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Ministry of Agriculture of the Russian Federation  
Federal State Budgetary Educational Institution  
of Higher Education  
"St. Petersburg State University of Veterinary Medicine"

APPROVED BY  
Vice-Rector for Educational  
Work and Youth Policy  
Sukhinin A.A.  
May 6, 2024

**Department of Pathological Anatomy and Forensic Veterinary Medicine**

## **EDUCATIONAL WORK PROGRAM**

**for the discipline**

**"PATHOHISTOLOGICAL DIAGNOSIS"**

**The level of higher education  
SPECIALIST COURSE**

**Specialty 36.05.01 Veterinary Medicine  
Full-time education  
Education starts in 2024**

Reviewed and adopted  
at the meeting of the department  
on May 2, 2024.  
Protocol No. 6

Head of the Department of Pathological Anatomy  
and Forensic Veterinary Medicine,  
Doctor of Veterinary Science, Professor  
Kudryashov A.A.

Saint Petersburg  
2024

## **1. AIMS AND OBJECTIVES OF THE DISCIPLINE " PATHOHISTOLOGICAL DIAGNOSIS"**

The goal is to form the worldview of a veterinarian, his ability to think logically, to establish the sequence of occurrence and development of structural changes in a sick body

To achieve this goal, it is necessary to solve the following tasks:

a) General education task: to recognize the etiology and pathogenesis of pathological conditions and diseases.

b) The applied task is to compare pathoanatomical changes with clinical signs; to establish the causes and mechanisms of death.

c) A special task is to teach knowledge of environmentally safe technology for the disposal of corpses and the economic use of secondary raw materials. A graduate with a higher education in the specialty "Veterinary Medicine" in accordance with the requirements of the federal state educational standard must be prepared for professional activity in the field of veterinary medicine.

## **2. THE LIST OF THE PLANNED RESULTS OF THE DISCIPLINE (MODULE), CORRELATED WITH THE PLANNED RESULTS OF THE REALISED EDUCATIONAL PROGRAM**

As a result of mastering the discipline, the student prepares for the following types of activities, in accordance with the educational standard of the Federal State Educational Standard on 05/36.01 "Veterinary Medicine".

The field of professional activity: 13 Agriculture

Types of tasks of professional activity: Medical Expert control

### **2.1. The student's competencies formed as a result of mastering the discipline**

The study of the discipline should form the following competencies:

#### **Professional competencies (PC):**

PC-4 Performing postmortem diagnostic examination of animals in order to establish pathological processes, diseases, causes of death

PC-4id-1 Should be able to collect the anamnesis of the life and illness of the examined animals after death

PC-4id-2 Should be able to perform a general examination of animal corpses before autopsy

PC-4id-3 Be able to perform autopsy of animal corpses using special tools and compliance with safety requirements

PC-4id-4 Should be able to carry out the selection and fixation of samples of pathological material for laboratory research using digital technologies

PC-4id-5 Should be able to establish the cause of death and a pathoanatomical diagnosis in accordance with generally accepted criteria and classifications, lists of animal diseases

PC-4id-6 Should be able to formalize the results of a postmortem diagnostic examination of an animal in the autopsy protocol, including using digital technologies

PC-4id-10 To know the methodology of sampling and fixation of samples of pathological material for laboratory research in accordance with the rules in this field

PC-4id-11 To know the forms and procedure for drawing up an autopsy protocol for an animal, including using digital technologies

## **3. THE PLACE OF DISCIPLINE IN THE STRUCTURE OF THE MPEP**

Discipline B1.V.11 Pathohistological diagnostics is a part formed by participants in educational relations of the federal state educational standard of higher education in the specialty 36.05.01 "Veterinary Medicine" (specialty level), formed by participants in educational relations. It is mastered in the 6th semester of full-time education; in the 7th semester - full-time and part-time education; in the 4th year - part-time education.

Pathohistological diagnostics is a branch of Pathological anatomy, as an integrating science, and therefore has a structural and logical connection with all natural science, biological, general professional clinical disciplines and veterinary practice. Pathohistological diagnosis is based on knowledge of anatomy, biology, histology and embryology, biochemistry, physiology. The discipline of pathohistological diagnostics is integrated with such disciplines as: clinical diagnosis, internal non-infectious diseases, veterinary and sanitary examination, epizootology, parasitology.

#### 4. SCOPE OF THE DISCIPLINE "PATHOHISTOLOGICAL DIAGNOSTICS"

Type of educational work	Hours
<b>Classroom classes (total)</b>	<b>34</b>
Practical (PP), including interactive forms, among which are:	34
practical training (PT)	4
<b>Self-study</b>	<b>38</b>
Type of intermediate and final certification (credit, exam)	Credit
<b>Общая трудоемкость</b> часы/зачетные единицы	<b>72/2</b>

