	Educational Institution "Royal Metropolitan University"
	Quality Management System Syllabus of the discipline "Pathological physiology" Specialty 560001 "General Medicine" EI "RMU"

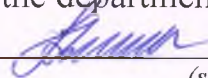
**Educational Institution "Royal Metropolitan University"
Department "Morphological and Fundamental disciplines"**

SYLLABUS
in the discipline " **Pathological physiology**"
for students of specialty 560001 "General Medicine"

Form of study	full-time
Course	2
Semester	3,4
Exam	4
Total credits according to the curriculum	6
Total hours according to the curriculum	180
Lectures	18
Practical classes	36
Independent work	36

Syllabus developer:
Berenova Zh.B.

Reviewed and approved at a meeting of the
department of "Morphological and
Fundamental disciplines"
Protocol No. 1 from "9" September 2024.
Head of the department PhD Jalilova A.A.



(signature)

Bishkek 2024



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Name and complexity of the discipline.

Course	Semester	Weeks	Total academic hours		Number of hours for independent work		Total hours	Number of modules
			Lecture	Practical classes	SIW	SIWT		
2	3	18	18	36	18	18	90	2
2	4	18	36	36	18	18	90	

Course Annotation: Pathological Physiology

Overview: Pathological physiology studies the causes, development, and outcomes of pathological processes. This discipline serves both the theory and practice of medicine. The theoretical and scientific knowledge in pathological physiology is most comprehensively revealed through the study of general pathological processes and diseases, which is the focus of the course on general pathology. The clinical and applied significance of pathological physiology lies in examining the etiological foundations of various human diseases, their specific features, complications, and outcomes. This aspect is covered in the course on private pathological physiology.

Content and Methods: The subject of pathological physiology is based on the synthesis of scientific material from the perspectives of philosophy, medicine, biology, genetics, immunology, molecular biology, chemistry, and physics. It employs modern targeted functional-diagnostic research methods (biochemical, biophysical, pathochemical, immunological, electrophysiological) and experimental modeling of diseases and pathological processes on living organisms at various levels of organization (molecular, cellular, tissue, organ, systemic, organismal).

Goals and Objectives: The goal of the course is to study the etiology, pathogenesis, and functional foundations of pathological processes, including acquired, congenital, and hereditary diseases, their complications, outcomes, and causes of death, to utilize this knowledge in clinical practice and the work of a physician.

Key objectives include:

- Studying the general patterns of specific mechanisms underlying the resistance of the organism and the occurrence, development, and conclusion of pathological processes and diseases.
- Exploring typical pathological processes (stereotypical combinations of phenomena), the varied combinations of which define the clinical picture of human diseases.
- Mastering the mechanisms of the organism's adaptation and compensation in response to pathogenic factors and changing environmental conditions.
- Analyzing changes in diseases that arise due to shifting life conditions and treatments (pathomorphosis), as well as various manipulations (pathology of treatment).



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- Based on theoretical and applied knowledge, fostering the development of a physician's thinking—teaching students not only contemporary knowledge but also how to apply this knowledge to logically organize the chain of studied phenomena.

Placement within Educational Structure: This discipline is part of the mandatory curriculum for professional training.

- **Prerequisites:** Normal physiology, biology, medical genetics, histology, microbiology.
- **Post-requisites:** Fundamentals of internal diseases, pediatric diseases, infectious diseases, cardiology, and other clinical disciplines.

Planned results of mastering the academic discipline

After mastering the discipline "Pathological physiology" the student:

Will know:


- the terms used in the course of pathological physiology and the main methods of functional research.
- the concepts of etiology, pathogenesis, morphogenesis, pathomorphosis of disease, nosology, and the principles of disease classification.
- the essence and main patterns of general pathological processes.
- characteristic changes in internal organs associated with major human diseases.

Will be able to use:

- acquired knowledge of structural and functional changes in pathological processes and diseases in subsequent clinical studies.
- knowledge to determine functional changes in organs and tissues during general pathological processes and various diseases
- diagnose the causes, pathogenesis, and morphogenesis of diseases, their manifestations, complications, and outcomes, as well as pathomorphosis.

