	! decreases by 15%
! adrenaline	! does not change
+! somatotropin	+! uvelichivayetsyana30%
	! increases by 18%
? fat release from pool inhibits hormone	? general exchange after taking carbohydrate food
! thyroxine	! decreases by 15%
! adrenaline	! does not change
+! Insulin	+! increases by 15%
	! increases by 30%
? fat-soluble vitamins are	
! B-group vitamins	? a state in which the amount of nitrogen withdrawn is less than the amount of nitrogen introduced into the body is called
!C, P	! negative nitrogen balance
+! A, E, D	! nitrogen balance
? if there is the absence of essential amino acids in food consumed, ... is observed	! nitrogen equilibrium
! positive nitrogen balance	+! positive nitrogen balance
! nitrogen equilibrium	
+! negative nitrogen balance	? the amount of protein in the food that fully meets the needs of the body is called
? water-soluble include vitamins	! positive nitrogen balance

- ! negative nitrogen balance
- ! protein minimum
- +! protein optimum
- ? the amount of heat generated by oxidation of 1 gram of food substance in the body is called
- ! caloric equivalent of oxygen
- ! respiratory coefficient
- +! caloric value
- ? the effect of eating that enhances metabolism and energy costs is called
- ! nutrient isodynamics
- ! main exchange
- +! specifically - dynamic food action
- ? when protein is burned in a calorimeter, the final products are
- ! carbon dioxide, water
- ! carbon dioxide, urea, uric acid, creatinine
- +! carbon dioxide, water, ammonia
- ? in the body, fats and carbohydrates are oxidized to final products
- ! carbon dioxide, water, ammonia
- ! urea, uric acid, creatinine
- +! carbon dioxide, water
- ? the interchangeability of individual nutrients according to their caloric value is called the law
- ! specifically - dynamic food action
- ! digestibility of food
- +! nutrient isodynamics
- ? leading role in energy exchange regulation belongs to
- ! oblong brain
- ! midbrain reticular formation
- +! hypothalamus

RESPIRATORY PHYSIOLOGY, GPC- 9

- ? mean normal respiratory volume in middle-aged men is
- ! 7000 ml
- ! 1700 ml
- ! 1500 ml
- +! 500 ml
- ? the average value of the dead space volume is
- ! 1700 ml
- ! 4000 ml
- ! 1500 ml
- ! 700 ml
- +! 150 ml
- ? average normal lung capacity values in middle-aged men are approaching
- ! 7000 ml
- ! 1700 ml
- ! 700 ml
- ! 350 ml
- +! 4000 ml
- ? total lung capacity is called
- ! volume of air remaining in lungs after a calm exhalation
- ! volume of air that can be exhale as much as possible after maximum inhalation
- ! volume of air that can be breathe as much as possible after calm breath
- +! volume of air in the lungs at height of the deepest breath
- ? life capacity of lungs is called
- ! volume of air remaining in lungs after a calm exhalation
- ! volume of air that can be exhale as much as possible after calm breath

- ! volume of air in the lungs at height of the deepest breath
- +! volume of air that can be exhale as much as possible after maximum inhalation
- ? functional residual lung capacity is called
- ! volume of air in the lungs at height of the deepest breath
- ! volume of air that can be exhale as much as possible after maximum inhalation
- ! volume of air that can be breathe as much as possible after calm breath
- +! volume of air remaining in lungs after a calm exhalation

- ? residual volume is quantity of air
- ! remaining in dead space after exhalation
- ! which can additionally exhale after a calm exhalation
- ! remaining in the lungs after calm exhalation
- +! remaining in the lungs after maximum exhalation

- ? volumes cannot be assigned to dead space
- ! nasal cavities
- ! trachea and bronchial cavities
- ! non-ventilated and non-blood supplied alveoli
- ! bronchiol up to 16th generation
- +! interpleural slit

- ? reserve exhalation volume is the amount of air that it is possible
- ! exhale as much as possible after maximum inhalation
- ! calmly exhale after calm breath
- ! calmly exhale after maximum breath
- +! exhale as much as possible after calm exhalation

- ? reserve breath volume is the amount of air that can be additionally inhaled
- ! after maximum exhalation
- ! after a calm exhalation
- +! after a calm breath

- ? normal breath provided by contraction of major inspiratory muscles
- ! internal intercostal and diaphragm
- ! external and internal intercostal
- ! muscles of the anterior wall of the abdomen and diaphragm
- +! outer intercostal and diaphragm

- ? hemoglobin affinity to oxygen increases factor
- ! increasing the concentration of SO₂
- ! increasing blood temperature
- ! reduced blood pH (acidosis)
- +! increased blood pH (alkalosis)

- ? hemoglobin affinity to oxygen lowers factor
- ! increasing blood pH
- ! lowering blood temperature
- +! increase in blood temperature

- ? oxygen voltage and carbon dioxide in venous blood is
- ! oxygen - 100 mm Hg. Art., carbon dioxide 40 mm Hg
- ! oxygen - 96 mm Hg. Art., carbon dioxide 39 mm Hg

+! oxygen - 40 mm Hg. Art., carbon dioxide
46 mm Hg

? partial oxygen pressure and carbon dioxide in the alveolar air is
! oxygen - 40 mm Hg. Art., carbon dioxide
46 mm Hg
! oxygen - 96 mm Hg. Art., carbon dioxide
39 mm Hg
+! oxygen - 100 mm Hg. Art., carbon dioxide
40 mm Hg

? the transition of gases from the alveoli of the lungs to the blood
and back is carried out by mechanism
! active transport
! osmosis
! secretions
filtering!
+! diffusion

? blood oxygen transfer to tissues does not involve processes
! free dissolution of oxygen in plasma and erythrocytes
! connecting oxygen to hemoglobin
+! connecting hemoglobin to carbon dioxide

? breathing volume is the amount of air that
! is in the lungs after a calm breath
! can be inhaled after a calm breath
! remains in the lungs after a calm exhalation
+! a person inhales and exhales with calm breathing

? negative pressure in the pleural cavity is due to the fact that
! increased pulmonary stretchability
! parietal pleura extensibility greater than visceral
+! lungs have elastic traction

? ventilation prevails over blood flow in the following lung areas
! base adjacent to diaphragm
! areas adjacent to the parietal pleura
+! top

? to define a minute
breathing volume required
! measure the volume of air that can be
exhale as much as possible after itself
deep breath
! measure the vital capacity of the lungs and
multiply its value by breathing frequency
per 1 minute
+! measure breathing volume and
multiply its value by breathing frequency
per 1 minute

? blood flow highest in the following lung areas
! top
! areas adjacent to the parietal pleura
+! base adjacent to diaphragm
+ !жизненную емкость легких

? lung capacity can be determined by methodology of
! pneumographies
! oximetry
! pneumotachometry
+! spirometry

? oxygen capacity of blood depends
! from partial pressure O₂ in atmospheric air
! from partial pressure SO₂ in atmospheric air
+! from blood haemoglobin

? the volume of air remaining in the lungs after a calm exhalation is
called
! life capacity of lungs
! breath capacity
! total lung capacity
+! functional residual capacity

? the volume of air in the lungs at the height of the deepest breath is

! life capacity of lungs
! inhalation capacity
! functional residual capacity
+! total lung capacity

? the volume of air that can be exhaled as much as possible after
maximum inhalation is called
! inhalation capacity
! functional residual capacity
! total lung capacity
+! life capacity of lungs

? the amount of air that can be inhaled as much as possible after a
calm breath is called
! breathing volume
! reserve exhalation volume
! residual volume
+! reserve breath volume

? the amount of air remaining in the lungs after maximum exhalation
is
! breathing volume
! reserve inspiration volume
! standby exhalation volume
+! residual volume

? the amount of air that a person can additionally exhale as much as
possible after a calm exhalation is called
! breathing volume
! residual volume
! reserve breath volume
+! reserve exhalation volume

? the amount of air a person inhales and exhales at rest is
! reserve inspiration volume
! standby exhalation volume
! residual volume
+! breathing volume

? the vital capacity of the lungs consists of
! from the reserve inspiration volume,
respiratory volume, reserve volume
exhalation, residual volume
! from the reserve inspiration volume,
respiratory volume
! from reserve volume of exhalation, residual
volume
+! from reserve inspiration volume,
respiratory volume, reserve volume
exhalation

? the reserve volume of a breath + respiratory volume + the reserve
volume of an exhalation + residual volume is made
! functional residual capacity
! inhalation capacity
! life capacity of lungs
+! total lung capacity

? the reserve volume of a breath + respiratory volume + the reserve
volume of an exhalation is made
! inhalation capacity
! functional residual capacity
! total lung capacity

? reserve exhalation volume + residual volume is
! total lung capacity
! inhalation capacity
! life capacity of lungs
+! functional residual capacity

? breathing volume + breath reserve volume is
! total lung capacity
! functional residual capacity
! life capacity of lungs
+! inhalation capacity

? volumes of cavities of the nose and nasopharynx, larynx, trachea
and bronchi, not ventilated and not blood-supplied alveoli are

! alveolar dead space	+! carboxyhemoglobin
! anatomical dead space	? oxygen voltage and carbon dioxide in arterial blood is
+! physiological dead space	! oxygen - 40 mm Hg. Art., carbon dioxide - 46 mm Hg. Art.
? volumes of ventilated alveoli in the absence of capillary perfusion (no blood flow) are	! oxygen - 100 mm Hg. Art., carbon dioxide gas - 40 mm Hg. Art.
! anatomical dead space	+! oxygen - 96 mm Hg. Art., carbon dioxide gas - 39 mm Hg. Art.
! physiological dead space	? in poorly ventilated areas of the lungs, a decrease in oxygen level or PH causes
+! alveolar dead space	! local vascular dilation and increased blood flow
? the amount of oxygen that can bind blood when hemoglobin is fully saturated with oxygen is	! local vascular spasm and cessation of blood flow
! oxyhemoglobin dissociation graph	+! local vasoconstriction and reduced blood flow
! lung diffusion capability	? central chemoreceptors involved in respiratory regulation are localized
+! oxygen capacity of blood	! in the spinal cord
? the amount of oxygen penetrating the pulmonary membrane in 1 minutes at a pressure gradient of 1 mmHg	! in the cerebral cortex
! oxyhemoglobin dissociation graph	+! in the oblong brain
! oxygen capacity of blood	? peripheral chemoreceptors involved in respiratory regulation are mostly localized
+! lung diffusion capability	! in cortical organ, aortic arc, carotid sinus
? normal blood oxygen content is called	! in capillary channel, aortic arc
! hypoxia	+! in aortic arc, carotid sinus
! hypercapnia	? receptors take part in the Goering-Breyer reflex
! hypocapnia	! irritant
! hypoxemia	! juxtacapillary
+! normoxemia	! chemoreceptors
? insufficient oxygen content in body tissues is called	+! stretches
! hypocapnia	? hyperpnea after arbitrary breathing delay results from
! hypercapnia	! reducing blood tension SO ₂
! normoxemia	! lowering tension in the blood O ₂
! hypoxemia	! increase in blood tension O ₂
+! hypoxia	+! increase in blood tension SO ₂
? normal breathing at rest is called	? physiological significance
! apnea	Geringa-Breyer reflex
! dyspnoe	! in stopping inhalation at protective respiratory reflexes
! hyperpnoe	! in increasing respiratory rate at increasing body temperature
! bradipnoe	+! in the regulation of the ratio of depth and breathing rates depending on volume lungs
+! eupnoe	? apnea after arbitrary hypervwould arise as a result of development
? respiratory stop due to hypocapnia is called	! hypercapnia
! epnoe	! hypoxemia
! hyperpnoe	! hypoxia
! dyspnoe	+! Hypocapnia
! tachypnoe	? breathing muscle contractions are completely terminated
+! apnea	! when separating the bridge from the oblong brain
? increased ventilation of the lungs as the carbon dioxide stress in the blood increases	! with double-sided cutting of wanderers nerves
! epnoe	! at brain separation from dorsal at the level of the lower cervical segments
! orthopnea	+! at brain separation from dorsal at the level of upper cervical segments
! dyspnoe	? cessation of inhalation and onset of exhalation is mainly due to the influence from receptors
! apnea	! oblong brain chemoreceptors
+! hyperpnoe	! irritant
! tachypnoe	! juxtacapillary
+! dyspnoe	+! pulmonary stretches
? a change in breathing characterized by a violation of its frequency, depth and rhythm, accompanied by an unpleasant feeling of respiratory failure or difficulty	
! epnoe	
! apnea	
! hyperpnoe	
! tachypnoe	
+! dyspnoe	
? the connection of hemoglobin to carbon dioxide (SO ₂) is called	
! oxyhemoglobin	
! carboxyhemoglobin	
! carbogen	
+! carbhemooglobin	
? compound of hemoglobin with carbon monoxide (carbon monoxide), is called	
! oxyhemoglobin	
! carbogen	
! carbhemooglobin	

? receptors are predominantly involved in regulating the rate of inhalation development
! pulmonary stretches
! irritant
! juxtacapillary
+! central and peripheral chemoreceptors

? dyspnea (shortness of breath) occurs
! when inhaling gas mixtures with increased (6%) carbon dioxide content carbon
! weakening his breath stop
+! insufficiency or difficulty breathing (hard muscle work, respiratory pathology).