## 5. THE CONTENT OF THE DISCIPLINE AND TYPES OF CLASSES

№	Name	ACHIEVED COMPETENCES	Semester	TYPES OF ACADEMIC WORK, INCLUDING STUDENTS' INDEPENDENT WORK AND LABOR INTENSITY (IN HOURS)		
				Practical lessons	Practical training	Self-study
1.	Taking, fixing, forwarding and disposal of the patmaterial for histological examination. Technique of preparation and coloring of sections for histological examination.	PC-4id-1 PC-4id-2 PC-4id-3 PC-4id-4 PC-4id-5	6	4		2
2.	Histological diagnosis of necrosis, protein, fat and mineral dystrophy, atrophy, hypertrophy, hyperplasia, alterative, exudative, proliferative inflammation, tumors and leukemia.	PC-4 id-6 PC-4id-10 PC-4id-11	6	16	4	20
3.	Histological diagnosis of diseases of the digestive, respiratory, nervous, genitourinary, and cardiovascular systems.	PC-4 id-6 PC-4id-10 PC-4id-11	6	10		16
			<b>ИТОГО</b>	<b>30</b>	<b>4</b>	<b>38</b>

## 6. THE LIST OF EDUCATIONAL AND METHODOLOGICAL SUPPORT FOR STUDENTS' SELF WORK

Correct organization and planned self – work stimulate research and creative activity of students. Self-work should be understood not only as the ability to make independent conclusions and to apply the knowledge, gained in practice, but also as the ability to organize their activities without outside help.

Self-work over the discipline "Veterinary and sanitary expertise" allow to develop skills on the principles of veterinary and sanitary control of the rational use of animal and plant products (controlled by gosvetnadzor), as well as raw materials (for industrial processing of farm and natural fishing resources); environmental protection technologies and equipments; fundamentals of technologies, technical regulation and standardization, professional responsibility; international cooperation in the field of veterinary and sanitary expertise, food safety and protection of the territory of the Russian Federation from the introduction of infectious zoonanthropous and animal diseases; environmental protection; human consciousness and society for the development of the agro-industrial complex of the Russian Federation.

Students self-work illustrates the development of the following qualification requirements:

- the ability to identify problems and interests in the field of quality control and food safety;
- the ability to set an adequate goal, determine the sequence of tasks;
- the ability to find optimal solutions, effective means and methods to achieve the goal;
- the ability to find the necessary information using modern technologies, classify and systematize it;
- the ability to conduct scientific research in the field of food expertise;
- the ability to present the results of their activities, both in written and oral form for the procedure of public presentation, as well as lectures;
- the ability to master the skills of effective business cooperation.

Students self-work over the discipline "Veterinary and sanitary expertise" is the main way of mastering educational material. It is carried out in order to:

- develop and assimilate the educational material of the discipline;
- consolidate and ameliorate knowledge, skills and abilities;
- prepare for upcoming classes and control tasks;
- form the culture of intellectual work, independency and initiative in research and education.

Students self-work includes the development of theoretical material and preparation for practical classes in the basics of technical regulation and standardization of livestock products, TR and GSS of the Russian Federation, the HACCP system, food safety requirements: meat and meat products, milk and dairy products, fish and fish products, raw materials and technological processes of children's and specialized nutrition and others. food security issues.

The forms of student's self-work over the discipline "Veterinary and sanitary expertise" are:

- acquaintance with the work program;
- making notes and processing lecture material;
- preparation for group classes, including:
  - a) selection of necessary sources of information (literature, online publications, regulatory framework);
  - b) taking notes of educational, methodological and scientific literature;
  - c) processing and analysis of laws and regulations;

d) self-control of the processed questions and topics of the curriculum;

In addition, students' self-work in a free form is realized through the preparation of reports and articles for student scientific conferences on the problems of veterinary and sanitary expertise, food security, rational development of the agro-industrial complex of the Russian Federation and the use of natural resources, innovative technologies and technical regulation in the field of veterinary and sanitary expertise, processing of meat, poultry, dairy, etc. raw materials, eggs, honey and bee products, vegetable raw materials, raw materials for food ghee of animal origin, the use of biotechnology.

During the practical classes, the discussion of the topic is conducted in a free creative form. Students discuss with the teacher not only the questions formulated in the educational and methodological complex, but also ask questions that they have during preparation for the seminar, and state their own position on a particular problematic issue in a reasoned manner.

Preparing for the lesson involves the study of theoretical lecture material and regulatory documents. When solving problems, it is recommended to analyze the conditions, formulate a solution clearly and competently, giving references to the relevant legal norms. In order to assimilate the material and better prepare for future professional activity, it is necessary to strive to change the conditions of the task in order to choose the best solution to a specific life situation.

The type of tasks for students' self-work is determined by the teacher through the work program and assessment funds.

Educational and methodological materials for self-work of disabled students are provided in forms adapted to the limitations of their health and perception of information and can be specified depending on the contingent of students.

## **7. THE LIST OF BASIC AND ADDITIONAL LITERATURE NECESSARY FOR THE EDUCATION OF THE DISCIPLINE**

### **7.1. Basic literature**

1. Kudryashov, A.A. General pathological anatomy of animals: a textbook / A.A. Kudryashov, D.E. Levterov, V.I. Balabanova. – St. Petersburg: Publishing House of the Federal State Budgetary Educational Institution of Higher Education, 2024. – p. 215
2. Pathologic Basis of Veterinary Disease, 6th Edition. Edited by James F. Zachary. Elsevier, St Louis, MO, 2017. – 1835 p.