Will be able to analyze:

- to apply the rules for constructing a diagnosis and principles of clinical analysis.
- able to determine functional changes in organs and tissues during general pathological processes and various diseases (diagnosis of macroscopic preparations).
- the links of pathological processes and justify medical intervention.
- macroscopic and microscopic (histological) diagnosis of pathological processes.
- clinical, laboratory, experimental, and other data, formulating conclusions about the most likely causes and mechanisms of pathological processes (diseases).

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Course Title

№	Course Title	year	semester	Number of Weeks	Number of Credits	Number of Academic Hours		Hours for Independent Work	Total	Type of final control
						lectures	practice			
1	Pathological physiology	2	3	18						zachot
2	Pathological physiology	2	4	18						exam

Contents of the academic discipline

3 semester

№	Name chapters and topics of discipline (lectures and practical classes)	Auditory Lesson		Total hours for classroom work	Used educational technologies, methods and methods of teaching	Forms of current and border control academic performance
		lecture	practice			
1	Introduction to Pathological Physiology					
2	Cell Injury: Clinical causes of irreversible and reversible cell damage. Role of Free Radicals. Apoptosis compared to Necrosis and Types of Necrosis with Examples.					
3	Parenchymal Dystrophies					
4	Mesenchymal Dystrophies					
5	Mixed Dystrophies					
6	Circulatory Disorders 1: Edema. Pathogenesis of Ischemic Heart Disease , including etiological factors, pathogenesis, diagnosis, and complications of myocardial infarction.					



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7	Circulatory Disorders 2: Thrombosis, Embolism, Hemorrhages (Hemorrhages, Shock).					
8	Acute Inflammation. Vascular and cellular events and chemical mediators of acute inflammation. Transudate and Exudate. Types of Chronic Inflammation (Simple and Granulomatous) with Clinical Examples					
	Module 1					
9	Clinical Aspects of Cellular Adaptations with Examples.					
10	Atrophy, Hypertrophy, Hyperplasia, Metaplasia, Dysplasia					
11	Regeneration (Healing and Recovery).					
12	Tumors. General Pathology. Nomenclature with Clinical Examples of Benign and Malignant Tumors. Definition of Proto-oncogenes and Oncogenes with Clinical Examples					
13	Epithelial Tumors. Clinical Aspects of Carcinogenesis, Carcinogenic Agents, Metastasis of Tumors and Tumor Markers.					
14	Mesenchymal Tumors: Etiology, Clinical Features, Laboratory Diagnosis, and Prognostic Factors of Acute and Chronic Lymphoblastic and Myeloblastic Leukemia. Multiple Myeloma.					
15	Childhood Tumors. Clinical Aspects of Classification and Staging of Tumors with Laboratory Diagnostic Methods.					
16	Genetic Diseases 1 (Down Syndrome, Turner Syndrome).					
17	Genetic Diseases 2 (Klinefelter Syndrome, Ehlers-Danlos Syndrome,					



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	Marfan Syndrome).				
18	Immunopathology (Congenital and Acquired Immunity. Active and Passive Immunity, Hypersensitivity Reaction, Graft-versus-Host Disease).				
	Module 2				
	Zachot				
	Total hours				

4 semester

№	Name of chapters and topics of discipline (lectures and practical classes)	Auditory Lesson		Total hours for classroom work	Used educational technologies, methods and methods of teaching	Forms of current and border control academic performance
		lecture	practice			
1	Hypertensive Disease: Types of Primary and Secondary Hypertension and Vascular Changes in Hypertensive Disease.					
2	Atherosclerosis: Etiology, Pathogenesis, and Complications of Atherosclerosis. Differentiation between Atherosclerosis, Monckeberg's Sclerosis, Medial Calcific Sclerosis, and Arteriolosclerosis.					
3	Rheumatism or Rheumatic Fever: Etiology, Pathogenesis, Morphological and Clinical Features. Consequences of Rheumatic Fever.					
4	Heart Defects: Key Features of Tetralogy of Fallot and Coarctation of the Aorta.					