? the most dangerous condition for the body is
! hyperpnoe
! hypocapnia
! hypoxia
+! hypoxia and hypocapnia simultaneously

? gas homeostasis in the highlands persists thanks to
! reducing blood oxygen capacity
! reducing heart contraction rate
! reducing breathing rate
+! increasing the number of red blood cells

? breathing under reduced atmospheric pressure conditions results in
! to the hypocapnia
! to hypercapnia
! to hypoxemia
+! to the simultaneous development of hypoxia and hypocapnia

? when cutting below the bridge breathing
! stops in inhalation phase
+! manifests as a long breath interrupted by short exhalations
! flows according to the type of breath of Chane Stokes

? local damage to the pneumotoxic center will be observed
! apnea
! tachypnoe
! dyspnoe
+! bradypnea

? in the regulation of breathing depth and frequency, effectors are not
! diaphragm, internal intercostal muscles
! external intercostal muscles
+! lung alveoli

? normal breathing is ensured by reducing
! internal intercostal muscles and diaphragms
! internal and external intercostal muscles
+! external intercostal muscles and diaphragm

? with a fairly rapid change in lung volume, as well as irritation with caustic substances, histamine, water, dust particles excite receptors
! stretches
! chemoreceptors
+! irritant

? change in lung volume in calm breathing causes excitation of receptors
! irritant
! chemoreceptors
+! stretches

? with an increase in interstitial fluid volume, receptors are excited in the pulmonary tissue
! stretches
! chemoreceptors
! irritant
+! juxtacapillary

? breathing muscle contractions completely stop after cutting the

spinal cord at the
! lower neck segments
! lower thoracic segments
+! upper neck segments

? reduced lung ventilation occurs
! with hypercapnia
! in hypoxia
! in hypoxemia
+! in hypocapnia

? increased respiratory center activity and increased lung ventilation causes
! hypocapnia
! normocapnia
! hypoxia
+! hypercapnia

? role of the hypothalamus in respiratory regulation consists in change.....
! depth/frequency ratios in dependence on lung volume
! conditional reflector
! arbitrary
+! for painful irritations, emotions, changing internal environment constants organism

? an increase in lung ventilation, which is usually observed when climbing to a height of more than 3 km, leads
! to hyperoxia
! to normoxemia
! to hypercapnia
+! to hypocapnia hypoxia

? carotid sinus receptor apparatus controls gas composition
! cerebrospinal fluid
! arterial blood entering a large circulation
+! arterial blood entering the brain

? gas composition of blood entering the brain is controlled by receptors
! bulbar
! aortic
+! carotid sinuses

? the gas composition of blood entering the large circulation is controlled by receptors
! bulbar
! carotid sinuses
+! aortic

? gas composition of cerebrospinal fluid is controlled by chemoreceptors
! carotid sinuses
! aortic
+! bulbar

? the main stimulus that controls breathing serves as
! hypoxic
! hypoxemic
! hypocapnic
+! hypercapnic
? peripheral chemoreceptors
carotid sine and aortic arch are sensitive predominantly
! to increase voltage O₂ and SO₂, reduction of blood pH
! to voltage reduction O₂ and SO₂, increased blood pH
+! to decrease of O₂ voltage, increase of SO₂ voltage, decrease of blood pH

? changing constants cerebrospinal fluid causes a change sensitivity of central (medullary) chemoreceptors of the oblong brain
! in hypercapnia, hypoxemia, acidosis
! for hypocapnia, hypoxemia, acidosis

+! in hypercapnia, acidosis

? in the smooth muscle layer of the tracheobronchial tree there are
... receptors
! juxtacapillary
! irritant
+! stretching

? receptors are located in the epithelial and subepithelial layers of
the walls of the airborne pathways
! stretches
! juxtacapillary
+! irritant

? receptors are located in the interstitial tissue of the alveoli
! stretches
! irritant
+! juxtacapillary

? functional residual capacity consists of:
! reserve breath volume + respiratory volume
! reserve inspiration volume + residual volume
! reserve volume of exhalation + respiratory volume
+! reserve exhalation volume + residual volume

? lung diffusion capacity is
! the amount of oxygen that blood can bind when hemoglobin is
fully saturated with oxygen
+! amount of gas penetrating through the pulmonary membrane in 1
minute per 1 mmHg pressure gradient

? increasing carbon dioxide concentration
gas, increasing blood temperature, decreased blood pH, increased
content in erythrocytes
2,3-diphosphoglycerate causes
! increasing haemoglobin affinity to
oxygen and shear of dissociation curve
to the right
! increasing haemoglobin affinity to
oxygen and shear of dissociation curve
to the left
+! reduction of hemoglobin affinity to
oxygen and shear of dissociation curve
to the right

? the dependence of the transformation of hemoglobin into
oxyhemoglobin on the tension of oxygen dissolved in blood, is
! oxygen capacity of blood
! lung diffusion capability
+! oxyhemoglobin dissociation curve

? the role of the surfactant is:
! to protect the alveoli from drying out
! performing antibody production at the air-wall interface of the
alveoli
+! decrease of surface tension with reduction of alveoli dimensions

? insufficient oxygen in the blood - this is

! hypoxia
! hypercapnia
! hypocapnia
! normoxia
+! hypoxemia

? total lung capacity consists of
! from the reserve inspiration volume,
respiratory volume
! from reserve volume of exhalation, residual
volume
! from the reserve inspiration volume,
respiratory volume, reserve volume
exhalation
+! from reserve inspiration volume,
respiratory volume, reserve volume
exhalation, residual volume

? atmospheric air consists of

! oxygen (O₂) - 21.5%, carbon dioxide (SO₂) - 0.05%, nitrogen (N)
- 78%
! O₂ - 20.57, SO₂ - 0.03%, N - 80.4%
+! O₂ - 20.97, SO₂ - 0.03%, N - 79%

? at the base of gas exchange at the lung level
are the following processes
! arterial blood SO₂ tension
! arterial blood O₂ tension
! tension SO₂ and O₂ in venous blood
+! partial pressure difference O₂ in
alveolar air and its voltage
in venous blood, as well as the difference
SO₂ strains in venous blood and its
partial pressure in alveolar
air

? gas exchange between blood and tissues
occurs as a result of
! voltage differences SO₂ in fabrics and
tissue fluid
! voltage differences O₂ in venous
blood and tissues
! voltage differences SO₂ in
arterial and venous blood
+! voltage difference O₂ in arterial
blood and tissue fluids, as well as
difference of SO₂ voltage in fabric
fluid and arterial blood

? lung stretch receptors are located:
! in the epithelial and subepithelial layer of trachea and bronchi
+! in smooth muscles of trachea and bronchi
! in the interstitial tissue of the alveoli and respiratory bronchi near
the capillaries

? receptors juxtacapilar located:
! in smooth muscles of trachea and bronchi
! in the epithelial and subepithelial layer of trachea and bronchi
+! in the interstitial tissue of the alveoli and respiratory bronchi near
the capillaries

? in the act of enhanced inhalation is taken
muscle participation
! diaphragm, outer
intercostal
+! diaphragm, outer
intercostal, forested,
sternum-clavicle-mastoid, large and
small thoracic
! internal intercostal, oblique and straight
spine flexors

? in the act of forced exhalation
muscles take part
! diaphragm, outer
intercostal, scalenus,
sternum-clavicle-mastoid, large and
small thoracic
! diaphragm, outer
intercostal
+! internal intercostal, oblique and
straight spinal flexors

? dyspnoea (shortness of breath) is
! normal lung ventilation at rest
+! breath depth, frequency and rhythm disturbance
! reduced breathing rate
! stop of breathing

? epnoe is
! breath depth, frequency and rhythm disturbance
! reduced breathing rate
+! normal lung ventilation
! stop of breathing

? brain cutting between oblong and spinal cord causes breathing changes
! breathing stops at inhalation interrupting short exhalation (apneysis)
! breath pattern does not change
+ complete stop of breathing
! long exhalation, periodic interrupted by short breaths

? brain cutting between upper and middle third varolium bridge causes breathing changes
! breath pattern does not change
! complete stop breathing
+! breathing stops at inhalation interrupting short exhalation (apneysis)
! long exhalation, periodic interrupted by short breaths

? anatomical dead space occupies volume
! ventilated but not perfused alveoluses
! alveoli with excess ventilation over blood-groove
+! airways that do not gas exchange occurs
! airways and alveoli in which no gas exchange occurs

? physiological (functional) dead space takes up volume
! alveoli with excess ventilation over blood-groove
! ventilated but not perfused alveoluses
+! airways and alveoli in which no gas exchange occurs
! airways that do not gas exchange occurs

? dead space alveolar occupies volume
! airways and alveoli in which gas exchange does not occur
! alveoli with excess ventilation over the bloodstream
+! ventilated but not perfused alveoli *

? cutting the spinal cord at the cervical lower segments cause
! stop shrinking the diaphragm and intercostal muscles
! save the contraction of the diaphragm and intercostal muscles
+! maintaining the contraction of the diaphragm and discontinuation reduction of intercostal muscles

? cutting the spinal cord at the thoracic lower segments cause
! save the contraction of the diaphragm and discontinuation reduction of intercostal muscles
+! maintaining the contraction of the diaphragm and intercostal muscles
! stop shrinking the diaphragm and intercostal muscles

? in hyperpnoe, it is observed
! increase voltage SO₂ and decrease voltage O₂ in arterial blood
+! decrease of SO₂ stress in arterial blood
! normal blood gas content

? in hyperpnoe, it is observed
! normal blood gas content
! reducing arterial blood SO₂ stress
+! increase voltage SO₂ and decrease voltage O₂ in arterial blood

? excitation of upper respiratory tract receptors takes precedence
! for breathing phase change
! to increase the minute volume of breathing during physical work
+! to implement protective reflexes

? excitation of pulmonary stretching receptors has priority
! to increase the minute volume of breathing during physical work
! to implement protective reflexes
+! to change the exhalation act

? arousal of arterial and central chemoreceptors takes precedence
! to change the exhalation act
! to implement protective respiratory reflexes
+! to increase the minute volume of breathing during physical work

? pulmonary hyperventilation represents

! normal lung ventilation
! reduced ventilation compared to metabolic needs
+! increased ventilation exceeding metabolic needs
! any increase in ventilation regardless of metabolic requirements

? hypoventilation is
! any reduction in ventilation independently from metabolic needs
+! lower ventilation compared to metabolic needs
! normal lung ventilation
! increased ventilation compared to metabolic needs

? when forming a protective respiratory reflex cough effector response is
! in closing the voice slot and braking diaphragm expiratory activity
! in a strong reduction of expiratory muscles with open vocal slit
+! in closing the voice slot and strong reduction of abdominal expiratory muscles

? when forming a protective breathing reflex sneezing effector response is
+! in strong reduction of expiratory muscles with open vocal slit
! in closing the voice slot and braking diaphragm expiratory activity
! in closing the voice slot and strong reduction of abdominal expiratory muscles

? spirometry technique involves
! in the registration of chest movements
+! in the graphical recording of the volume of air passing through the lungs
! in measuring lung volumes and lung capacity

? spirometry technique involves
! in the registration of chest movements
! in graphical recording of air volume passing through lungs
+! in the measurement of lung volumes and lung capacity

? breathing under high atmospheric pressure conditions results in
! hypercapnia
! the hypocapnia
! to hyperoxia
+! towards simultaneous development of hyperoxia and dissolution of nitrogen in blood

? transpulmonary pressure is
! pressure in pleural slit

! pressure in lungs
+! difference between inside pulmonary pressure and pressure in pleural slit

? violation of pleural tightness
slits occur
! in case of lung rupture
! in case of penetrating chest wound
! during surgery on thoracic organs cavities
! when using a breathing mixture under greater pressure than in environment
+! all responses listed

? negative pressure in the pleural slit with calm inhalation is
! (- 2) mm Hg
! (-10) mm Hg
! (-9) mm Hg
+! (4-6) mm Hg

? negative pressure in pleural slit at maximum inhalation is
! (-15) mm Hg
! (-10) mm Hg
! (-25) mm Hg
+! (-20) mm Hg

? violation of the tightness of the pleural slit is called
! pneumography
! pneumotachometry
+! pneumothorax
! spirometry

? partial pressure of oxygen and carbon dioxide in atmospheric air makes
! oxygen 170 mmHg, carbon dioxide 0.40 mm Hg
! oxygen 180 mmHg, carbon dioxide 0.30 mm Hg
+! oxygen 158 mm Hg, carbon dioxide 0.16 mm Hg
! oxygen 147 mmHg, carbon dioxide 0.35 mm Hg

CARDIOVASCULAR PHYSIOLOGY, GPC- 9

? the ability of the myocardium to transition to an excited state under the influence of an irritant is called
+! excitability
! contractility
! automatic
! irritability

? potential action of a typical ventricular cardiomyocyte lasts
+! 0.33 s
! 0.02 s
! 0.001s

? absolute refractoriness of a typical ventricular cardiomyocyte lasts
+! 0, 27 s
! 0.001s
! 0.03 s
!0,1

? relative refractoriness of a typical ventricular cardiomyocyte lasts
+! 0.03s
! 0.01s
! 0.27s
!0,1

? duration of ventricular systole at HR - 75 ud/min is
+! 0.33s
! 0.2s
! 0.4s

? total heart pause in HR - 75 od/min continues
+! 0.37s

! 0.8s
! 0.3s

? compensatory pause occurs at..... to ekstrasistola
+! ventricular
! sinus
! atrial

? at the top of systole, blood pressure in the atria reaches
+! 5-8 mm Hg. Art.
! 70-80 mm Hg. Art.
! 25-30 mm Hg. Art.

? at the top of the systole in the left ventricle, blood pressure reaches
+! 120-130 mm Hg. Art.
! 25-30 mm Hg. Art.
! 70-80 mm Hg. Art.

? at the apex of systole, the blood pressure in the right ventricle reaches
+! 25-30 mm Hg. Art.
! 120-130 mm Hg. Art.
! 70-80 mm Hg. Art.

? minute volume of cardiac output at rest is
+! 4.5-5.0 l
! 3.0-3.5 l.
! 1.5-2 liters

? minute volume of cardiac output in severe physical work is
+! 25-30 l
! 3-3.5 l
! 4.5-5 liters
! 4.5-5 liters

? spontaneous pulses in the sinoatrial node occur with frequency
+! 60-80 imp/min
! 40-50 imp/min
! 20 imp/min

? flap valves during total pause
+! open
! left closed, right open
closed!

? synchronous contraction of cardiomyocytes is ensured
+! intercellular interaction
! intracellular regulation
! intracardiac peripheral reflex

? increased myocardial contraction while increasing initial muscle fiber length is provided by
+! myogenic, heterometric regulation
! intercellular interaction
! intracardiac peripheral reflex

? with vagus nerve irritation, the content of potassium ions in the heart muscle
+! increments
! does not change
! in the initial phase increases, then decreases
! decreases

? bathmotropic effect in heart activity is a change
+! myocardial excitability
! myocardial conductivity
! forces of contractions

? inotropic effect in cardiac activity is a change in
+! contraction forces
! heart rates
! myocardial excitability
! myocardial conductivity

? dromotropic effect in heart activity - this change
+! myocardial conductivity
! myocardial excitability
! heart rates

! forces of contractions

? chronotropic effect in heart activity - this change

+! heart rates

! forces of contractions

! myocardial excitability

! myocardial conductivity

? sympathetic nerves have on cardiac muscle ... effects

+! positive inotropic,

positive chronotropic

! negative inotropic,

negative chronotropic

! positive inotropic,

negative chronotropic.