### **7.2. Additional literature**

Robbins and Cotran pathologic basis of disease / [edited by] Vinay Kumar, Abul K. Abbas, Jon C. Aster ; with illustrations by James A. Perkins.—Ninth edition. Elsevier, Saunders, 2015. – P. 1407 p.

## **8. THE LIST OF RESOURCES OF THE INFORMATION AND TELECOMMUNICATION NETWORK "INTERNET" NECESSARY FOR THE DEVELOPMENT OF THE DISCIPLINE**

To prepare for practical classes, tests and exams, and to perform independent work, students can use the following online resources:

1. [http://www.kgau.ru/distance/vet\\_03/patanatomia/01\\_07\\_lab.html](http://www.kgau.ru/distance/vet_03/patanatomia/01_07_lab.html) pathanatomy of animals.
2. [http://www.kgau.ru/distance/vet\\_03/patanatomia/01\\_03\\_01.html](http://www.kgau.ru/distance/vet_03/patanatomia/01_03_01.html) pathanatomy of animals
3. [www.mgavm.ru](http://www.mgavm.ru) - information site of MGAVMiB.
4. [Meduniver.com](http://Meduniver.com) – medical information site.

Electronic library systems:

1. Electronic resources of SPbGUVm - <http://ebs.spbguvvm.ru/MarcWeb2/Default.asp>

- 2.Doe (access mode: <http://www.spbguv.ru/ebs-izdatelstva-lan.html> , free entry from any registered university computer).
3. www Scientific Electronic library. eLIBRARY.RU

### **Electronic library systems**

1. ELS "SPBGUVM"
2. ELS "Lan Publishing House"
3. Legal reference system "ConsultantPlus"
4. University information system "RUSSIA"
5. Full-text database POLPRED.COM
6. Scientific electronic Library ELIBRARY.RU
7. Russian Scientific Network
8. Database of international scientific citation indexes Web of Science
9. Scopus database of International Science Citation Indexes
10. Full-text interdisciplinary database on agricultural and environmental sciences ProQuest AGRICULTURAL AND ENVIRONMENTAL SCIENCE DATABASE
11. Electronic books of the publishing house "Prospekt Nauki"  
<http://prospektnauki.ru/ebooks/>
12. Collection "Agriculture. Veterinary medicine" publishing house "Quadro" ELS "Elibris" publishing house "Quadro" <https://elibrice.com/>

## **9. METHODOLOGICAL GUIDELINES FOR STUDENTS ON EDUCATION OF THE DISCIPLINE**

Methodological recommendations for students are a set of recommendations and explanations that allow them to organize the process of studying this discipline optimally.

The content of methodological recommendations, as a rule, may include:

- Tips on planning and organizing the time needed to study the discipline. Description of the sequence of actions of the student, or the "scenario of studying the discipline".

Morning time is the most effective for academic work (from 8-14 hours), followed by afternoon time (from 16-19 hours) and evening time (from 20-24 hours). The most difficult material is recommended to be studied at the beginning of each time interval after rest. After 1.5 hours of work, a break is required (10-15 minutes), after 4 hours of work, the break should be 1 hour. Part of the scientific organization of labor is the mastery of the technique of mental labor. Normally, a student should devote about 10 hours a day to studying (6 hours at university, 4 hours at home).

The methodology of work when taking notes of oral presentations differs significantly from the methodology of work when taking notes of written sources.

By taking notes of written sources, the student has the opportunity to read again the desired passage of the text, reflect on it, highlight the main thoughts of the author, briefly formulate them, and then write them down. If necessary, he can also note his attitude to this point of view. Listening to the lecture, the student should transcend most of the complexity of the above-mentioned works for another time, trying to use every minute to record the lecture, and not to comprehend it - there is no time left for this. Therefore, when taking notes of a lecture, it is recommended, to leave separate fields on each page for subsequent entries in addition to the summary.

After recording a lecture or making a summary of it, you should not leave work on the lecture material before preparing for the test. It is necessary to do as early as possible the work that accompanies taking notes of written sources, the last could not be done during the

recording of the lecture - read your notes, deciphering individual abbreviations, analyze the text, establish logical connections between its elements, in some cases show them graphically, highlight the main thoughts, mark issues, requiring additional processing, in particular, the teacher's consultations.

When working on the text of the lecture, the student should pay special attention to the problematic issues, raised by the teacher, during the lecture, as well as to his assignments and recommendations.

For each lecture, practical lesson and laboratory work, classification code, topic, list of issues under consideration, volume in hours and links to recommended literature are provided. For classes conducted in interactive forms, its organizational form should be indicated: computer simulation, business or role-playing game, analysis of a specific situation, etc.

- Recommendations for preparing for practical classes

Practical (seminar) classes are an important part of the professional training of students. The main purpose of conducting practical (seminar) classes is to form students' analytical, creative thinking through the acquisition of practical skills. Practical classes are also conducted in order to deepen and consolidate the knowledge gained in lectures and in the process of independent work on normative documents, educational and scientific literature. For student, it is necessary, to study or repeat theoretical material on a given topic when preparing for a practical lesson for students.

When preparing for a practical lesson, the student is recommended to follow the following algorithm;

- 1) get acquainted with the plan of the upcoming lesson;
- 2) study the literature sources that have been recommended and familiarize yourself with the introductory notes to the relevant sections.