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	Valvular Heart Defects and Mitral Valve Prolapse.					
5	Acute Pneumonia: Etiology, Pathogenesis, Morphology, and Clinical Features, Complications, and Clinical Diagnosis of Acute and Chronic Pneumonia, including Atypical Pneumo					
6	Bronchial Asthma: Etiology, Pathogenesis, Morphology, Clinical Features, and Diagnosis of Bronchial Asthma.					
7	Disorders Related to Airflow Obstruction: Etiology, Pathogenesis, Morphology, Clinical Features, and Diagnosis: Chronic Obstructive Pulmonary Disease.					
8	Gastrointestinal Diseases: Gastritis: Predisposing Factors, Pathogenesis, Morphological and Clinical Features of Acute and Chronic Gastritis. Predisposing Factors, Pathogenesis, Morphological and Clinical Features of Acute and Chronic Peptic Ulcer Disease.					
9	Liver Diseases: Types of Jaundice Considering Causes, Clinical Features, and Laboratory Diagnosis. Causes, Pathogenesis, and Complications of Liver Cirrhosis. Neonatal Hepatitis.					
	Module 1					
10	Kidney Diseases: Etiology, Pathogenesis, Clinical Features, and Complications of Azotemia, Uremia, Acute Kidney Failure, and Chronic Kidney Failure. Glomerulonephritis and its Classification. Nephrotic and					



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	Nephritic Syndrome. Acute and Chronic Pyelonephritis.					
12	Endocrine Diseases: Diabetes Mellitus: Type 1 and Type 2, Pathogenesis, Morphology, Clinical Features, Laboratory Diagnosis, and Complications.					
13	Gynecological Diseases: Causes, Routes of Transmission, and Methods of Diagnosis. Sexually Transmitted Diseases: Microorganisms, Routes of Infection, Pathogenesis, and Diagnostic Methods.					
14	Lung Cancer: Classification, Etiology, Pathogenesis, and Clinical Features of Various Lung Tumors.					
15	Infectious Diseases: Etiology, Pathogenesis, and Clinical Features, Clinical Diagnosis of Pulmonary Tuberculosis.					
16	Intestinal Infections: Etiology and Treatment of Acute and Chronic Diarrhea (Food Poisoning), Cholera, Dysentery, Botulism.					
17	Acute Respiratory Infections: COVID-19.					
18	Especially Dangerous Infections: Tropical Infections (Malaria), Sepsis, Pediatric Bacterial Infections.					
	Module 2					
	Exam					
	Total hours					

Methodological recommendations for preparing for practical classes.

Practical classes are held after lectures and are explanatory, generalizing and reinforcing in nature. They can be carried out not only in the classroom, but also outside the educational institution.

During practical classes, students perceive and comprehend new educational material. Practical classes are systematic, regularly following each lecture or two or three lectures.



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Practical classes are carried out according to the schedule of the educational process and independent work of students in the disciplines.

When preparing for practical classes, it is necessary to study in advance the methodological recommendations for its implementation. Pay attention to the purpose of the lesson, the main questions to prepare for the lesson, and the content of the topic of the lesson.

Before each practical lesson, the student studies the seminar lesson plan with a list of topics and questions, a list of references and homework on the material presented at the seminar. The following scheme of preparation for the seminar lesson is recommended for the student:

1. work through lecture notes;
2. read the basic and additional literature recommended for the section being studied;
3. answer the questions of the seminar lesson plan;
4. study the topic and select literature for writing abstracts, reports, etc.

Plan for organizing student independent work

Thematic plan for student independent work (SWS)

No	Theme of SIW	Task for SIW	Litreture	Deadline (weeks)	Max points
1	Death, Types of Death, and Signs of Death	Report Fishbone	<ol style="list-style-type: none">1. Kumar, Cotran, Robbins. General pathology2. Robbins Basic pathology.3. Robbins & Cotran Pathologic Basis of Disease4. Pathology Practical Book, Harsh Mohan5. BRS 5 edition Philip A. Szanto6. Rapid Review 5 edition Edward F.Goljan	1	20 points
2	Necrosis: Acute Myocardial Infarction as an Example of Ischemic Necrosis	ppt	<ol style="list-style-type: none">1. Kumar, Cotran, Robbins. General pathology2. Robbins Basic pathology.3. Robbins & Cotran Pathologic Basis of Disease4. BRS 5 edition Philip A. Szanto5. Rapid Review 5 edition Edward F.Goljan	2	20 points