? in the endings of the sympathetic nerve innervating the heart, the mediator ... stands out

+! noradrenaline

! serotonin

! acetylcholine

? in the endings of the parasympathetic nerve innervating the heart, the mediator is released

+! acetylcholine

! serotonin

! noradrenaline

? when acetylcholine is applied to the heart muscle,

+! myocyte hyperpolarization

! blockade of sodium channels

! activate sodium channels

! depolarization of myocytes

? the center of parasympathetic innervation of the heart is

+! in the oblong brain

! in the upper thoracic segments of the spinal cord

! in the upper cervical segments of the spinal cord

? Goltz syndrome is

+! reflex cardiac stop at beating on the epigastric area

! change in the strength of heart contractions at

change in blood pressure system

! change in the strength of heart contractions at

changing the original length of muscle fibers

? Ashner's reflex is

+! reducing heart rate when pressed on eyeballs

! changing the force of heart contractions at

change in blood pressure system

! in changing the force of heart contractions

when changing the original length of muscle fibers

? homeometric regulation is:

+! in increasing the force of heart contraction with increased heart rate

! in reducing heart rate when pressed on

eyeballs

! in changing the force of heart contractions at

changing the original length of muscle fibers

? heart rate may vary conventionally-reflexively

+! yes

! no

? the role of the hypothalamus in regulating heart function is

+! in ensuring heart function, adequate situation and behavior

! in a change in heart rate while holding your breath

! in conditional reflector change of heart rate

? capacitive vessels include

+! veins

! large arteries

! capillaries

! aorta

? the main link in the microcirculation system are

+! capillaries

! arterioles

! large arteries

! veins and venules

? resistive vessels are called

+! small arteries and arterioles

! veins and venules

! aorta

? vessels of the compression chamber (boiler) are called

+! large elastic and muscle vessels

! capillaries

! aorta

! arteries and veins

? linear blood flow rate in the aorta is

+! 50 cm/s

! 25 cm/s

! 0.5 cm/s

? linear blood flow rate in capillaries is

+! 0.5 mm/s

! 25 mm/s

! 50 mm/s

? the time of complete circulation of blood through the cardiovascular system is

+! 20-23 s

! 40-45 s

! 1.5-2 min

? the blood pressure in the capillaries of the large circle is

+! 30-10 mm t. Art.

! 5-3 mm Hg. Art.

! 80-70 mm Hg. Art.

? the volume velocity of blood flow changes along the vascular channel

+! no

! yes

? vascular engine center located

+! in the oblong brain

! in Varolia Bridge

! in the spinal cord

? vascular lumen increases under the action of

+! acetylcholine

! serotonin

! vasopressin

? fenestrated capillaries are located

+! in kidneys, glands of internal secretion

! in muscles, lungs, fat and connective tissues

! in liver, bone marrow

? solid capillaries are located

+! in muscles, lungs, fat and connective tissues

! in kidneys, glands of internal secretion

! in liver, bone marrow

? uncomplicated capillaries are located

+! in liver, bone marrow

! in kidneys, glands of internal secretion

! in muscles, lungs, fat and connective tissues

? irritation of mechanoreceptors in carotid bifurcation causes ... reflexes

+! depressory

! pressory

? coronary blood flow is maximum

+! in a general pause

! in ventricular systole

! to the atrial system

? filtering - osmosis is.... mode of transport
+! passive
! active

? adrenaline..... lumen of peripheral vessels
+! reduces
! increases
! does not change

? adrenaline..... lumen of cerebral vessels and coronary vessels
+! increases
! reduces
! does not change

? acetylcholine..... vascular lumen
+! increases
! reduces
! does not change

? serotonin.... vascular lumen
+! reduces
! does not change
increases!

? histamine..... vascular lumen
+! increases
! reduces
! does not change

? electrodes for ECG registration in the I standard lead are arranged like this
+! right hand - left hand
! left arm - left leg
! right arm - left leg

? electrodes for ECG registration in the II standard lead are arranged like this
+! right arm - left leg
! left arm - left leg
! right hand - left hand

? electrodes for ECG registration in the III standard lead are arranged like this
+! left arm - left leg
! right arm - left leg
! right hand - left hand

? unipolar are
+! chest leads
! standard leads

? the electrocardiogram can be judged
+! about the nature of the occurrence and spread of excitement
! about cardiac ejection
! about the strength of heart contractions

? QRS complex on electrocardiogram reflects
+! ventricular arousal
! ventricular repolarization
! atrial arousal

? T-deflection on electrocardiogram reflects
+! ventricular repolarization
! atrial arousal
! ventricular arousal

? interval T - P on electrocardiogram corresponds to
+! general heart pause
! atrial systole
! ventricular diastole

? IV heart tone is recorded on the phonocardiogram
+! when atrial contraction and additional blood entry into the ventricles
! at flap valves closing
! in rapid passive ventricular filling phase

? mitral valve taps better
+! in the fifth intercostal area to the left, 1.5 cm inside the middle-valve line
! in the second intercostal to the right of the sternum
! to the right of the sternum, at the base of the swordstick

? tricuspid valve taps better
+! to the right of the sternum, at the base of the swordstick
! in the fifth intercostal area to the left, 1.5 cm inside the middle-valve line
! in the second intercostal to the right of the sternum

? the lung trunk valve taps better
+! in the second intercostal to the left of the sternum
! in the second intercostal to the right of the sternum
! to the right of the sternum, at the base of the swordstick

? aortic valve taps better
+! in the second intercostal to the right of the sternum
! in the second intercostal to the left of the sternum
! to the right of the sternum, at the base of the swordstick

? the essence of the plethysmography method is
+! in changing the volume of a part of the body depending on its filling with blood
! in changing the resistance of the fabric to electric current
! in changing blood pressure in different phases of cardiocycle

? first-order waves on the blood pressure curve recorded by Ludwig's method are related
+! with heart work
! with the tone of the vasomotor center
! with breathing phases

? second order waves on the blood pressure curve recorded by Ludwig's method are related
+! with breathing phases
! with the tone of the vasomotor center
! with heart work

? I heart tone occurs
+! at flap valves closing
! when half moon valves are slammed
! in rapid passive ventricular filling phase

? II heart tone occurs
+! when half moon valves are slammed
! at flap valves closing
! in rapid passive ventricular filling phase

? rapid depolarization phase of cardiomyocyte determines ions calcium!
! potassium
+! sodium

? plateau phase of cardiomyocyte determine ion currents
! potassium and chlorine
! sodium-calcium and chlorine
+! calcium-sodium and potassium

? slow diastolic depolarization is common to cells
! cardiomyocytes
! skeletal muscle fibers
+! cells - pacemakers of the heart

? common to cardiomyocyte and skeletal muscle fiber is
! cell automation
! presence of intercellular nexus contacts
+! resting potential determined almost entirely by the concentration gradient of potassium ions

? spontaneous impulses in the atrio-ventricular node occur with frequency
! 20 pp/min
! 60-80 imp/min
+! 40-50 imp/min

? atrial systole at HR-75 beats per minute continues
! 0.3 s
0.2 s!
+! 0.1 s

? the protodiastolic period is:
! time of blood expulsion from ventricles
! atrial contraction time
+! time from beginning of ventricular relaxation to slamming of semi-moon valves

? increased contraction of the left ventricle when stretching the walls of the right is provided by
! intracellular regulation
! intercellular interaction
+! intracardiac peripheral reflex

? respiratory arrhythmia manifests in
! increase HR by the end of exhalation
! breathing increase in arrhythmia
+! reduction of HR by the end of exhalation

? the center of sympathetic heart innervation is at:
! upper cervical segments of the spinal cord
! oblong brain
+! upper thoracic segments of the spinal cord

? heterometric mechanism of regulation
heart function consists in change
! heart contraction forces when changing blood pressure system
! heart rates at changing the original length of muscle fibers
+! heart contraction forces at change initial length of muscle fibers

? linear blood flow rate changes along the vascular channel
! no
+! yes

? irritation of aortic and carotid mechanoreceptors causes reflexes
! pressure
+! depressant

? basal vascular tone is the tone due to...
! influence of parasympathetic department of autonomic nervous system
! sympathetic influence
+! automation of smooth muscle cells constituting the vascular wall

? P-diflection on electrocardiogram reflects
! ventricular arousal
! ventricular repolarization
+! atrial arousal

? QRST complex on electrocardiogram reflects
! atrial arousal
! ventricular repolarization
+! depolarization and repolarization of ventricles

? from the electrocardiogram you can judge on
! strength of heart contractions
! cardiac ejection
+! the nature of the occurrence and spread of arousal on the myocardium

? the essence of the electrocardiography vector method is
! record total cardiomyocyte activity
+! registration of EMF vector and electrical axis of heart

? The III heart tone is recorded on the phonocardiogram
! when half moon valves are slammed
! at flap valves closing
+! in fast ventricular filling phase

? IV heart tone is recorded on the phonocardiogram
! in fast ventricular filling phase
! at flap valves closing

+! with atrial contraction and additional blood entry into the ventricles

? investigate myocardial contractile function mainly allows the technique
! phonocardiography
! sphygmographies
! plethysmography
+! ballistocardiography

? sphygmography is
graphic recording technique
! electrical potentials arising as a result of cardiac activity
! venous vessel wall vibrations
! changes in tissue resistance due to change of blood filling
+! arterial pulse fluctuations walls

? the first heart tone reflecting the operation of the double-leaf valve, it is customary to listen
! in the third intercostal
! in the second intercostal, at the right or left edge of the sternum
+! in the fifth intercostal area, 1.5 cm inside the left middle valve line

? the second tone of the heart is customary to listen to
! at the apex of the heart (fifth intercostal on the left)
! at the base of the swordstick
+! on the basis of the heart (in the second intercostal, at the right or left edge of the sternum)

? heterometric regulation of the heart consists in changing the following indicators (including frequencies heart rate - HR):
+! heart contraction forces at change of course diastolic muscle length fibers
! HR when aortic pressure changes
! HSS when the original length is changed muscle fibers
! heart contraction forces when changing aortic pressure

? enhancing myocardial contraction in increasing the finite-diastolic length of muscle fibers (heterometric mechanism) provides for:
! the effect of vagus nerve on work hearts
! intracardiac peripheral reflex
! intercellular mechanism interactions
+! mechanism of intracellular regulation

? what can be explained by working hypertrophy of the heart muscle?
! reducing the synthesis of contractile proteins
! increased activity of the conducting system of the heart
! increasing the amount of muscle fibers
+! enhanced synthesis of contractile proteins

? as evidenced by recovery ventricular contractions after Stannius' second ligature?
! that the atrioventricular node is not has its own automation
! about restoring the run excitation from sinus node
+! that the atrioventricular node has its own automation
! about the fact that the apex of the heart does not have own automation

? how the frog's heart works generation by its intestines (experience Goltz)?
+! cause cardiac stop or

reduced heart rate
reductions
! does not change heart function
! enhances heart function
! causes an increase in heart rate
reductions

? increasing of course-diastolic
myocardial muscle fiber lengths
occurs at:
! increasing the total peripheral
resistance of vessels
! reducing venous blood flow to
to heart
+! increased venous blood flow to
to heart
! increasing blood pressure in the aorta

? what condition of valves corresponds to
ventricular tension phase
hearts?
! atrioventricular valves are open,
half moon - closed
+! atrioventricular and semi-lunar
valves closed
! atrioventricular valves are closed,
half moon - open
! atrioventricular and semi-lunar
valves open

? what pressure develops in the left
atrium and left ventricle in their
sistole?
+! in the atrium 6-8 mm Hg;
in ventricle 115-125 mm Hg
! in the atrium 3-5 mm Hg;
in ventricle 18-30 mm Hg.

? how will the activity of the dog's heart change after bilateral
cutting of the sympathetic nerve?
! heart rate will increase
+! heart rate will not change
! heart will stop
! heart contraction rate will decrease

? how will the heart of a dog be affected by cutting both vagus and
both sympathetic nerves?
! heart rate will not change
! heart will stop
+! heart rate will increase
! heart contraction rate will decrease

? with the application of noradrenaline to the myocardium occurs:
! polarization of cardiomyocyte membranes will not change
! myocyte membrane hyperpolarization
+! depolarization of myocyte membranes
! myocyte membrane repolarization

? membrane hyperpolarization in sinus-atrial node cells in vagus
nerve irritation occurs under the influence of:
! acetylcholinesterase
+! acetylcholine
! noradrenaline
! adrenaline

? which neurotransmitter is released when sympathetic nerves of the
heart are irritated?
! acetylcholine
+! noradrenaline
! dopamine
! adrenaline

? what are the effects of vagus nerves
called negatively chronotropic and
Bathmotropic?
! reducing contractility and
conductivity
! increasing frequency and contractility

myocardium
+! reduced frequency and excitability
myocardium
! reduced frequency and conductivity
heart muscle

? Ashner's reflex is:
! cardiac stop at impact in
epigastric region
+! reducing heart rate
contractions when pressing eyeballs
! changing heart activity at
irritation of carotid chemoreceptors
sine
! changing cardiac activity in
irritation of carotid baroreceptors
sine

? which regulatory mechanisms relate to
intracardiac?
+! intracellular mechanisms, intercellular interactions, intracardiac
peripheral
reflexes
! intracellular mechanisms, influences
of the nervous system
! intracellular mechanisms, humoral influences, intercellular
interactions
! humoral influences, intercellular
interactions, peripheral reflexes

? major factor in blood movement across arteries:
! presence of valves
! difference between intravascular and tissue pressure
+! pressure difference in proximal and distal areas of vessels
! suction action of chest during inhalation

? arterial vessel study technique:
! pneumography
! plethysmography
+! sphygmography
! phlebography

? pulse wave propagation rate is higher than:
+! more arterial wall stiffness
! less arterial wall stiffness
! more heart contraction strength
! lower blood pressure

? what is the time of complete blood circulation in an adult?
+! 20-23 s.
! 1.5-2 min.
! 55-60 s
! 40-45 s

? what are caused by the blood pressure curve of the first order
wave?
! respiratory movements
! rhythmic changes
excitability of the respiratory center
+! pulse fluctuations
! blood redistribution between vessels of large and small
circulation circles

which waves on the BP curve in the acute experiment have the
highest frequency?
+! first order waves
! second order waves
! third order waves
! all of the above

? method of recording venous vessel wall oscillation:
! pneumography
+! phlebography
! sphygmography
! plethysmography

? what causes the dicrotic rise on the sphygmogram?