Methodological guidelines for practical (seminar) classes in the discipline, along with the work program and schedule of the educational process, refer to methodological documents that determine the level of organization and quality of the educational process.

The content of practical (seminar) classes is recorded in the working curricula of the disciplines in the sections "List of topics of practical (seminar) classes".

The most important component of any form of practical training are tasks. The basis of the task is an example that is understood from the standpoint of the theory developed in the lecture. As a rule, the main attention is paid to the formation of specific skills, which determines the content of students' activities - problem solving, laboratory work, clarification of categories and concepts of science, which are a prerequisite for correct thinking and speech.

- Practical (seminar) classes perform the following tasks:

- stimulate regular study of recommended literature, as well as attentive attitude to the lecture course;
- consolidate the knowledge gained in the process of lecture training and independent work on literature;
- expand the scope of professionally significant knowledge, skills, and abilities;
- allow you to verify the correctness of previously acquired knowledge;
- initiate skills of independent self-thinking, oral presentation;
- contribute to the free use of terminology;
- provide the teacher with the opportunity to systematically monitor the level of independent work of students.

Methodological guidelines for practical (seminar) classes on the discipline should be focused on modern business conditions, current regulatory documents, advanced technologies, the latest achievements of science, technology and practice, modern ideas about certain phenomena, the studied reality.

- Recommendations for working with literature.

Working with literature is an important stage of the student's self-work on mastering the subject, contributing not only to the consolidation of knowledge, but also to the expansion of



horizons, mental abilities, memory, the ability to think, express and confirm personal hypotheses and ideas. In addition, the skills of research work necessary for further professional activity are developed.

When starting to study the literature on the topic, it is necessary to make notes, extracts, notes. It is mandatory to take notes of the works of theorists, which allow us to comprehend the theoretical basis of the study. For the rest, you can limit yourself to summary from the studied sources. All summaries and quotations must have the exact "return address" (author, title of the work, year of publication, page, etc.). It is advisable to write an abbreviated title of the question to which the extract or quotation refers. In addition, it is necessary to learn how to immediately compile a file of special literature and publications of sources, both proposed by the teacher and identified independently, as well as refer to bibliographic reference books, chronicles of journal articles, book chronicles, abstract journals. At the same time, publications of sources (articles, book titles, etc.) should be written on separate cards, which must be filled in according to the rules of bibliographic description (surname, initials of the author, title of the work. Place of publication, publisher, year of publication, number of pages, and for journal articles – the name of the journal, year of publication, page numbers). On each card, it is advisable to record the thought of the author of the book or a fact from this book on only one specific issue. If the work, even in the same paragraph or phrase, contains more judgments or facts on another issue, then they should be written out on a separate card. The presentation should be concise, accurate, without subjective assessments. On the back of the card, you can make your own notes about this book or article, its content, structure, on which sources it is written, etc.

- Explanations about working with control and test materials for the course, recommendations for completing homework.

Testing is a control that allows you to determine whether the actual behavior of the program corresponds to the expected one by performing a specially selected set of tests. A test is the fulfillment of certain conditions and actions necessary to verify the operation of the function under test or part of it. Each question in the discipline must be answered correctly by choosing one option.

## **10. EDUCATIONAL SOCIAL WORK**

As part of the implementation of the discipline, educational work is carried out to form a modern scientific worldview and a system of basic values, the formation and development of spiritual and moral, civil and patriotic values, a system of aesthetic and ethical knowledge and values, attitudes of tolerant consciousness in society, the formation of students' need for work as the first vital necessity, the highest value and the main way to achieve success in life, to realize the social significance of your future profession.

## **11. THE LIST OF INFORMATION TECHNOLOGIES USED IN THE IMPLEMENTATION OF THE EDUCATIONAL PROCESS**

### **11.1 Information technologies**

For the educational process of the discipline is previewed the use of information technologies:

- practical classes using multimedia;
- interactive technologies (dialogues, collective discussion on various topics for realization a particular educational and professional task);
- interaction with students via e - mail;
- community work in the electronic information and educational environment of St. Petersburg State University: <https://spbguvvm.ru/academy/eios/>

### 11.2. Software. The list of licensed and free- distributed software, including national programs

№ п/п	Technical and computer programs recommended by sections and topics of the program	License
1	MS PowerPoint	67580828
2	LibreOffice	free software
3	OS Alt Education	AAO.0022.00
4	ABIS “ MARK-SQL”	02102014155
5	MS Windows 10	67580828
6	System Consult Plus	503/KJI
7	Android OS	free software