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3	Congenital Malformations of the Urinary and Reproductive Systems**	ppt	<ol style="list-style-type: none">1. Kumar, Cotran, Robbins. General pathology2. Robbins Basic pathology.3. Robbin & Cotran Pathologic Basis of Disease4. BRS 5 edition Philip A. Szanto5. Rapid Review 5 edition Edward F.Goljan	3	20 points
4	DIC Syndrome (Disseminated Intravascular Coagulation)**	ppt	<ol style="list-style-type: none">1. Kumar, Cotran, Robbins. General pathology2. Robbins Basic pathology.3. Robbins & Cotran Pathologic Basis of Disease4. BRS 5 edition Philip A. Szanto5. Rapid Review 5 edition Edward F.Goljan	4	20 points
5	Apoptosis	ppt	<ol style="list-style-type: none">1. Kumar, Cotran, Robbins. General pathology2. Robbins Basic pathology.3. Robbins & Cotran Pathologic Basis of Disease4. BRS 5 edition Philip A. Szanto5. Rapid Review 5 edition Edward F.Goljan	5	20 points
6	Shock: Types of Shock, including Cardiogenic Shock, Traumatic Shock, and Hypovolemic Shock; Pathogenesis and Morphology	Diagram Venna	<ol style="list-style-type: none">1. Kumar, Cotran, Robbins. General pathology2. Robbins Basic pathology.3. Robbins & Cotran Pathologic Basis of Disease4. BRS 5 edition Philip A. Szanto5. Rapid Review 5 edition Edward F.Goljan	6	20 points
7	Tumors of the Hematopoietic System: Leukemias	ppt	<ol style="list-style-type: none">1. Kumar, Cotran, Robbins. General pathology2. Robbins Basic pathology.3. Robbins & Cotran Pathologic Basis of Disease4. BRS 5 edition Philip A. Szanto	7	20 points



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			5. Rapid Review 5 edition Edward F.Goljan		
8	Pathogenetic and Sanogenetic Role of Inflammation	ppt	1. Kumar, Cotran, Robbins. General pathology 2. Robbins Basic pathology. 3. Robbins & Cotran Pathologic Basis of Disease 4. BRS 5 edition Philip A. Szanto 5. Rapid Review 5 edition Edward F.Goljan	8	20 points
9	Comparative Characteristics of Benign and Malignant Tumors	Diagram Venna	1. Kumar, Cotran, Robbins. General pathology 2. Robbins Basic pathology. 3. Robbins & Cotran Pathologic Basis of Disease 4. BRS 5 edition Philip A. Szanto 5. Rapid Review 5 edition Edward F.Goljan	9	20 points
10	Especially Dangerous Infectious Diseases	Report	1. Kumar, Cotran, Robbins. General pathology 2. Robbins Basic pathology. 3. Robbins & Cotran Pathologic Basis of Disease 4. BRS 5 edition Philip A. Szanto 5. Rapid Review 5 edition Edward F.Goljan	10	20 points
11	Autoimmune Diseases	Report Fishbone	1. Kumar, Cotran, Robbins. General pathology 2. Robbins Basic pathology. 3. Robbins & Cotran Pathologic Basis of Disease 4. Pathology Practical Book, Harsh Mohan 5. BRS 5 edition Philip A. Szanto 6. Rapid Review 5 edition Edward F.Goljan	11	20 points
12	Wound Healing by Primary and	Report	1. Kumar, Cotran, Robbins. General pathology 2. Robbins Basic pathology.	12	20 points



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	Secondary Intention		<ol style="list-style-type: none"> 3. Robbins & Cotran Pathologic Basis of Disease 4. Pathology Practical Book, Harsh Mohan 5. Rapid Review 5 edition Edward F.Goljan 		
13	Fatty Dystrophies: Hepatosis (Fatty Liver Disease)	Report	<ol style="list-style-type: none"> 1. Kumar, Cotran, Robbins. General pathology 2. Robbins Basic pathology. 3. Robbins & Cotran Pathologic Basis of Disease 4. Pathology Practical Book, Harsh Mohan 5. BRS 5 edition Philip A. Szanto 6. Rapid Review 5 edition Edward F.Goljan 	13	20 points
14	Glycogenoses	Report	<ol style="list-style-type: none"> 1. Kumar, Cotran, Robbins. General pathology 2. Robbins Basic pathology. 3. Robbins & Cotran Pathologic Basis of Disease 4. Pathology Practical Book, Harsh Mohan 5. Rapid Review 5 edition Edward F.Goljan 	14	20 points
15	Atherosclerosis	ppt	<ol style="list-style-type: none"> 1. Kumar, Cotran, Robbins. General pathology 2. Robbins Basic pathology. 3. Robbins & Cotran Pathologic Basis of Disease 4. Pathology Practical Book, Harsh Mohan 5. BRS 5 edition Philip A. Szanto 6. Rapid Review 5 edition Edward F.Goljan 	15	20 points
16	Pulmonary Edema	ppt	<ol style="list-style-type: none"> 1. Kumar, Cotran, Robbins. General pathology 2. Robbins Basic pathology. 3. Robbins & Cotran Pathologic Basis of Disease 4. Pathology Practical Book, Harsh Mohan 	16	20 points