! reverse blood strike on the closing
flaps of atrioventricular valves in
beginning of ventricular systole
! arterial wall stretching in
the moment of systolic blood ejection from
left ventricle
! increasing blood pressure in
phase of rapid blood expulsion from
ventricles
+! reverse blood strike on the semilunar valve flaps after their
closure

? what is the ratio of speed

blood in arteries and speed
pulse wave propagation?
! they match
! blood velocity is higher than
pulse wave propagation
+! pulse propagation rate waves above blood velocity
! in various areas of the arterial channel
ratios are different

? intensity of organ blood supply is estimated by value:

+! volumetric blood flow rate
! pulse wave propagation rates
! blood pressure
! time of complete blood circulation

? basal vascular tone is due to:

! influence of parasympathetic system
+! automatism of smooth muscle vascular cells
! influence of sympathetic nervous system
! humoral effects on vessels

? which of the answers correctly reflects

effect on vascular lumen intravenous
adrenaline administration?
! the vessels of the heart expand,
brain vessels constrict
! the vessels of the heart constrict,
brain vessels constrict
+! the vessels of the heart expand,
brain vessels expand
! the vessels of the heart constrict,
brain vessels expand

? what is the basis of the rheography technique?

! converting work-related
hearts of mechanical vibrations of walls
vessels in changes in capacitive effect
! recording fluctuations in the volume of organs,
arising depending on
blood filling of vessels
! log changes to the photosignal,
arising depending on
blood filling of vessels
+! recording of electric oscillations
resistance of tissues occurring in
dependence on blood filling of vessels

? what effects will be observed with
sides of the cardiovascular system in
peripheral end stimulation

a crossed depressor nerve?
+! heartbeats will slow down, vessels
will expand, blood pressure will decrease
! heartbeats will increase, vessels will narrow,
blood pressure will increase
! heart rate will not change,
the tone of the vessels will remain the same,
blood pressure will not change
! heartbeats will slow down, vessels
will narrow, blood pressure will not change

? will (and if so, how) be reflected in tone
human lower limb vessels
two-way border cutting

sympathetic trunk at the level
lumbar segments?

+! the tone of the vessels will decrease
! vessel tone will not change
! vessel tone will increase
! the tone of the vessels will not change first, but
will increase further

? does the stroke volume of the heart change at the beginning of
physical work?

! does not change
! decreases by 5-10%
! increases by 70-80%
+! increases by 20-30%

? vasomotor center is located in:

+! oblong brain
! hypothalamus
! cerebellum
! thalamus

? interaction of adrenaline with beta-adrenoceptors of smooth
muscle cells of the arterial wall causes:

+! expansion of vessel lumen
! dilation and then narrowing of the vascular lumen
! narrowing of vessel lumen
! does not affect vascular lumen

the diameter of the vascular lumen is reduced by said biologically
active substances except:

! angiotensin
! vasopressin
! serotonin
+! histamine

? name the main mechanisms of remote vascular tone regulation:

+! humoral and neurogenic
! myogenic and metabolic
! neurogenic and metabolic
! humoral and myogenic

PHYSIOLOGY OF ENDOCRINE SYSTEM, GPC-9

? the main form of blood transport of fat-soluble hormones to target
organs is their transfer

! in free form
+! in complex with specific plasma proteins

? glucocorticoid release regulates hormone

! oxytocin
+! adrenocorticotrophic hormone
! luteinizing hormone
! glucagon

? progesterone is synthesized

! in the adrenal cortex
+! in the ovary
! in pituitary gland
! in the adrenal medulla

? oxytocin is released:

! adrenal glands
+! neurophysis
! adenohypophysis
! thyroid

? thyroxine synthesized

! in the adrenal glands
+! in the thyroid gland
! in pituitary gland
! in the ovary

? carbohydrate metabolism is predominantly influenced by

! glucagon, parathormone
+! insulin, glucocorticoids
! insulin, oxytocin
! adrenaline, aldosterone

? ATP formation in the working muscle is enhanced under the influence of
 ! glucagon
 +! adrenaline
 ! insulin
 ! somatotrophic hormone

? mechanism negative feedback in the system neurohumoral regulation, carried out by the pituitary gland, consists
 ! in the stimulating action of the tropic pituitary hormone on peripheral to iron
 +! in the inhibitory effect of the hormone peripheral gland for production tropical hormone pituitary gland
 ! in stimulating action of hormone peripheral gland on hypophysis

? hormone is synthesized in the anterior pituitary lobe
 +! somatotrophic
 ! oxytocin
 ! thyroxine
 ! antidiuretic

? hormone is synthesized in the intermediate pituitary lobe
 ! antidiuretic
 +! melanocytostimulating
 ! thyroxine
 ! somatotrophic

? posterior pituitary lobe released hormone
 ! thyroxine
 +! antidiuretic
 ! melanocytostimulating
 ! adrenocorticotrophic

? luteinizing hormone stimulates
 ! follicle development
 +! yellow body development
 ! uterine hyperplasia

? predominantly catabolic effects have
 ! insulin, glucagon
 +! adrenaline, thyroxine
 ! glucagon, ADH, parathormone
 ! ACTH, ADH parathormone

? removal of the adrenal glands causes
 ! reduced excretion of sodium from the body
 +! increased excretion of sodium from the body
 ! increase the body's potassium content
 ! increased removal of potassium from the body

? removal of parathyroid glands causes
 ! hypercalcemia
 +! hypocalcemia

? stimulating effect on protein metabolism has
 ! aldosterone
 +! thyroxine
 ! parathormon
 ! adrenaline

? an increase in the main exchange is observed with hyperfunction
 ! adrenal glands
 +! thyroid
 ! genitals
 ! pancreas
 !

? extremity tremor observed in hyperproduction
 ! ACTH
 +! thyroxine
 ! glucagon
 ! adrenaline

? hyperglycemia observed in ADH hyperproduction
 +! glucagon
 ! insulin
 ! thyroxine

? with lack of insulin glycogen content in muscles
 ! will increase
 +! will drop

? preferential effect on carbohydrate exchange has
 ! aldosterone
 +! insulin
 ! parathormon
 ! ACTH

? hypoglycemia is associated with hormone action
 ! aldosterone
 +! insulin
 ! adrenaline
 ! testosterone

? sodium retention (delay) in the body is associated with hormone action
 ! glucagon
 +! aldosterone
 ! ADH
 ! insulin

? water retention (DEKAY) in the body is associated with hormone action
 ! aldosterone
 +! ADH
 ! adrenaline
 ! insulin

? secretion of digestive juices inhibits
 ! ADH
 +! adrenaline
 ! aldosterone
 ! insulin

? the first half of the menstrual cycle controls the hormone
 ! luteinizing
 +! follicle stimulating
 ! progesterone
 ! somatotrophic

? the second half of the menstrual cycle controls the hormone
 ! follicle stimulating
 +! luteinizing
 ! somatotrophic

? functional fragments are isolated in the structure of hormone molecules... except
 ! haptomers
 ! actons
 +! vitamins
 ! auxiliary fragments.

? distinguish between techniques for studying the functions of endocrine glands... except
 ! extirpation
 ! transplantation
 ! denervation
 ! biotesting
 +! ECG

? gonadotropic pituitary hormones include... except
 ! follitropine
 +! estrogens
 ! lutropine

? vasopressin causes... except
 +! uterine muscle reduction
 ! increasing water reabsorption in the collection tubes of kidneys
 ! narrowing of blood vessels

? oxytocin causes.... except
 ! enhanced uterine contraction outside pregnancy
 +! increased reabsorption of water in the collection tubes of kidneys
 ! increasing milk release

? phenomena occurring with significant changes in thyroid functions... other than:
 ! cretinism
 ! mixedema
 +! diabetes mellitus
 ! thyrotoxicosis
 ! endemic goiter

? removal of parathyroid glands in animals causes-causes... except
 ! lethargy, vomiting, loss of appetite
 ! fibrillar twitches or muscle tetanus
 +! mixedem (mucous edema)
 ! laryngeal spasm

? the adrenal cortex releases.... other than:
 ! sex hormones
 ! mineralocorticoids
 +! ACTH
 ! glucocorticoids

? fork gland releases hormones... except
 ! thymosin
 +! parathyrin
 ! homeostatic thymus hormone
 ! timopoietin I and II
 ! thymus humoral factor

? fork iron performs functions.... except
 ! control the development and distribution of lymphocytes involved in immunological reactions;
 ! stimulating body growth and inhibiting sexual development;
 +! blood calcium level control

? pancreatic insulin cells synthesize hormones... other than:
 ! insulin (beta cells);
 +! oxytocin (paraventricular nuclei)
 ! glucagon (alpha cells);
 ! somatostatin (delta cells);

? insulin causes... except:
 ! increasing the permeability of cellular membranes for glucose
 ! promotes glucose conversion to glycogen in the liver and muscles;
 ! lower blood glucose;
 +! increase of water back suction in renal tubules (collective tubes).

? adrenal cortex glucocorticoids affect... except:
 ! enhancement of gluconeogenesis;
 ! increased glycogen deposition in the liver;
 ! inhibition of glucose utilization in tissues;
 ! causing tissue protein decay, delaying the formation of granulations;
 wound healing
 +! milk release

? aldosterone causes... except:
 ! enhancing ion backwash sodium in renal tubules and reduced ion backwash potassium;
 ! increase the tone of smooth muscles and higher arterial blood pressure pressures;
 +! change in blood calcium levels
 ! manifestation of inflammatory reactions through increased permeability capillaries;

? cerebral adrenaline

the adrenal glands cause... other than:
 +! reducing glucose in blood
 ! through acceleration of glycogen cleavage in liver and muscle increases content blood glucose
 ! relaxation of bronchial muscles, expanding the lumen of the bronchi and bronchioles;

? androgens are necessary... except:
 ! for normal maturation of male sex cells;
 ! for longer save motor activity of sperm;
 ! for the manifestation of sexual instinct and appropriate behavioural responses;
 +! to suppress libido

? estrogens are necessary... except
 ! for the development of secondary female sexuality signs and manifestations of sexual reflexes;
 ! to stimulate development and growth mammary glands;
 ! to increase uterine sensitivity to oxytocin, enhancing and increasing it abbreviations;
 +! to increase body growth in length

? the placenta releases hormones... except
 ! protein - chorionic gonadotropin, placental lactogenic hormone, relaxin;
 ! steroid - progesterone, estrogens;
 +! thymosin

? hormones formed in the pituitary gland include... other than:
 ! corticotropin
 ! lutropine
 ! follitropine
 +! thyroxine
 +! antidiuretic hormone.

? during the development of stress distinguish stages... except
 ! exhaustion!
 anxiety!
 +! depolarization
 ! resistance

? hyperglycemia is observed in hyperproduction of hormones... other than:
 ! adrenaline
 ! glucocorticoids
 +! glucagon
 ! insulin

? glucocorticoid release regulates hormones... except
 ! corticoliberin
 ! corticotropin
 +! ADH

? predominantly catabolic effects have... except
 +! insulin
 ! adrenaline
 ! thyroxine

? negative feedback mechanism in the neurogumoral regulation system, performed by pituitary gland, consists of
 ! in the stimulating action of the tropic pituitary hormone on peripheral iron;
 ! in the inhibitory action of the tropical hormone pituitary gland on the peripheral gland;
 ! in stimulating action of hormone peripheral gland for production tropical hormone pituitary gland;
 +! in the inhibitory effect of the hormone

peripheral gland for production
tropical hormone pituitary gland

? removal of the adrenal glands causes
! reduced excretion of sodium from the body;
! increased removal of potassium from the body;
+! increase of potassium content in the body;
+! increased release of sodium from the body

? physiologically active substances synthesizing products outside
the glands of internal secretion are called
! hormones
+! hormonoids
! telegrons
! parahormones

? physiologically active substances formed in the glands of the
external secretion of one organism and affecting other
individuals (ferromones, allomones) are called
! hormones
+! telegrons
! hormonoids
! parahormones

? the effect on growth, participation in adaptation reactions in the
presence of stress and in the formation of immunocompetent
organs is more inherent in which hormone
! melanocytostimulating
! aldosterone
+! thymosin

? increased glycogen breakdown in the liver and muscle,
hyperglycemia - symptoms of increased activity of which
hormone:
! insulin
+! glucagon
! ADH

? stimulating recycling processes
tissue glucose, glycogen formation
from fats and proteins, oxidative
processes in muscles;
anti-inflammatory action;
suppression of immune responses - symptoms
increasing the concentration of which hormones:
! estrogens
+! glucocorticoids
! insulin

?hypothyroid infantilism - more often the disease of which gland
! parathyroid
+! thyroid
! pituitary gland

? hypoglycemia is more often associated with the effects of which
hormone
! thymosin
+! insulin
! adrenaline

? testosterone causes
! reduction of uterine muscles;
+! boosts libido
! reduces blood calcium levels

? melatonin has properties
..... except
! discolor melanophores
! inhibit the development of sexual functions in
young organism
! inhibit the action of gonadotropic
hormones in adults
+! reduce blood glucose
! directly act on the hypothalamus,
blocking the release of luliberin, and on
adenohypophysis via luliberin, reducing
lutropin release

? what determines the type of gonad and, ultimately, masculinization
or feminization of sexual embryonic germs:
! sex hormones
+! sex and chromosome genes
! pituitary hormones

? primary gender is programmed primarily:
! at hormonal level
+! at genetic level

? secondary sex traits (secondary sex) are due to:
! adrenal and pituitary cortex hormones
+! type of gonads and type of those sex hormones that secrete
gonads

? into what the Wolf duct of the human embryo is transformed:
! into ovipods, uterus, vagina
+! to the future seed pipeline

? which of these hormones inhibits through the hypothalamus the
development of sexual functions in the young body and inhibits
the effects of gonadotropins in the adult:
+! melatonin
! adrenal cortex retinal zone hormone

? hormones of which of these internal secretion glands regulate
immunological protective responses, lymphocyte development
and distribution, antibody production, T-lymphocyte
differentiation:
! epiphysis
+! fork iron
! adrenal cortex

? placental steroid hormones include:
! placental lactogenic hormone and relaxin
+! progesterone and estrogens
! chorionic gonadotropin

? which of the internal secretion glands has a lot of vitamin C (in
this regard, it is second only to the adrenal cortex):
! hypophysis
! epiphysis
+! thymus gland

? effectomer (acton) of hormones:
! is an auxiliary fragment that regulates hormone activity
! contains the hormone address fragment
+! provides linkage with g-protein and adenylate cyclase

? which hormone: acts on the stage preceding ovulation, ovulation
itself, formation of a yellow body, stimulates the formation of
estrogens:
! progesterone
+! lutropine
! estron

? which term is incorrectly listed in the list of humoral influences:
! Hormonal
!paracrine
!isocrine
! autocrine
+! reflex

? which of these interaction schemes is designated as positive
feedback:
!inhibition of thyrooliberin and TSH with increasing concentration
of thyroid hormones
+! increase of estrogen production at
growth of luteinizing pituitary hormone products

? when the maximum ACTH products are:
+! from 6 to 8 a.m.
! at 7 p.m.