### 12. THE MATERIAL AND TECHNICAL BASE NECESSARY FOR THE IMPLEMENTATION OF THE DISCIPLINE EDUCATIONAL PROCESS.

The title of the discipline (module), practice in accordance with the curriculum	The title of special rooms and rooms for self-work	Equipment of special rooms and rooms for self-work
Pathohistological diagnosis	218 (196084, St. Petersburg, Chernihov street, 5) Classroom for conducting seminar-type classes, group and individual consultations, ongoing monitoring and intermediate certification	Specialized furniture: tables, chairs, stools, blackboard. Visual aids and educational materials: posters on sections of pathological anatomy.
	219 (196084, St. Petersburg, Chernihov street, 5) Classroom for conducting seminar-type classes, group and individual consultations, ongoing monitoring and intermediate certification	Specialized furniture: chairs, stools, blackboard, multimedia projector, screen Visual aids and educational materials: posters on sections of pathological anatomy.
	220 (196084, St. Petersburg, Chernihov street, 5) Museum of the department, room for intermediate certification	Specialized furniture: tables, chairs. Visual aids and educational materials: museum preparations, drawings and posters on sections of pathological anatomy.
	206 Large reading room (196084, St. Petersburg, Chernihov street, 5) Room for independent work	Specialized furniture: tables, chairs Technical means of education: computers connected to the Internet and access to an electronic information and educational environment.
	324 Department of Information Technology (196084, St. Petersburg, Chernihov street, 5) Room for storage and preventive maintenance	Specialized furniture: tables, chairs, special equipment, materials and spare parts for preventive maintenance of technical training

	of educational equipment	facilities.
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Developer:

Head of the Department of Pathological Anatomy  
and Forensic Veterinary Medicine,

Doctor of Veterinary Science, Professor Kudryashov A.A.



Ministry of Agriculture of the Russian Federation  
Federal State Budgetary Educational Institution  
of higher education  
"Saint Petersburg State University of Veterinary Medicine"

**Department of Pathological Anatomy and Forensic Veterinary Medicine**  
**FUND OF ASSESMENT TOOLS**  
for the discipline  
**"PATHOHISTOLOGICAL DIAGNOSIS"**

Level of higher education  
SPECIALIST COURSE

Specialty 05.36.01 Veterinary medicine  
Full-time education.

Education starts in 2024.

Saint-Petersburg  
2024

## 1. PASSPORT OF THE APPRAISAL FUND

The student's competencies formed as a result of mastering the discipline.

The study of the discipline should form **Professional Competencies (PC)**:

PC-4 Performing postmortem diagnostic examination of animals in order to establish pathological processes, diseases, causes of death

PC-4id-1 Should be able to collect the anamnesis of the life and illness of the examined animals after death

PC-4id-2 Should be able to perform a general examination of animal corpses before autopsy

PC-4id-3 Be able to perform autopsy of animal corpses using special tools and compliance with safety requirements

PC-4id-4 Should be able to carry out the selection and fixation of samples of pathological material for laboratory research using digital technologies

PC-4id-5 Should be able to establish the cause of death and a pathoanatomical diagnosis in accordance with generally accepted criteria and classifications, lists of animal diseases

PC-4id-6 Should be able to formalize the results of a postmortem diagnostic examination of an animal in the autopsy protocol, including using digital technologies

PC-4id-10 To know the methodology of sampling and fixation of samples of pathological material for laboratory research in accordance with the rules in this field

PC-4id-11 To know the forms and procedure for drawing up an autopsy protocol for an animal, including using digital technologies

**Table 1**

No	Emerging competencies	Supervised sections (topics) of the discipline	Evaluation tool
1.	PC-4ID-1 PC-4ID-2 PC-4ID-3 PC-4ID-4 PC-4ID-5	Section 1. Taking, fixing, forwarding and disposal of the patmaterial for histological examination. Technique of preparation and coloring of sections for histological examination.	tests, survey, credit
2.	PC-4 ID-6 PC-4ID-10 PC-4ID-11	Section 2. Histological diagnosis of necrosis, protein, fat and mineral dystrophy, atrophy, hypertrophy, hyperplasia, alterative, exudative, proliferative inflammation, tumors and leukemia.	tests, survey, credit
3.	PC-4 ID-6 PC-4ID-10 PC-4ID-11	Section 3. Histological diagnosis of diseases of the digestive, respiratory, nervous, genitourinary, and cardiovascular systems.	tests, survey, credit

**An approximate list of evaluation tools**

**Table 2**

No	Name of the evaluation tool	Brief description of the evaluation tool	Presentation of an evaluation tool in the fund
1.	Credit	A means of controlling the assimilation of educational material of a topic, section or sections of a discipline, organized as an educational activity in the form of an interview between a teacher and students	Questions on topics/sections of the discipline
2.	Test	A system of standardized tasks that allows you to automate the procedure for measuring the level of knowledge and skills of a student	The fund of test tasks
3.	Survey	A system of standardized tasks that allows you to automate the procedure for measuring the level of knowledge and skills of a student	Questions on topics/sections of the discipline