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			5. Rapid Review 5 edition Edward F.Goljan		
17	Specific Granulomatous Inflammation: Tuberculosis	ppt	1. Kumar, Cotran, Robbins. General pathology 2. Robbins Basic pathology. 3. Robbins & Cotran Pathologic Basis of Disease 4. Pathology Practical Book, Harsh Mohan 5. Rapid Review 5 edition Edward F.Goljan	17	20 points
18	Genetic and Congenital Pathologies	ppt	1. Kumar, Cotran, Robbins. General pathology 2. Robbins Basic pathology. 3. Robbins & Cotran Pathologic Basis of Disease 4. Pathology Practical Book, Harsh Mohan 5. BRS 5 edition Philip A. Szanto 6. Rapid Review 5 edition Edward F.Goljan	18	20 points

Methodological recommendations for preparing independent work

In studying the discipline “Pathological physiology” the following types of independent work of students are used:

- study of theoretical material from lecture notes and recommended textbooks, educational literature, reference sources;
- independent study of some theoretical issues not covered in lectures, with writing abstracts and preparing presentations;

Students are invited to read and meaningfully analyze monographs and scientific articles on biochemistry. The results of working with texts are discussed in practical classes.

To develop independent work skills, students complete assignments, independently turning to educational, reference and scientific-methodological literature. Testing the completion of assignments is carried out both in practical classes with the help of students’ oral presentations and their collective discussion, and with the help of written independent work.

An abstract is a brief written summary of the content of a scientific work on a given topic. This is an independent research work where the student reveals the essence of the problem under study with elements of analysis on the topic of the essay.



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Presents various points of view, as well as his own views on the problems of the topic of the essay. The content of the abstract should be logical, the presentation of the material should be of a problem-thematic nature.

Requirements for writing an abstract:

The volume of the abstract can range from 9-10 printed or handwritten pages.

Main sections: table of contents (outline), introduction, main content, conclusion, bibliography.

The text of the abstract must contain the following sections:

- title page indicating: name of the university, department, topic of the abstract, full name of the author and full name of the teacher
- introduction, relevance of the topic.
- main section.
- conclusion (analysis of the results of the literature search); conclusions.
- the list of literary sources must have at least 10 bibliographic titles, including network resources. -

The text part of the abstract is drawn up on a sheet of paper in the following format: indentation at the top – 2 cm; left indent – 3 cm; indentation on the right – 1.5 cm; bottom indent – 2.5 cm; text font: Times New Roman, font height – 14, space – 1.5; page numbering is at the bottom of the sheet. There is no number on the first page.

The abstract must be completed competently in compliance with the culture of presentation. There must be references to the literature used, including periodical literature for the last 5 years.

Abstract evaluation criteria:

- relevance of the research topic;
- correspondence of the content to the topic;
- depth of material elaboration;
- correctness and completeness of development of the questions posed;
- the significance of the findings for further practical activities;
- correctness and completeness of the use of literature;
- compliance of the abstract design with the standard;
- quality of communication and answers to questions when defending an abstract.


A **report** is a type of brief but informative message about the essence of the issue under consideration, various opinions about the subject being studied. In some cases, it is allowed to present the author's own point of view within the framework of thematic issues.

Requirements for the report:

The volume of the abstract should not exceed five printed pages.

A quality report has four main structural elements:

- Introduction;

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- Introduction (at this stage the speaker must interest the audience, formulate the relevance and novelty of the research, emphasize the importance and purpose of the work performed.)
 - The main part (it talks about the research methods used, the work done, and analyzes the results obtained);
 - Conclusion (summarizing the results of the work).
- The text part of the report is drawn up on a sheet of the following format:
- indentation at the top – 2 cm; left indent – 3 cm; indentation on the right – 1.5 cm; bottom indent – 2.5 cm;
 - text font: Times New Roman, font height – 14, space – 1.5;
 - page numbering is at the bottom of the sheet. There is no number on the first page.
- Criteria for evaluation:
- timeliness of submission;
 - compliance with requirements;
 - depth of material elaboration;
 - relevance of the content to the topic;
 - correctness and completeness of use of the source.