? which of the listed effects of insulin is designated as very fast:
! increased amino acids uptake by cells
! suppression of catabolism and intensification
anabolism

+! increased permeability of membranes
for glucose, Na activation, K-adenosine triphosphatase
! activation of mitogenesis and cell reproduction

? who first described "apudocytes" as chromaffin cells of the paracrine system producing hormone-like substances:

!A. Kinzie, 1953
+! A. Pierce, 1978
!E. Sutherland, 1971

? what date is considered the birth year of experimental endocrinology:

! 1889 Broun Sekar
+! 1849 - A. Berthold
! 1901 - A.V. Sobolev
! 1902 - Starling and Baylis

? the concentration of which of these hormones increases with a significant increase in calcium in the blood, facilitating mineralization and suppressing bone resorption:

! parathyrine
+! calcitonin

? which of these cells synthesize iodine containing thyroid hormones:

+! a - thyroid cells
! k - thyroid cells

? highlight intracellular thyroid hormone targets:

! ribosomes
! Golgi apparatus
+! nucleus and mitochondria

? which ovarian tissue produces the hormone estradiol, estrone:

+! follicle granulosa cells
! yellow body

? highlight one of the listed impact uncharacteristic for thyroid hormones:

! promotes tissue differentiation and organs, especially the CNS
! increases mitochondrial efficiency
! supports normal sexual status, reproduction
+! increases potassium ions excretion from the body

? what effect of these named is more typical for melatonin epiphyses:

!inhibition of gonadotropin secretion through the hypothalamus and pituitary gland
!increase in the reverse absorption of water in renal tubules

? which of these hormones suppresses fat breakdown and activates the oxidation of ketone bodies in the liver:

! somatotropic
+! insulin

? in women or in men, normal development reveals Barr bodies in the nuclear sheath of cells:

! in men
+! in women

? adrenaline (noradrenaline) excites the radial or circular muscles of the pupil:

! circular, causing pupil narrowing
+! radial, causing pupil dilation

? which testis cells perform not only an incretory function, but also provide sperm maturation:

! Leydig cells
+! Sertoli cells

? in which of the early terms best determine the presence of pregnancy with Simoly and Galli-Mainini tests:

! 30 days of expected pregnancy
+! between 40 and 100 days of pregnancy
! within 120 days of pregnancy

? when Simol and Galli-Mainini tests on early pregnancy diagnosis

become negative:

! a month before childbirth
+! one week after childbirth
! 2 months before childbirth

? how much% radioactive iodine (131i) is found in a healthy adult 2 hours after administration:

!30%
+ !11%
!2%

? activity, which nuclei of the hypothalamus (together with activation of the epiphysis) ensure the existence of the biological clock of the body:

! paraventricular
+! suprachiasmatic
! supraoptic

GENERAL AND PRIVATE NEUROPHYSIOLOGY. VEGETATIVE NERVOUS SYSTEM, GPC- 9

? transformation of the excitation rhythm is understood to be

! directional propagation of excitation in the central nervous system
! pulse circulation in the neural trap
! disorderly distribution of CNS excitations
+! increase or decrease in the number of pulses

? with increasing stimulus strength, reflex response time

! does not change
! increases
+! decreases

? in the reflex arc with the least speed, excitation propagates along the path

! afferent
! efferent
+! central

? during reflex take time from stimulus onset to

! end of stimulus action
! achieving a useful adaptive result
+! the appearance of a response

? occlusion is based on processes

! prolonging
! variances
! animations
+! convergence

? reflex time depends primarily on

! from excitation radiation
! from physical and chemical properties of the effector
! from the physiological properties of the effector
+! from stimulus force and functional state of CNS

? the role of the feedback afferentiation link is to provide

! morphological connection of nerve center with effector
! spreading excitation from afferent link to efferent link
+! estimates of the result of the reflex act

? nerve cell performs all functions except

! receiving information
! storing information
! encoding information
! mediator generation
+! mediator inactivation

? the main function of dendrites is

! conducting excitation from the body of the cell to the effector
! mediator generation
+! excitation to the neuron body

? in natural conditions, the action potential in the neuron occurs

! in the area of dendrites
! in the synapse
! in the soma of the nervous cell
+! in the initial axon segment

- !
- ? excitation in the CNS is carried out mainly with the participation of synapses
 - electric!
 - ! mixed!
 - +! chemical
- ? excitatory postsynaptic potential occurs at local
 - ! hyperpolarization
 - +! depolarization
- ? excitatory postsynaptic potential develops as a result of opening ion channels on the postsynaptic membrane
 - ! chlorine
 - ! potassium
 - +! sodium
- ? with a higher frequency generate pulses those neurons in which the following hyperpolarization lasts
 - ! 150 msec.
 - ! 100 msec.
 - ! 75 msec.
 - +! 50 msec
- ? the complex of structures necessary for carrying out the reflex reaction is called
 - ! functional system
 - ! nerve center
 - ! neuromuscular drug
 - ! dominant source of arousal
 - +! reflex arc
- ? with prolonged irritation of the frog's foot skin, reflex pulling of the foot stops due to development of fatigue
 - ! in the muscles of the foot
 - ! in neuromuscular synapses
 - +! in the nerve center of the reflex
- ? an increase in numerically excited CNS neurons when irritation increases occurs due to
 - ! spatial summation
 - ! relief
 - ! occlusions
 - +! Radiations
- ? spreading excitation from one afferent neuron to many interneurons is called a process
 - ! rhythm transformation
 - ! spatial summation
 - ! relief
 - ! shared target path
 - +! radiations
- ? one motoneuron may receive pulses from multiple afferent neurons as a result
 - ! afferent synthesis
 - ! sequential summation
 - ! divergence
 - +! convergence
- ? enhanced reflex response cannot result from
 - ! inhibiting reflex - antagonist
 - ! posttetanic potentiation
 - ! sequential summation
 - ! relief
 - +! occlusions
- ? posttetanic potentiation consists in amplification reflex response to irritation to which preceded
 - ! nerve center inhibition
 - ! spatial summation of pulses
 - ! step-down pulse transformation
 - +! rhythmic nerve irritation
 - center
- ? spatial summation of pulses is provided by
 - ! excitation divergence
 - ! presence of dominant source of arousal
 - ! feedback available
 - +! by convergence of excitation
- ? plasticity of synapses is characteristic
 - ! only for motor neurons of the spinal cord
 - ! only for the higher departments of the Central Tax Service
 - +! for any CNS department
- ? participation in different reflex reactions of the same efferent neurons and effectors is due to the presence of
 - ! plasticity of nerve centers
 - ! neuronal polyfunctionality
 - ! divergence excitations
 - ! path eruptions
 - +! shared end path
- ? exceeding the effect of simultaneous action of two weak afferent excitations over the sum of their separate effects are called
 - ! summation
 - ! transformation
 - ! animation
 - ! radiation
 - +! relief
- ? nerve centers have no property
 - ! plasticity
 - ! high sensitivity to chemical stimuli
 - ! excitation summation abilities
 - ! rhythm transformation abilities
 - +! two-way excitation
- ? mediator of the brake neuron, usually on the postsynaptic membrane causes
 - ! static polarization
 - ! depolarization
 - +! hyperpolarization
- ? reflex time in Sechenov's experience
 - ! does not change
 - ! not defined
 - ! decreases
 - +! Increments
- ? in the Sechenov experience, a brain cut is made between
 - ! thoracic, lumbar spinal cord
 - ! oblong and spinal cord
 - +! visual hills and overlying sections
- ? the phenomenon in which excitation of one muscle is accompanied by inhibition of the center of the antagonist muscle is called
 - ! negative induction
 - ! occlusion
 - ! relief
 - ! fatigue
 - +! recycle braking
- ? braking is a process
 - ! always spreading
 - ! propagating if TPPS reaches critical level
 - +! local
- ? specific brake neurons include
 - ! neurons of the black substance and the red nucleus of the midbrain
 - ! pyramid cells of the cortex of the hemispheres
 - ! neurons of the Deuters nucleus of the oblong brain
 - +! Purkinje and Renshaw cells
- ? the value of recycle braking is
 - ! in the execution of the protective function
 - ! in exemption of CNS from processing of non-essential information
 - +! in ensuring the coordination of the work of the antagonist centers
- ? braking postsynaptic potential occurs due to a change in membrane permeability for ions
 - ! sodium

! sodium and chlorine
+! potassium and chlorine

? the occurrence of pessimal braking is likely
! at low pulse frequency
! with the secretion of brake mediators
! at excitation of insertion brake neurons
+! with increasing pulse frequency

? presynaptic inhibition is carried out by the synapses
! axo- somatic
! axo-dendritic
+! axo-axonal

? presynaptic braking mechanism is connected
! with hyperpolarization
! with K- Na pump operation
! with operation of Ca pump
+! with prolonged depolarization

? the phenomenon of pessimal braking has been revealed
C. Sherrington
! I. M. Sechenov
! I.P. Pavlov
! the Weber brothers
+! N. E. Vvedensky

? the phenomenon of central braking has been revealed
! the Weber brothers
C. Sherrington
! I.P. Pavlov
+! I. M. Sechenov

? braking is a process
! resulting from fatigue
nerve cells
! resulting in reduced VCD nervous
cages
! occurring in receptors at
excessively strong stimuli
+! preventing occurrence
excitement or weakening already
arousal that has arisen

? in the operation of nerve centers braking is necessary
! to close the arch of reflexes in response to irritation
! to combine CNS cells into nerve centers
+! to ensure the safety, regulation and coordination of functions

? diffuse radiation can be stopped as a result
! injecting strychnine
! increase the force of the stimulus
+! lateral braking

? the development of braking in Sechenov's experience on a frog is
judged by
! appearance of convulsive contractions of legs
! slashing heartbeats followed by cardiac stop
+! change in spinal reflex time

? contraction of muscles flexors while relaxing extensor muscles is
possible as a result
! active recreation
relief!
! negative induction
! pessimal braking
+! recycle braking

? inhibition of neurons with their own pulses, coming through axon
collaterals to brake cells, is called
! secondary
! recycle
! progressive!
! lateral
+! return

? using Renshaw brake insertion cells, braking occurs

! recycle
! lateral
! primary
+! return

? inhibition of motor neurons of antagonist muscles when flexing
the center of extensor muscles should be
! progressive!
! lateral
! return
+! recycle

? when flexing the limb, the insertion brake neurons of the muscle
extensor center must be
At rest
! braked
+! excited

? the inhibitory effect of a synapse located near the axonal hilt,
compared to other areas of the neuron more than
! weak
+! strong

? development of neuronal inhibition contributes to
! depolarization of the axonal hillock membrane and the initial
segment
! depolarization of catfish and dendrites
+! axon holm membrane hyperpolarization

? by its mechanism postsynaptic braking can be
! depolarized only
! hyperpolarized only
+! both de- and hyperpolarized

? by its mechanism presynaptic braking can be
! and de- and hyperpolarized
! hyperpolarized only
+! depolarized only

? after cutting below the oblong brain muscle tone
! practically will not change
! will disappear
! extensors tone will increase
+! will decrease significantly

? contractile tone when cutting the back roots of the spinal cord
! practically will not change
! extensors tone will increase
! will decrease significantly
+! will disappear

? when cutting the anterior roots of the spinal cord muscle tone
! practically will not change
! extensors will be strengthened
! will decrease significantly
+! will disappear

? the effect of the red core on the Deuters core is
! excitatory
! insignificant
+! brake

? black substance has an effect on the red core
! excitatory
! very weak
+! brake

? Extrafusal muscle fibers innervated by motoneutrons
gamma!
! beta
+! alpha

? intrafusal muscle fibers function
! muscle contractions
! relaxing muscle
! ensuring the sensitivity of the Golgi apparatus to tension
+! ensuring sensitivity of the "muscle spindle" to stretching

? Extrafusal muscle fibers function	! statistical
! ensuring sensitivity of "muscle spindle" to stretching	! kinetic
! ensuring the sensitivity of the Golgi apparatus to tension	! somatic
! contractions of "muscle spindle"	+! statokinetic
+! muscle contractions	
? bodies of alpha motoneurons are located in the horns of the spinal cord	? the strongest muscle tone is observed in an experiment in an animal
! rear!	! intact (all CNS departments are saved)
side!	! diencephalic
+! front	! thalamic
	! mesencephalic
	+! bulbar
? bodies of gamma-motoneurons are located in the horns of the spinal cord	? with insufficient cerebellar function not observed
! rear!	! movement coordination violation
side!	! imbalance
+! front	! changing muscle tone
	! vegetative disorders
	+! loss of consciousness
? when cutting between the oblong and middle brains, muscle tone occurs	? for animals with decerebration rigidity
! normal	not characteristic
! plastic	! changing the normal pose
! spinal	! disappearing rectifier reflexes
+! contractual	! elevator reflex disappears
	! sharp increase in muscle tone
? excitatory impulses to the Deuters nucleus arrive predominantly	razgibatel
! from proprioceptors	+! sharp decrease in muscle tone
! from the midbrain	razgibatel
! from the crust of large hemispheres	
+! from vestibular analyzer receptors	
? Golgi apparatus is located	? arcs of all the listed reflexes are closed in the spinal cord except
! in a nuclear bag of intrafusal fibers	! elbow
! in distal sections of intrafusal fibers	! plantar
! among extrafusal muscle fibers	! urethra
+! in muscle tendons	! flexor
	+! extension
? sensitive endings of primary muscle spindle afferents are found	? mediator of the preganglionic fibers of the parasympathetic nervous system is
! in distal sections of intrafusal fibers	! GABA
! among extrafusal muscle fibers	! noradrenaline
! in muscle tendons	! serotonin
+! in a nuclear bag of intrafusal fibers	+! Acetylcholine
? sensitive endings of secondary muscle spindle afferents are found	? mediator of post-ganglionic fibers of sympathetic nervous system is
! in a nuclear bag of intrafusal fibers	! acetylcholine
! among extrafusal muscle fibers	+! noradrenaline, adrenaline
! in muscle tendons	! serotonin
+! in distal sections of intrafusal fibers	! GABA
? fast (phase) movement provide muscle fibers	? mediator of post-ganglionic fibers of parasympathetic nervous system is
! intrafusal	! GABA
!red	! noradrenaline
+! white	! serotonin
	+! acetylcholine
? slow tonic movement provides muscle fibers	? the simplest vegetative reflex is
! intrafusal	! monosynaptic
!white	+! polysynaptic
+! red	
? muscle fibers are involved in the muscle state reception	? preganglionic fibers of the autonomic nervous system are of the type
!white	!A
!red	!C
+! intrafusal	+! B
? weak muscle tone observed in an experiment in an animal	? post-ganglionic fibers of the autonomic nervous system are of the type
! diencephalic	!A
! thalamic	!B
! mesencephalic	+! C
! bulbar	
+! spinal	? bodies of preganglionic neurons sympathetic nervous system are located
? excitation of alpha motoneuron will lead to	
! to shrink all muscle fibers	
! to reduce intrafusal muscle fibers	
! to relaxation of extrafusal muscle fibers	
+! to contraction of extrafusal muscle fibers	
? reflexes that occur to maintain a pose when moving are called	