## 2. Professional Competencies (PC):

**Table 3.**

Planned results of competence development		The level of development			Evaluation tool
		Unsatisfactory	satisfactory	good excellent	
<b>PC-4 Performing postmortem diagnostic examination of animals in order to establish pathological processes, diseases, causes of death</b>					
<b>To know:</b>					
PC-4id-10 To know the methodology of sampling and fixation of samples of pathological material for laboratory research in accordance with the rules in this field	The level of knowledge is below the minimum requirements, gross errors have occurred	The acceptable level of knowledge, many blunders have been made	The level of knowledge in the volume corresponding to the training program, several blunders were made	The level of knowledge in the volume corresponding to the training program, without errors.	Test, exam, survey
PC-4id-11 To know the forms and procedure for drawing up an autopsy protocol for an animal, including using digital technologies.					
<b>Be able to:</b>					
PC-4id-1 Should be able to collect the anamnesis of the life and illness of the examined animals after death	Basic skills were not demonstrated when solving standard tasks, and gross errors occurred	Basic skills have been demonstrated, typical errors have been solved, all tasks have been completed, but not in full	All the basic skills have been demonstrated, all basic tasks have been solved with some Minor flaws, and all tasks have been completed in full		Test, exam, survey
PC-4id-2 Should be able to perform a general examination of animal corpses before autopsy					
PC-4id-3 Be able to perform autopsy of animal corpses using special tools and compliance with safety requirements					
PC-4id-4 Should be able to carry out the selection and fixation of samples of pathological material for laboratory research using digital technologies					

<p>PC-4id-5 Should be able to establish the cause of death and a pathoanatomical diagnosis in accordance with generally accepted criteria and classifications, lists of animal diseases</p> <p>PC-4id-6 Should be able to formalize the results of a postmortem diagnostic examination of an animal in the autopsy protocol, including using digital technologies</p>					
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### **3. THE LIST OF CONTROL TASKS AND OTHER MATERIALS NECESSARY FOR THE ASSESSMENT OF KNOWLEDGE, SKILLS, SKILLS AND WORK EXPERIENCE**

#### **3.1. Typical tasks for the current monitoring of academic performance**

PC-4 Performing postmortem diagnostic examination of animals in order to establish pathological processes, diseases, causes of death

PC-4ID-1 Should be able to collect the anamnesis of the life and illness of the examined animals after death

PC-4ID-2 Should be able to perform a general examination of animal corpses before autopsy

PC-4ID-3 Should be able to perform autopsy of animal corpses using special tools and compliance with safety requirements

PC-4ID-4 Should be able to carry out the selection and fixation of samples of pathological material for laboratory research using digital technologies

PC-4ID-5 Should be able to establish the cause of death and a pathoanatomical diagnosis in accordance with generally accepted criteria and classifications, lists of animal diseases

PC-4ID-6 Should be able to register the results of a postmortem diagnostic examination of an animal in the autopsy protocol, including using digital technologies

PC-4ID-10 To know the methodology of sampling and fixation of samples of pathological material for laboratory research in accordance with the rules in this field

PC-4ID-11 To know the forms and procedure for drawing up an autopsy protocol for an animal, including using digital technologies

#### **The subject of independent work**

1. Taking and forwarding of the patmaterial for histological, bacteriological, histological and chemical studies.
2. Technique of preparation and coloring of sections for histological examination.  
Postmortem changes: decomposition of the corpse (autolysis, putrefaction).
3. Necrosis: definition, stages of development, microcartin, classification; outcomes of necrosis.
4. Dystrophy: definition, etiology, classification (by type of metabolism; by place of formation in tissue, etc.), mechanisms of development.
5. Cellular dysproteinoses:
  - a) granular dystrophy: definition, etiology, mechanisms of development, microcartin, clinical significance, outcomes, differential diagnosis;
  - b) hyaline drip dystrophy: definition, etiology, mechanisms of development, microcartin, clinical significance, outcomes;
  - c) hydropic dystrophy: definition, etiology, mechanisms of development, microcartin, clinical significance, outcomes;
  - d) corneal dystrophy: definition, etiology, classification, mechanisms of development, microcartin, clinical significance, outcomes.
6. Extracellular dysproteinosis:
  - a) mucoid swelling: definition, etiology, mechanisms of development, microcartin, the concept of "mucoid", clinical significance, outcomes;
  - b) fibrinoid swelling: definition, etiology, mechanisms of development, microcartin, concepts of "fibrinoid", "fibrinoid necrosis", clinical significance, outcomes;
  - c) hyalinosis: definition, etiology, mechanisms of development, focal and systemic hyalinosis, microcartina, clinical significance, outcomes;
  - d) amyloidosis: definition, etiology, mechanisms of development, classification, microcartin, clinical significance, outcomes, the concept of "metachromasia".
7. Mixed dysproteinoses: impaired metabolism of chromoproteins.