Course Policy

- Students are required to attend all classes (if a student misses more than 2 classes without a valid reason, make-up work is required).
- During practical sessions, students must complete all assigned tasks.
- Disrespectful behavior or rudeness may result in the student being removed from the classroom.

Assessment Criteria

Current assessment is conducted through oral questioning, completion of independent work, and solving situational tasks during practical sessions, as well as attendance, with a total of up to 40 points.

Midterm assessment (module submission) consists of written control or computer-based testing of knowledge regarding theoretical and practical material. The questions for midterm assessment cover the entire scope of the discipline's modules, allowing for evaluation of the students' understanding of the material, with a total of up to 40 points.

Final assessment (exam) is conducted using examination tickets, which include theoretical questions and a practical task, evaluated up to 20 points.



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Grades earned for control tasks, glossary, writing and presenting papers will serve as the basis for grading during the final exam. If a student scores below 60 points on the exam, no final grade will be given, resulting in an academic debt in the discipline.

The grading policy provides for students to earn points in each module:

Grading Criteria	Module 1	Module 2
Classroom Work (participation in discussions, oral questioning, working with the glossary, attendance, etc.)	40 points	40 points
SIW (Self-Independent Work: paper, presentation).	20 points	20 points
Total for Module (testing)	40 points	40 points
Total for Discipline	100 points	

Evaluation criteria:

- **90-100 "excellent"** rating is given to the student if the completeness of the use of educational material, the logic of presentation (the presence of schemes, the number of semantic connections between concepts), clarity (the presence of drawings, symbols, etc.; accuracy of execution, readability of the summary, literacy (terminological and spelling);
- **76-89 "good"** rating is given to the student if the use of educational material is not complete, it is not sufficiently logical to present (the presence of schemes, the number of semantic connections between concepts), clarity (the presence of drawings, symbols, etc.; accuracy of execution, readability of the summary, literacy (terminological and spelling), lack of related sentences;
- **-60-75 "satisfactory"** rating is given to the student if the use of educational material is not complete, it is not sufficiently logical to present (the presence of schemes, the number of semantic connections between concepts), clarity (the presence of drawings, symbols, etc.; accuracy of execution, readability of the summary, literacy (terminological and spelling), lack of independence during compilation can be traced;
- **0-59 "unsatisfactory"** rating is given to the student if the use of educational material is not complete, there are no schemes, the number of semantic connections between concepts, there is no clarity (presence of drawings, symbols,



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etc.; accuracy of execution, readability of the summary, terminology and spelling errors, lack of independence in drafting were made.

Criteria for assessing test tasks

RATING SCALE 20 QUESTIONS

- "5" - from 18 to 20 correct answers out of 20 test questions;
- "4" - from 15 to 17 correct answers out of 20 test questions;
- "3" - from 11 to 14 correct answers out of 20 test questions;
- "2" - from 0 to 10 correct answers out of 20 test questions.

RATING SCALE 15 QUESTIONS

- "5" - up to 10% errors on test questions;
- "4" - up to 20% errors on test questions;
- "3" - up to 30% errors on test questions;
- "2" - more than 30% of errors on test questions.

RATING SCALE 10 QUESTIONS

- "5" - from 9 to 10 correct answers out of 10 test questions;
- "4" - from 7 to 8 correct answers out of 10 test questions;
- "3" - from 6 to 7 correct answers out of 10 test questions;
- "2" - from 0 to 5 correct answers out of 10 test questions.

Evaluation criteria for exam:

- the "**excellent**" rating is given to the student, with the number of correct answers from 90 and above;
- the "**good**" rating is given to the student, with the number of correct answers from 76 to 89;
- the "**satisfactory**" rating is given to the student, with the number of correct answers from 60 to 75;
- the "**unsatisfactory**" rating is given to the student if he gave up to 59 correct answers inclusive.

Academic discipline policy:

Requirements for Students During Classes:

- - Mandatory attendance