! in the back horns of the sacral segments
spinal cord
! in lateral horns of the sacral segments
spinal cord
! in the posterior horns of the cervical and thoracic segments
spinal cord
+! in the lateral horns of the chest
spinal cord segments

? the enteral nervous system is located in:
! in the lateral horns of the spinal cord
! in the back horns of the spinal cord
! in the prevertebral ganglia
+! in intramural ganglia

? enteral nervous system provides regulation
central!
! intercellular
+! intra-organ

? higher centers for the regulation of vegetative functions are located
! in the cerebral cortex
! in the thalamus
! in the oblong brain
+! in the hypothalamus

? oblong brain has the following structural features except
! is a direct continuation of the spinal cord
+! has a segmental structure
! gray matter is represented as separate nuclei
! contains a reticular formation

? the reticular brainstem formation is located on the path
! of all brain input systems
+! of all brain input and output systems
! of all brain output systems
! to the cerebellum

? oblong brain reflexes include but are not limited to
! cervical tonic reflexes
! salivation reflexes
! vestibular reflexes
+! skin abdominal reflexes

? vestibular reflexes include
+! static reflexes
! pupil reflex
! cervical tonic reflexes
! flexure and unbend reflexes

? reflexes aimed at maintaining posture when body speed changes
are called
! static
+! statokinetic
! visceral

? vasomotor center localized in
structures of the reticular formation
! thalamus cores
+! oblong brain
! midbrain
! intermediate brain

? reticular brainstem formation has effects on puzzle cortex
! facilitating
braking!
+! activating

? The superior and descending effects of the reticular brainstem
formation have been studied
! I. M. Sechenov
! Claude Bernard
+! Magun and Moruzzi
! N.A. Mislavsky

? all nuclei are involved in reflex regulation of ocular movements,
except
+! optic nerve

! block nerve
! oculomotor nerve
! diverting nerve

? fibers of the extrapyramidal system coming from the basal nuclei
end in
! spinal cord
! pyramids of the oblong brain
+! red midbrain nuclei
! intermediate brain

? cerebellar connections with varolium bridge are made through
! rostral (upper) legs
+! middle legs
! caudal (lower) legs

? inhibition of neurons in the nuclear structures of the cerebellum
cause cells
Golgi
+! Purkinje
Renshaw

? efferent connections of the cerebellum with the motor systems of
the brainstem are made through pathways other than
! corticospinal
! rubrospinal
! vestibulospinal
+! spinal

? afferent information from the spinal cord to the cerebellum passes
through the pathway:
! rubrospinal
! spinotamic
! pyramid
+! dorsal and ventral spinal

? according to the classic ideas of L. Luciani, symptoms develop in
cerebellar injuries, except
! atonia
! asthenia
! astasia
+! arrhythmia

? gait disturbance in cerebellum injury is denoted as
! asinergia
! atetosis
+! ataxia
! dysmetry

? effective compensation of cerebellum functions after its
traumatic injury is associated with
! adaptation
+! high plasticity of brain structures
! coordination of movements

? falling out of certain types of sensitivity is associated with damage
to the verthalamus
! nonspecific
+! specific
! associative
! motor!

? the thalamus is a "collector" of all sensitive pathways running from
the periphery to the cerebral cortex, except
! tactile
+! olfactory
! taste
! pain
! visual

? nonspecific thalamus nuclei are part of
+! reticular brainstem formation
! striopallidar system
! cerebellum
! autonomic nervous system

? release factors synthesized in the hypothalamus include
+! liberins and statins

- ! telegrons
- ! hormones
- ! hormonoids

- ? centers are localized in the hypothalamus, except
 - ! thermoregulation
 - ! hunger and saturation
 - ! vegetative functions
 - ! emotions
 - +! speeches

- ? supraoptic and paraventricular nuclei of the hypothalamus control
 - ! fat exchange
 - ! protein exchange
 - +! exchange of water and salts
 - ! carbohydrate exchange

- ? hypothalamus is involved in the regulation of all behavioral responses except
 - ! food
 - ! sexual
 - ! aggressive
 - +! conditional reflector

- ? circulation of excitation during the formation of emotions is carried out along the Peypetz circle, which includes all structures except
 - ! hippocampus
 - ! mammillary bodies
 - ! waist gyrus
 - +! cerebellum

- ? basal core functions include regulation
 - ! eating behavior
 - +! movements and sensorimotor coordination
 - ! emotion shaping
 - ! save memory

- ? basal nuclei are involved in formation
 - ! arbitrary movements
 - ! poses
 - +! targeted movements
 - ! emotions

- ? striated body lesion accompanied by
 - +! hyperkinesia
 - ! waxiness
 - ! constrained movements
 - ! lack of facial expressions

- ? pale ball lesion leads to:
 - +! hypokinesia
 - ! chorea
 - ! athetosis
 - ! redundancy of movements

- ? sympathetic nervous system ganglia localized
 - ! in innervable organs or nearby
 - ! intraorganically (intramural)
 - +! in the border column of the spinal cord
 - ! in the lateral horns of the spinal cord

- ? which of the listed effects relates to the influence of the sympathetic department of GNC
 - ! pupil narrowing
 - +! increased sweating
 - ! enhanced intestinal peristalsis
 - ! bronchial narrowing

- ? which of the listed effects relates to the influence of the parasympathetic department of the GNC
 - ! bronchial expansion
 - ! pupil extension
 - +! slowing down the heart
 - ! slowing bowel peristalsis

- ? which of the following reflexes refers to sympathetic:
 - ! Goltz reflex

- ! clinostatic reflex
- +! orthostatic reflex
- ! Ashner's eye-heart reflex

- ? which of their listed reflexes refers to parasympathetic (vagal):
 - +! Goltz reflex
 - ! orthostatic reflex
 - ! flexion reflex
 - ! stato-kinetic reflexes

- ? nerve fibers that are not myelin-coated
 - ! sympathetic nervous system - preganglionic
 - ! parasympathetic nervous system - preganglionic
 - +! sympathetic nervous system - post-ganglionic

- ? with the participation of mesencephalic nuclei, the following physiological effects are performed
 - ! bronchial expansion
 - ! constriction of vessels and increase of BP
 - +! pupil reflex and eye accommodation
 - ! sweating

- ? an enzyme providing noradrenaline inactivation in the synaptic cleft:
 - ! acetylcholinesterase
 - ! cholinacetyltransferase
 - ! Na - Methyltransferase
 - +! monoamine oxidase

- ? an enzyme providing acetylcholine inactivation in the synaptic cleft:
 - ! adenosine triphosphatase
 - ! Na - Methyltransferase
 - +! acetylcholinesterase
 - ! cholinacetyltransferase

- ? what reflexes are performed when influencing visceral systems through the skin
 - ! visceral-visceral
 - ! visceral dermal
 - ! visceric-somatic
 - +! dermo-visceral

- ? phenomenon, in which the arousal of the center of one muscle is accompanied by inhibition of the center of the muscle-antagonist, called:
 - ! occlusion
 - ! Relief
 - ! fatigue
 - + ! reciprocal inhibition

- ? what is the phenomenon of dominant?
 - + ! formation of a center of increased excitability in the CNS
 - ! the appearance of a new center in the CNS
 - ! formation of a center of reduced excitability in the CNS

- ? whether the neurotransmitter is released from the nerve terminal at rest?
 - + ! Yes
 - ! pathological conditions
 - ! No
 - ! only after a long-term nerve stimulation

- ? which of the following receptors are classified as cholinergic?
 - ! glutamate ionotropic
 - ! histaminergic
 - + ! muscarinic
 - + ! nicotinic

- ? how ionic permeability changes in membrane of excited nerve terminal if "triggered" the inhibitory neuron in contact with it?
 - +! increases ion permeability chlorine
 - ! increases ion permeability sodium
 - ! increases ion permeability calcium

?inhibition - is a ... process
 +! local
 ! always spreads
 ! spreads if the inhibitory postsynaptic potential (IPSP) reaches a critical level

? in which CNS departments are located
 first sympathetic neuron
 innervation of the heart?
 ! in the oblong brain
 +! in the lateral horns of the top 5 segments
 thoracic spinal cord
 ! in cervical spinal cord segments
 ! in the anterior horn of the thoracic dorsal brain

the membrane covering the nerve terminus is called:
 +! presynaptic
 ! synaptic slit
 ! subsynaptic
 ! postsynaptic

? what functions are characteristic of the limbic system?
 +! memory and emotion formation
 +! homeostasis regulation
 ! participation in the formation of conditional reflexes
 +! regulation of vegetative processes

? name the neuron of the cerebellar cortex, inhibiting the activity of the nuclei of the cerebellum itself and the vestibular nucleus of the oblong brain
 +! Purkinje's cell
 ! Golgi's cell
 ! Renshaw cell

? vasomotor center is located in
 +! oblong brain
 ! hypothalamus
 ! cerebellum
 ! thalamus

? on the development of braking in the experience of I.M. Sechenov on a frog is judged by:
 +! increased spinal reflex time
 ! slowing heartbeat followed by cardiac stop
 ! appearance of paw cramps

? arousal in the nerve center spreads:
 +! from afferent neuron via intermediate to efferent
 ! from intermediate neurons via efferent to afferent
 ! from intermediate neurons via afferent to efferent

? receptors whose irritation causes swallowing reflex are located on
 +! at the root of the tongue
 ! middle third of the tongue
 ! in the front third of the tongue
 ! lateral side of the tongue

? where the body of the afferent neuron is located
 +! in the cerebrospinal ganglion
 ! in the lateral horns of the spinal cord
 ! in the anterior horns of the spinal cord

? major midbrain structures include:
 ! vagus and trigeminal nerve nuclei
 +! quadrigeminal plate
 ! toothed and intermediate cores
 +! red nuclei, black substance, nuclei of oculomotor and block nerves, reticular formation

? which neurotransmitter emits black matter nerve cells?
 +! dopamine
 ! noradrenaline
 ! serotonin
 ! acetylcholine

? nerve centers have the property
 ! duplex transmission
 +! rhythm transformation abilities
 +! high sensitivity to chemical irritations
 +! plasticity

? an open section of the axial cylinder membrane about 1 μm wide in which the myelin shell is interrupted:
 +! Ranvier's node
 ! presynaptic terminal
 ! axon hillock
 ! axon terminal

? when cutting paths between the red nucleus and the vestibular nucleus (Deiters nucleus) muscle tone:
 +! extensor muscles will become higher than flexors tone
 ! will decrease significantly
 ! will disappear
 ! practically will not change

? the role of the feedback afferentiation link is to provide:
 +! reflex result estimates
 ! spreading excitation from afferent link to efferent link
 ! morphological connection of nerve center with effector

? exceeding the effect of simultaneous action of two weak afferent excitations over the sum of their separate effects are called:
 +! relief
 ! radiation
 ! transformation
 ! summation

? effects of the red nucleus on the Deiters nucleus (lateral vestibular)
 ! insignificant
 ! excitatory
 +! brake

? where is the body of the efferent (motor) neuron located?
 ! in spinal ganglia
 ! in the lateral horns of the spinal cord
 +! in the anterior horns of the spinal cord

? when cutting the anterior roots of the spinal cord muscle tone:
 +! will disappear
 ! will decrease significantly
 ! extensors will be strengthened
 ! practically will not change

? specialized structures that perceive the day of irritant:
 ! synapses
 ! sensor systems
 +! receptors
 ! analyzers

? what part of the autonomic nervous system needs to be irritated to relieve skeletal muscle fatigue (Orbeli-Ginecinsky phenomenon)?
 ! parasympathetic
 +! sympathetic
 ! intra-organ

? why the same substance can act as both excitatory and an inhibitory neurotransmitter?
 +! due to presence on postsynaptic membrane of various types of receptors
 ! due to changes in chemical properties substances
 ! occurs when the neurotransmitter is secreted
 EPSP, no secretion - IPSP

? which cells are particularly sensitive to lowering blood glucose?
 ! smooth muscle
 ! skeletal muscle fibers
 ! cardiomyocytes
 +! CNS neurons

? involvement in different reflex reactions of the same efferent neurons and effectors - consequence:
 +! final common path
 ! presence of polyfunctional neurons
 ! presence of multipolar neurons
 ! plasticity of nerve centers

? which efferent neuron of the anterior horns of the spinal cord innervates extrafusal muscle fibers?
 +! alpha motor neurons
 ! gamma motoneurons
 ! Renshaw cells

? what happens with presynaptic inhibition of excited nerve ending?
 +! persistent depolarization of the nervous ends and decreases the selection neurotransmitter
 ! reduced sensitivity postsynaptic membrane to neurotransmitter
 ! neurotransmitter synthesis disorder

? To what is the irritation of frog thalamus structures leads in the experience of I.M. Sechenov?
 +! to inhibition of cerebrospinal reactions
 ! to enhance spinal cord reflexes
 ! to release spinal reflexes

? one motoneuron can receive pulses from multiple afferent neurons thanks to:
 +! convergence
 ! divergence
 ! afferent synthesis

? inhibitory effect of glycine is associated with
 ! increasing sodium permeability
 ! reducing calcium current
 ! reduced potassium conductivity
 +! increased chlorine conductivity

? symptom complex characterized by restriction of arbitrary movements and resting limb tremors (syndrome Parkinson's), associated with:
 ! GABA deficiency in the nervous system
 ! redundant and long-term activation neurons
 ! increased activity dopaminergic neurons
 +! degeneration of dopaminergic neurons