- a) Violation of the metabolism of hemoglobinogenic pigments: physiological hemoglobinogenic pigments; pathological hemoglobinogenic pigments; violation of hemosiderin metabolism (general and local hemosiderosis: causes, mechanism of development, microcartin); hematoïdin formation: causes, microcartin; formation of hematin hydrochloride; violation of bilirubin metabolism: types of jaundice, their causes, microcartin.
- b) Metabolic disorders of tyrosine-tryptophanogenic pigments (melanin): types of disorders (classification), mechanism of development, microcartin.
- c) Metabolic disorders of lipidogenic pigments (lipofuscin): causes, mechanism of development, microcartin.
8. Mixed dysproteinoses: violation of nucleoprotein metabolism (etiology, mechanism of development, visceral and articular gout, uric acid infarction, uric acid stones, encrustation of dead masses).
9. Mixed dysproteinoses: violation of glycoprotein metabolism.
  - a) impaired mucin metabolism (intracellular dysproteinosis): etiology, classification, mechanisms of development, microcartin;
  - b) impaired mucoid metabolism (extracellular dysproteinosis): etiology, classification, mechanisms of development, microcartin;
  - c) violation of collagen metabolism: etiology, classification, mechanisms of development, microcartin.
10. Impaired fat metabolism:
  - a) violation of neutral fat metabolism: etiology, mechanisms of development, classification, microcartin;
  - b) violation of the metabolism of structural fat: etiology, mechanisms of development, microcartin, outcome.
11. Morphogenesis of calcium metabolism disorders:
  - a) disorders of calcification and decalcification of bone: etiology, pathogenesis, classification, microcartin;
  - b) calcium deposition in soft tissues: classification, etiology, mechanisms of development, microcartin.
12. Circulatory disorders:
  - a) arterial hyperemia: classification, etiology, microcartin;
  - b) venous hyperemia: classification, etiology of local and general venous hyperemia, microcartin of local and general, acute and chronic venous hyperemia;
  - c) bleeding and hemorrhage: definition, classification, microcartin, outcomes, clinical significance;
  - d) thrombosis: definition, classification, microcartin, outcomes, clinical significance;
  - e) embolism: definition, classification, microcartin, outcomes, clinical significance;
  - f) heart attacks: definition, classification, microcardina, outcomes, clinical significance.
2. Lymphatic circulation disorder: etiology, classification, microcardina, outcomes, clinical significance.
13. Metabolic disorders of tissue fluid: etiology, classification, microcartin, outcomes, clinical significance.
14. Compensatory and adaptive mechanisms:
  - a) atrophy, hypotrophy - definition, classification, etiology, microcartin;
  - b) hypertrophy and hyperplasia: definition, classification, etiology, microcartin;
  - c) regeneration: definition, classification, microcartin, features of regeneration of various tissues;
  - d) metaplasia: definition, classification, etiology, microcartin, clinical significance.
15. Inflammation: definition, classification, mechanism of development.
 

Alterative inflammation: definition, etiology, microcartin.

Exudative inflammation:

  - a) serous inflammation: definition, etiology, types, microcartin;

- b) fibrinous inflammation: definition, etiology, types, microcartin;
- c) purulent inflammation: definition, etiology, types, microcartin;
- d) catarrhal inflammation: definition, etiology, types, microcartin;
- e) hemorrhagic inflammation: definition, etiology, classification, microcartin;
- f) putrefactive inflammation: definition, etiology, microcartin.

Proliferative inflammation: definition, classification.

- a) interstitial proliferative inflammation: definition, classification, cirrhosis (definition, classification, microcartin), diffuse actinomycosis (definition, etiology, microcartin), paratuberculous enteritis (definition, etiology, microcartin);
- b) focal proliferative inflammation: tuberculous granuloma (definition, etiology, microcartin), sap granuloma (definition, etiology, microcartin), actinomycous granuloma (definition, etiology, microcartin), parasitic granuloma (definition, etiology, microcartin).

16. Tumors: definition, classification, theories of tumor growth, morphological characteristics of benign tumors, morphological characteristics of malignant tumors, concepts of "metastasis", "relapse", "tissue atypism", "cellular atypism".

17. Leukemia: definition, classification, microcartin.

### **Survey.**

The "Survey" form of control is used in practical classes on all topics, both written and oral. During the answer, the student acquires the ability to logically correctly, argumentatively and clearly build oral and written speech, as well as the ability to generalize and analyze educational information.

### **Test questions on competencies PC-4ID-1 PC-4ID-2 PC-4ID-3 PC-4ID-4 PC-4ID-5 PC-4 ID-6 PC-4ID-10 PC-4ID-11**

1. Dilatatio cordis is:
  - a. Heart defect.
  - b. Hypertrophy of the heart.
  - c. Enlargement of the heart.
2. Hypertrophy of the heart can be:
  - a. Physiological.
  - b. Concentric.
  - c. Myogenic.
  - g. Tonogenic.
  - d. Eccentric.
  - e. Pathological.
3. The expansion of the heart, accompanied by hypertrophy of the wall, is called:
  - a. Physiological.
  - b. Concentric.
  - c. Myogenic.
  - g. Tonogenic.
  - d. Eccentric.
  - e. Pathological.
4. Uncompensated heart defects, as a rule, are accompanied by an expansion:
  - a. Physiological.
  - b. Concentric.
  - V. Myogenic.
  - G. Tonogenic.
  - D. Eccentric.
  - E. Pathological.
5. Hypertrophy, not accompanied by expansion of the cavities of the heart, is called:
  - a. Physiological.