? strychnine is a glycine antagonist. What will the introduction of strychnine into the animal's body lead to?
 +! inhibition of Renshaw cells
 ! inhibition of alpha and gamma-motoneurons
 +! excitation of motor neurons
 +! convulsive muscle contraction

? famous physiologist academician A.A. Ukhomsky wrote that "arousal is a wild stone waiting for the sculptor." What is called a "sculptor," grinding the excitation process
 ! dominant
 +! inhibition
 ! tone

? a child who learns to play on piano, first time playing not only with his hands, but helps himself head, feet and even language. What is the property of nervous centres are at the heart of this phenomenon?
 ! excitation summation
 +! excitation radiation
 ! aftermath
 ! dominant

? after a brain stem overload, the dog narrowed pupils, and the reactions to pain irritations disappeared. What brain structures are cut between?
 ! between the hills of the quaternary
 ! between the oblong and middle brains
 +! between the quaternary and the thalamus

INTRODUCTION TO THE SUBJECT. PHYSIOLOGY OF EXCITABLE TISSUES, GC-1, GPC- 9

? decrease in the value of the membrane resting potential under the action of the stimulus is called
 ! hyperpolarization
 ! repolarization
 ! exaltation
 +! depolarization

? increasing the membrane resting potential is called
 ! depolarization
 ! repolarization
 ! exaltation
 +! hyperpolarization

? providing sodium and potassium ion concentration difference between cytoplasm and environment is a function of
 ! sodium selective channel
 ! membrane potential
 +! sodium-potassium pump
 ! nonspecific sodium-potassium channel

? the potential difference between the cytoplasm and the solution surrounding the cell is called
 ! action potential
 ! trace potential
 ! reversion
 +! membrane potential

? in the phase of rapid depolarization of the action potential, membrane permeability increases for ions
 ! potassium
 !magnesium
 +! sodium
 ! chlorine

? higher concentration of ions in the cytoplasm of nerve and muscle cells compared to the external solution
 ! chlorine
 ! sodium
 !calcium
 +! potassium

? electric current for excitable membranes is an irritant
 ! inadequate
 ! nonspecific
 ! threshold
 +! adequate

? the level of membrane depolarization at which the action potential occurs is called
 ! subcritical
 ! zero
 ! resting potential
 +! critical level

? the ascending phase of the action potential is associated with an increase in ion permeability
 ! potassium
 !calcium
 ! chlorine
 +! Sodium

? the downward phase of the action potential is associated with increased ion permeability
 ! sodium
 calcium!
 ! chlorine
 +! potassium

? a system of ion movement through the membrane along a concentration gradient that does not require energy consumption is called
 ! pinocytosis
 ! endocytosis
 +! passive transport
 ! active transport

? the phase of total non-wake of the cell is called
 ! relative refractoriness
 ! subnormal excitability
 +! absolute refractoriness
 ! exaltation

? the period of reduced excitability in the repolarization phase of the action potential is called
 ! absolute refractoriness
 ! reversion
 +! relative refractoriness
 ! exaltation

the ratio of the permeability of the nerve cell membrane for potassium and sodium ions in the depolarization phase of the action potential is
 !1 : 0,5
 !1 : 1,5
 !1 : 0,04
 + !1 : 20

? sodium channels, opening of which provides development of membrane depolarization of excitable structure, refer to
 ! to non-specific
 ! to chemo-dependent
 +! to potential-dependent

? potassium channels, the opening of which ensures the development of rapid repolarization of the membrane, refer to
 ! to non-specific
 ! to chemo-dependent
 +! to potential-dependent

? the rest potential value is close to the equilibrium potential value for the ion
 ! sodium
 ! chlorine
 +! potassium
 calcium!

? potential difference between electrodes is observed if they are located in relation to the excited cell
 ! both on the outside of the membrane
 ! both in the cytoplasm
 +! one electrode - on the outer side of the membrane, the other - in the cytoplasm

? sodium channel activation gate sensitivity to depolarization determines
 ! amplitude of FP
 ! cell membrane potential
 +! CLMP value
 ! value of sodium equilibrium potential

? increase of potassium current during development of action potential causes
 ! closing sodium channels
 ! membrane depolarization
 +! rapid membrane repolarization
 ! reversion of membrane potential

? with blockade of potassium channels of the neuron observed
 ! cell unexcitability
 ! reduced excitability
 +! deceleration of repolarization phase of action potential
 ! decreasing the amplitude of the action potential

? complete blockade of neuron sodium channels is observed
 ! reduced excitability
 ! decreasing the amplitude of the action potential

+! non-wake of the cell
 ! deceleration of depolarization phase of action potential

? increased cell excitability in the trace depolarization phase is defined
 ! inactivating sodium channels
 ! significant decrease in potassium current
 +! reactivation of sodium channels
 proximity of membrane potential to CLMP
 ! decrease of CLMP value

? the ability of living tissue to respond to any kind of effects by changing metabolism is called
 ! conductivity
 ! lability
 +! irritability
 ! excitability

? the ability of cells to respond to stimuli by a specific reaction characterized by temporal membrane depolarization and a change in metabolism, wears
 ! irritability
 ! conductivity
 +! excitability
 ! lability

? the minimum stimulus force necessary and sufficient for the occurrence of a response is called
 ! sub-threshold
 ! super threshold
 +! threshold
 ! submaximal

? the amplitude of contraction of a single muscle fiber with an increase in stimulus strength above the threshold
 ! decreases
 ! first increases, then decreases
 +! remains unchanged
 ! increments to the maximum

? the time during which a current equal to twice the reobase causes excitation is called
 ! reobase
 ! reaction time
 +! chronaxis
 ! useful time

? the law of force obeys the structure
 ! heart muscle
 ! single nerve fiber
 +! whole skeletal muscle
 ! single muscle fiber

? the law "all or nothing" obeys the structure
 ! whole skeletal muscle
 ! smooth muscle
 +! heart muscle
 ! nerve trunk

? the ability of all living cells, under the influence of certain factors of the external or internal environment, to transition from a state of physiological rest to a state of activity
 ! excitability
 ! conductivity
 +! irritability
 ! contractility

? factors of the external or internal environment of the body that cause the transition of living structures from a state of physiological rest to a state of activity are called
 ! pathogens
 ! activators
 +! stimuli
 ! damaging

? tissues capable in response to the action of the stimulus to enter

the state of arousal are called

! irritable
! abbreviated
+! excitable
! conductive!

? excitable tissues include

! epithelial, muscle
! nervous, muscular
! bone, connective
+! nervous, muscular, glandular

? the process of stimulus exposure to a living cell is called

! excitement
! braking
+! irritation
! damage

? stimulus, to the perception of which in the process of evolution this cell specialized, causing excitation with minimal irritation, is called

! inadequate
! threshold
+! adequate
! sub-threshold

? irritation threshold is an indicator of tissue property

! conductivity
! contractility
+! excitability
! lability

? when closing the poles of the DC circuit, the excitability of the nerve under the anode

risks!
! does not change
+! is lowered
! first rises, then lowers

? change in the excitability of cells or tissues in the cathode region under direct current action is called

+! catelectroton
! physical electron
! physiological electron
! anelectroton

? change in the excitability of cells or tissues in the anode region under direct current action is called

+! anelectroton
! physical electron
! catelectroton
! physiological electron

? changes in the excitability of cells or tissues in the cathode and anode region under direct current action is called

! catelectroton
! physical electroton
! anelectroton
+! physiological electroton

? under direct current action for 1 msec excitability in the cathode region

! decreases
! stabilizes
+! increments

? the law, according to which when the irritant force increases, the response of the excitable structure increases to a maximum, is called

! "all or nothing"
! power - time
+! forces
! accommodation

? the law according to which the excitable structure on threshold and super-threshold stimuli meets the maximum possible response is called the law.

! strength!

! accommodation
! power - time
+! "all or nothing"

? the law according to which the threshold value of the annoying current is determined by the time of its action on the tissue is called the law..

! strength
! "all or nothing"
+! time
! accommodation

? the smallest time during which a stimulus of one rheobase must operate to induce arousal is called

! chronaxia
! accommodation
+! useful time
! adaptation

? an open section of the axial cylinder membrane with a width of about 1 μm , in which the myelin shell is interrupted, is called

! axon terminal
! axon hillock
+! Ranvier's node
! presynaptic terminal

? isolating and trophic function in myelinated nerve fiber performs

! neurofibrils
! microtubules
+! myelin shell
! presynaptic terminal

? myelin-free arousal nerve fibers spread

! hopping, "jumping" over areas of fiber coated with myelin cover
! in the direction of axoplasm movement
+! continuously along the entire membrane from of the excited section to the located near the non-excited section

? arousal in myelinated nerves fiber spreads

! continuously along the entire membrane from of the excited section to the non-excited to the site
! electrically and both sides of the location emergence
+! hopping, "jumping" over areas of fiber coated with myelin cover
! in the direction of axoplasm movement

? muscle contraction resulting from irritation by a series of super-threshold impulses, each acting in a relaxation phase from the previous called

! smooth tetanus
! single reduction
+! toothed tetanus
! pessimum

? ions released from sarcoplasmic reticulum upon excitation

! potassium
! chlorine
+! calcium
! sodium

? motor neuron and the muscle fibers it is nervous about are called

! motor field muscle
! nerve center muscle
+ ! motor unit
! sensory muscle field

? short-term weak depolarization of the post-synaptic membrane, caused by the selection of individual mediator quanta, is called post-synaptic potential

- ! Exciting
- ! inhibitory
- + ! Miniature
- ! nerve end plate
- ? accommodation is based on processes
 - ! increased sodium permeability
 - ! lowering potassium permeability
- + ! inactivation of sodium and increase in potassium permeability
- ! potassium inactivation and sodium permeability
- ? conjugation of muscle cell membrane excitation with operation of contractile apparatus is ensured
- ! sodium ions
- ! ATF
- +! T - system and sarcoplasmic reticulum
- ! sarcomeres
- ? structural formation, which ensures the transfer of excitation from one cell to another, is called
 - ! nerve
 - ! axon hillock
 - +! synapse
 - ! Ranvier's node
- ? nerve fiber membrane limiting nerve termination is called
 - ! postsynaptic
 - ! subsynaptic
 - +! presynaptic
 - ! synaptic slit
- ? potential arises on the postsynaptic membrane of the neuromuscular synapse
 - ! braking postsynaptic
 - ! electrotonic
 - +! nerve end plate
- ? the contraction of the mouse, in which both its ends are fixed, is called
 - ! isotonic
 - ! auxotonic
 - +! isometric
 - ! pessimal
- ? disconnection of myosin head from active thread is caused
 - ! calcium ions
 - ! sodium ions
 - +! free ATP
 - ! troponin
- ? initiation of muscle contraction is performed
 - ! sodium ions
 - ! ATF
 - +! calcium ions
 - ! secondary intermediaries
- ? subsynaptic membrane channels permeable to sodium icalia are referred to as
 - ! to non-specific
 - ! to potential-dependent
 - +! to chemo-dependent
- ? the smooth muscle property missing in skeletal muscles is called
 - ! excitability
 - ! conductivity
 - +! plasticity
 - ! contractility
- ? muscle fibers of skeletal muscles are innervated
 - ! sympathetic system neurons
 - ! neurons of the higher parts of the brain
 - +! motoneurons
- ? chemo-dependent channels of the postsynaptic membrane are permeable
 - ! for sodium
 - ! for potassium
 - +! for sodium, potassium
 - ! for sodium, calcium

- ? the device is used to determine muscle strength
 - ! pressure gauge
 - ! spirometer
 - +! dynamometer
 - ! ergometer
- ? science physiology studies
 - ! structure of the human body
 - ! organism-environment relationship
 - +! healthy body functions and healthy lifestyle
 - ! malfunction in pathology
- ? irritability and excitability are
 - ! different properties of living matter
 - ! opposite parameters of living tissues
 - +! different levels of biological reflection
 - ! this is the same
- ? there is a link between chronaxia and the lability of excitable tissues
 - ! direct!
 - ! logarithmic
 - +! reverse
 - ! no connection
- ? force parameters of excitability are
 - ! chronaxis
 - ! useful time
 - +! reobase
 - ! lability
- ? discovery of bio-potentials linked to scientists' names
 - ! Chagovtsa
 - ! Hodgkina
 - +! Galvani
 - Bernstein
- ? with the action of a subthermal stimulus in the nerve cell occurs
 - ! action potential
 - ! resting potential
 - +! local response
 - ! local potential
- ? when the stimulus force increases, the action potential value
 - ! increases
 - +! does not change
 - ! decreases
- ? which of these substances is a membrane sodium channel inhibitor
 - ! valinomycin
 - ! verapamil
 - +! tetrodotoxin
 - ! batrotoxin
- ? which excitability phase corresponds to the depolarization trace
 - ! absolute refractory phase
 - ! phase of relative refractoriness
 - +! exaltation phase
 - ! subnormal excitability phase
- ? what is the neuromuscular drug frog
 - ! two-headed muscle and radial nerve
 - ! triceps muscle and ulnar nerve
 - +! gastrocnemius muscle and sciatic nerve
 - ! quadriceps muscle and femoral nerve
- ? what is Galvani's I experience
 - ! shrinking the legs when irritating them electric current
 - ! contraction of legs in case of irritation lumbar plexus nerve electric current
 - +! reduction of tabs during application bimetallic tweezers
 - ! contraction of legs in case of their irritation sulfuric acid solution

? what is Galvani's 2nd experience
 ! pruning tabs when applying to them
 bimetallic tweezers
 ! contraction of caviar muscle at
 irritation with her electric current
 +! contraction and cranial muscle at
 by lashing the sciatic nerve on her

? which of the listed excitable structures are characterized by the
 largest
 lability?
 ! muscle fiber.
 ! synapse between two nervous
 cells.
 + ! nerve fiber.
 ! myoneural plate.

? what patterns characterize
 local arousal?
 ! spreads from location
 occurrence along the entire length of the nerve or
 muscle fiber.
 distributed without a decree.
 capable of summation.
 accompanied by an increase
 excitability.
 ! spreads from location
 the occurrence is insignificant.
 distributed without a decree.
 is not capable of summation.
 is accompanied by a decrease
 excitability.
 +! spreads from location
 the occurrence is insignificant.
 distributed with decrement.
 capable of summation.
 accompanied by an increase
 excitabilities
 ! spreads from location
 occurrence along the entire length of the nerve or
 muscle fiber.
 distributed with decrement.
 is not capable of summation.
 is accompanied by a decrease
 excitability.

? resulting in heavy emissions
 acetylcholine from synaptic plaque in
 synaptic slit?
 +! depolarization of presynaptic
 membranes
 ! depolarization of postsynaptic
 membranes.

? will the value change (and if so, how)
 resting potential, if artificially
 reduce the concentration of K⁺ ions by 30%
 inside the nerve cell?
 ! resting potential will decrease to 0.
 ! resting potential will increase
 ! resting potential will remain without
 changes.
 +! resting potential will decrease.

? how the potential amplitude will change
 action of a single nerve fiber,
 if the external one is reduced by 20%
 Na⁺ ion concentration?
 ! the amplitude of the action potential will drop to
 0.
 +! amplitude of action potential
 will decrease.
 ! the amplitude of the action potential is not
 will change.
 ! amplitude of action potential increases

? in which phase of excitability
 cross-striated muscle (with its

rhythmic stimulation) should get
 another irritation to muscle
 has entered a smooth ascending state
 tetanus?
 ! in the phase of absolute refractoriness.
 ! in the phase of relative refractoriness.
 + ! in the exaltation phase.
 ! in the normal excitability phase.

? which phase of parabiosis is strong
 nerve irritation above
 parabiotic focus occurs weak,
 and to mild irritation - a strong response
 muscles?

! into the braking phase.
 ! to the equalization phase.
 + ! into a paradoxical phase.

? in which phase of parabiosis to severe nerve irritation above the
 parabiotic focus occurs the same muscle response as to mild
 irritation?
 +! a - in the equalization phase.
 ! b - in a paradoxical phase.
 ! in - in the inhibitory phase.

? what patterns characterize
 action potential?
 +! spreads from location
 occurrence along the entire length of the nerve or
 muscle fiber.
 is accompanied by a decrease
 excitability.
 distributed without a decree.
 is not capable of summation.
 ! spreads from location
 the occurrence is insignificant.
 accompanied by an increase
 excitability. capable of summation.
 distributed with decrement.
 ! spreads from location
 the occurrence is insignificant.
 distributed without a decree.
 incapable of summation.
 is accompanied by a decrease
 excitability.
 ! spreads from location
 occurrence along the entire length of the nerve or
 muscle fiber.
 accompanied by an increase
 excitability. distributed with decrement. capable of summation.

? what is understood by "potential
 end plate "(PEP)?
 +! depolarization of postsynaptic
 membranes of the neuromuscular synapse
 ! depolarization of presynaptic
 membranes of the neuromuscular synapse.
 ! hyperpolarization postsynaptic
 axo-axonal synapse membranes.
 ! presynaptic hyperpolarization
 axo-somatic synapse membranes.

? what is the relationship between force and excitability time on the
 Goverg-Weiss-Lapin force-time curve.
 ! straight.
 +! reverse.
 ! logarithmic.
 ! no dependency

? spontaneous allocation of 1-2 quanta
 mediator into synaptic slit
 forms on postsynaptic
 membrane depolarization, which
 is called:
 ! excitatory postsynaptic
 Potential (EPSP).
 ! terminal plate potential (TPP).

+! miniature potential of the terminal plates
! inhibitory postsynaptic Potential (IPSP).

? what property of smooth muscles is absent in skeletal muscles?
! excitability
! conductivity
+! automation
! contractility

? changes in the excitability of tissue cells around the poles (anode or cathode) under direct current action are called:
! catelectroton.
! anelectroton.
+! perielectroton
! physiological electroton.

? according to membrane-ion theory
Bernstein nature of resting potential explain:
+! uneven ion distribution inside and outside the cage
+! selective permeability cell membrane for different ions
! presence of Na- K pump and active transport of ions.
! redox - reducing processes in the cytoplasm and membrane cells.

? choose from the proposed answers the laws of irritation of excitable tissues:
! law "all or nothing"
! the law of force.
! the law of time.
! gradient law
+! all answers are correct

? choose from the proposed options for answers the patterns of conducting excitation on the nerve.
! one-way excitation
+! isolated
+! two-way
+! physiological nerve integrity

? tissue accommodation (according to gradient law) is observed:
! when the stimulus builds up fast enough
+! with slow growth of stimulus steepness

? the concentration of which ions depends on the exocytosis of mediators in the synapse?
!Na+
!K+
+ !Ca++
!Mn

? under the influence of cathode current membrane:
+! is depolarized
! hyperpolarizes
! repolarizing
! does not change

? functional mobility of tissue according to Vvedensky is called:
! chronaxia
+! lability
! refractory
! useful time

? fatigue occurs primarily in:
! nerve
+! synapse
! muscle

? which type of nerve fiber has a myelin sheath:
+! A
+! B
C

? how does the conductivity change in the anelectrode region?
! does not change
! will increase
+! will drop

? rate of excitation behavior by nerves depends on:
! nerve fiber lengths
+! of nerve fiber diameter
! number of processes

? which is a measure of lability?
! action potential value
+! number of pulses generated with this fabric in 1 sec.
! is the period of time during which the fabric responds to threshold stimulus
! time during which the force is 2 rheobase causes tissue excitation

? how will metabolism change in the parabioc site?
+! will drop
! will increase
! will not change
! will first go down, then up

? Which of the nerve laws ensures accuracy and coordination of movements?
+! the law of isolated conduct
! the law of bilateral conduct
! the law of physiological integrity
! gradient law

? in myelin-free nerve fiber, arousal spreads:
! hopping
+! continuously
! no attenuation
! with attenuation

? has the greatest lability and least fatigue:
! synapse
+! nerve!
! skeletal muscle
! smooth muscle

? mediator exocytosis from the presynaptic membrane depends on ion concentration:
!Na+
!K+
+ !Ca++
!Mn

? what the mediator does not interact with on the subsynaptic membrane:
! with receptor
+! with enzyme
+! with hormone
? in the neuromuscular synapse, excitation is transmitted by:
+! acetylcholine
+! noradrenaline
! thyroxine
! ATF
! ACTH

? which refractory phase corresponds to the depolarization phase of the action potential?
+! absolute refractory phase
! phase of relative refractoriness
! exaltation phase
! subnormal excitability phase

? for the exaltation phase of excitable tissue characteristic:
! nonobservability of fabric, does not even answer on super threshold irritant
! low excitability, not responding to threshold stimulus
! normal excitability, responds to

threshold stimulus

+! increased excitability, responds
even on the subthermal stimulus

? what currents are used in the clinic for
local heating of tissues, which
pass through cells without causing them to
excitement?

! high voltage DC

! low frequency AC

+! high voltage alternating current
(diathermy)

! low voltage DC

? using microelectrodes and
galvanometer difference was recorded
potentials from the frog's sciatic nerve.
Galvanometer arrow shows + 30
mv. What potential was registered?

! membrane potential

+! action potential

! local potential

! trace potential

? specify the physiological properties of the striated muscle:

+! excitability

+! conductivity

! automation

+! contractility

+! refractoriness

? what does muscle strength depend on?

! of muscle fiber length

+! of muscle cross-sectional diameter

? the law of optimal loads (physiology of labor) states that the
greatest work is done by muscles in:

! maximum loads

! minimum loads

+! medium loads

? recording of muscle biopotentials is called:

! electroretinography

! electrogastrography

+! electromyography

! electroencephalography

? Electromyography (EMG) is:

+! recording of total electrical activity of muscle

! recording the electrical activity of an individual muscle fiber
myofibrilla

! motor unit electrical activity record

? motor units differ from each other
from a friend to:

! to its structure

! exchange in/in and functional
to features

! body volumes of the motoneuron

! motor neuron axon thickness and number

muscle fibers included in the

motor unit

+! all answers are correct

? from a functional point of view, motor units are divided into:

+! slow

+! fast

! solitary

Typical tasks for assessing the results of competency formation at the "own" level

- technique of preparation of nerve-muscle frog;
- method of determining the time of the reflex on the Turk;
- method of determining muscle strength (with the help of carpal and thous dynamometers);
- method of identifying blood groups and factor rhesus using tsolyclone;
- BP determination methodology;
- palpation and counting of arterial pulse;
- pulsoximetry technique;
- the method of calculation of RR;
- Ashner's method of determining the ocular-cardiac reflex;
- technique for determination of visual acuity and visual field;
- method of determining color perception;
- technique of counting the number of red blood cells and white blood cells;
- determination of blood clotting time, ESR, hemoglobin content;
- procedure for evaluation of erythrocyte osmotic stability;
- procedure for the evaluation of the results of the general urine test;
- method of determining the types of HNA (Eisenka test).

ANNOTATION
course working program
« Hominal physiology »
03.03.01

Field of study (major) **31.05.01. Medical care**
Degree of higher education – **specialist's program**
Graduate qualification: **physician, M.D.**
Faculty: **general medicine**
Mode of study: **full-time**

1. SUBJECT MASTERY GOALS AND OBJECTIVES

The goal is to form in students systemic knowledge about the vital activities of a holistic organism and its individual parts, about the main patterns of functioning and mechanisms of their regulation when interacting with each other and with environmental factors, about the physiological foundations of clinical and physiological research methods used in functional diagnostics and in the study of human integrative activity.

The objectives:

- training of students in the analysis of the functions of a holistic body from the point of view of integral physiology, analytical methodology and foundations of holistic medicine;
- formation of a systematic approach in students in understanding the physiological mechanisms underlying interaction with environmental factors and implementation of adaptive strategies of the human body and animals to perform normal functions of the human body from the perspective of the concept of functional systems;
- training of students in the methods and principles of the study of the assessment of the state of regulatory and homeostatic systems of the body in the experiment, taking into account their applicability in clinical practice;
- training of students in the patterns of functioning of different systems of the human body and peculiarities of intersystem interactions in conditions of carrying out targeted activities from the point of view of the doctrine of adaptation and cross-adaptation;
- training of students in methods of assessing the functional state of a person, the state of regulatory and homeostatic in various types of targeted activities;
- training of students in the role of higher nervous activity in the regulation of human physiological functions and purposeful management of the body's reserve capabilities in normal and pathological conditions;
- familiarization of students with basic principles of physiological processes modeling and existing computer models (including biofeedback) for studying and purposeful management of visceral functions of the organism;
- the formation of the foundations of clinical thinking in students based on the analysis of the nature and structure of inter-organ and inter-system relations from the point of view of integral physiology for the future practical activity of a doctor.

2. The list of intended learning outcomes

**Competencies formed during the study of the educational course:
GC-1, GPC-9.**

3. POSITION OF THE COURSE IN EDUCATIONAL PROGRAM STRUCTURE

The course "Hominal Physiology" refers to the basic part of the B1 curriculum in the specialty 31.05.01 - "Medical care"

The material of the discipline is based on the knowledge and skills previously acquired by students in biology, cytology, chemistry, physics, histology, embryology of biochemistry, anatomy, Latin language, physical culture and sports.

Discipline sections:

Interdisciplinary links with the disciplines provided (followed by)

S No.	The name of the (following) disciplines provided	1	2	3	4	5	6	7	8	9	10	11	12
1	The propedeutics of internal diseases				+	+	+	+	+	+	+		
2	Ophthalmology		+									+	+
3	Otolaryngology		+				+	+				+	+
4	Obstetrics and Gynecology				+	+	+						
5	Pediatrics		+	+	+	+	+		+	+			+
6	Neurology, medical genetics, neurosurgery	+	+	+								+	+
7	Psychiatry, Medical Psychology												+
8	Forensic medicine				+		+	+					
9	Medical rehabilitation	+	+	+		+	+					+	+
10	Hospital therapy			+	+	+	+	+	+	+	+		
	Faculty therapy			+	+	+	+	+	+	+	+		
11	Immunology				+	+	+	+					
12	physiotherapy						+						
13	General surgery		+		+		+		+	+			+
14	Anesthesiology, resuscitation, intensive care		+		+	+	+			+	+		
15	Faculty Surgery			+			+	+					
16	Hospital surgery			+			+	+					
19	Dentistry						+	+				+	
20	Hygiene						+	+	+	+			
21	X-ray diagnostics												
22	Endocrinology		+	+		+	+	+	+	+	+		
23	Urology										+		

1. The labor-intensive academic discipline (module) is 8 units, 288 academic hours.

Types of work	Total hours	Number of hours per semester	
		III	IV
1	2	3	4
Contact work (total), including:			
Classroom work	180	72	108

Lectures (L)		54	18	36
Practical training (PT),		126	54	72
Seminar (S)				
Laboratory work (LW)				
Extra-audit work				
Self-employed student (SES)		72	36	36
Midterm assessment	exam (E)	36		36
TOTAL: Total laboriousness	hour	288	108	180
	Credit points	8	3	5

Discipline sections, types of training and forms of current control

№	№ Semester	Discipline section name	Activities (in hours)					Assessments for ongoing performance control
			Л	ЛР	ПЗ	СР	всего	
1	2	3	4	5	6	7	8	9
1	3	Introduction to the subject. Physiology of excitable tissues	4		12	7	23	Tests, situational tasks, control work, oral survey.
2	3	General and private neurophysiology. Vegetative nervous system	5		15	7	27	-//-
3	3	Endocrine System Physiology	1		3	8	12	-//-
4	3	The physiology of the blood system	2		9	7	18	-//-
5	3	Cardiovascular Physiology	6		15	7	28	-//-
Итого:			18		54	36	108	
6	4	Respiratory physiology	4		8	5	17	-//-
7	4	Digestive Physiology	8		8	5	21	-//-
8	4	Metabolism and energy physiology	2		6	5	13	-//-
9	4	Nutrition and thermoregulation physiology	2		6	6	14	-//-
10	4	The physiology of selection	4		8	5	15	-//-
11	4	Physiology of analyzers	8		18	5	31	-//-
12	4	Physiology of higher neural activity (HNA)	8		18	5	31	-//-
Итого:			36		72	36	142	

2. Main discipline sections (modules)

№	Section name
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1	Introduction to the subject. Physiology of excitable tissues
2	General and private neurophysiology. Vegetative nervous system
3	Endocrine System Physiology
4	The physiology of the blood system
5	Cardiovascular Physiology
6	Respiratory physiology
7	Digestive Physiology
8	Metabolism and energy physiology
9	Nutrition and thermoregulation physiology
10	The physiology of the excretion system.
11	Physiology of analyzers
12	Physiology of higher neural activity

6. Type of midterm assessment: exam in the fourth semester.

Head of Department _____ (R.M. Rahimov)

**TEACHING AND METHODAL GUIDE TO PRACTICAL
CLASSES FOR STUDENTS IN 2 PARTS**