- b. Concentric.
  - B. Myogenic.
  - G. Tonogenic.
  - D. Eccentric.
  - E. Pathological.
6. Inflammation of the inner lining of the heart is called:
- a. Endocarditis.
  - b. Miocarditis.
  - c. Pericarditis.
7. Inflammation of the heart muscle is called:
- a. Endocarditis.
  - b. Miocarditis.
  - c. Pericarditis.
8. Endocarditis with localization of the pathological process on the heart valves is called:
- A. E. chordalis.
  - B. E. papillaris.
  - V. E. valvularis.
  - G. E. parientalis.
  - D. E. verrucosa.
  - E. E. ulserosa.
9. Thromboendocarditis, characterized by the appearance on the surface of the endocardium of grayish fibrinous overlays in the form of warts, which consist of blood elements - fibrin, blood plates and leukocytes, is called:
- A. E. chordalis.
  - B. E. papillaris.
  - V. E. valvularis.
  - G. E. parientalis.
  - D. E. verrucosa.
  - E. E. ulserosa.
10. A strong toxin or pathogen circulating in the blood with high aggressiveness is likely to cause endocarditis:
- a. E. chordalis.
  - b. E. papillaris.
  - V. E. valvularis.
  - G. E. parientalis.
  - D. E. verrucosa.
  - E. E. ulserosa.
11. The heart muscle looks dull, mottled, grayish - red in color, flabby in consistency and somewhat resembles scalded meat in:
- a. Purulent myocarditis.
  - b. Alterative myocarditis.
  - c. Chronic interstitial myocarditis.
12. In the form of myofibrosis or cardiosclerosis, it manifests itself:
- a. Purulent myocarditis.
  - b. Alterative myocarditis.
  - c. Chronic interstitial myocarditis.
13. Pericarditis can be (by the nature of the exudate):
- a. Serous.
  - b. Catarrhal.
  - c. Serous - purulent.
  - G. Serous - fibrinous.
  - D. Serous - hemorrhagic.

14. Accumulation of cloudy, white - yellow, more or less dense fluid in the cavity of the cardiac chemise is characterized by pericarditis:
- Serous
  - Catarrhal
  - Serous - purulent
  - Serous - fibrinous
  - Serous - hemorrhagic
15. Fibrin coagulation and deposition on the inner surface of the cardiac chemise and epicardium in serous fibrinous pericarditis is referred to as:
- "Hairy heart".
  - Dry pericardium.
  - "Armored heart".
16. With a prolonged process, fibrin sprouts connective tissue and takes the form of villi, papillae and is generally similar to felt. This is the so-called:
- "Hairy heart".
  - Dry pericardium.
  - "Armored heart".
17. Serous pericarditis is characterized by:
- Accumulation of transparent, slightly opalescent fluid in the pericardial cavity.
  - The surface of the heart and the inner surface of the pericardium are shiny.
  - The surface of the heart and the inner surface of the pericardium are dull.
  - Hyperemia of the epicardium is pronounced, there may be hemorrhages.
18. Dropsy of the cardiac chemise is characterized by:
- Accumulation of transparent, slightly opalescent liquid in the pericardial cavity.
  - The surface of the heart and the inner surface of the pericardium are shiny.
  - The surface of the heart and the inner surface of the pericardium are dull.
  - Hyperemia of the epicardium is pronounced, there may be hemorrhages.
19. Vascular inflammation is called:
- Phlebitis.
  - Vasculitis.
  - Arteriitis.
  - Phleboectasia varix.
  - Aneurisma.
  - Arteritis.
20. Local, limited, asymmetric, sac-like extensions of the arterial vessel wall, in which there is a violation of its normal structure and the formation of a cavity communicating with the lumen, is called:
- Phlebitis.
  - Vasculitis.
  - Arteriitis.
  - Phleboectasia varix.
  - Aneurisma.
  - Artritis.
21. Inflammation of the arteries is called:
- Phlebitis.
  - Vasculitis.
  - Arteriitis.
  - Phleboectasia varix.
  - Aneurisma.
  - Artritis.
22. Phleboectasia varix is:
- Inflammation of the veins.

- b. Formation of blood clots in the veins.
  - c. Local venous dilation.
  - G. Formation of stones in the veins.
23. The collapse or airless state of the lungs is called:
- a. Pneumonia.
  - b. Atelectasis.
  - c. Emphysema.
  - d. Pulmonary edema.
24. Pneumonia is called:
- a. Pneumonia.
  - b. Atelectasis.
  - c. Emphysema.
  - d. Pulmonary edema.
25. Atelectasis can be:
- a. Alveolar.
  - b. Interstitial.
  - c. Compression.
  - g. Obturation.
26. The lungs are enlarged in volume, restless, the lung tissue is “shaky”, of a testy consistency, red in color on the incision, foamy liquid flows from the incision surface, a piece of lung floats heavily in water. This pattern is typical for:
- a. Pneumonia.
  - b. Atelectasis.
  - B. Alveolar emphysema.
  - G. Pulmonary edema.
  - D. Interstitial emphysema.
27. With atelectasis, pieces of the lung in the water -
- a. Float on the surface.
  - b. Swim hard.
  - c. Drown.
28. The lung is enlarged in size, pale pink in color, fluffy consistency, when pressed, the fossa slowly flattens out, cracking is heard during incision, the incision surface is dry, bloodless. This pattern is typical for:
- a. Pneumonia.
  - b. Atelectasis.
  - B. Alveolar emphysema.
  - G. Pulmonary edema.
  - D. Interstitial emphysema.
29. Air from the alveoli enters the interstitial tissue through tissue slits, spreads through the interlobular tissue, individual gas bubbles form whole continuous strands penetrating the lung in the form of a grid. This pattern is typical for:
- a. Pneumonia.
  - b. Atelectasis.
  - B. Alveolar emphysema.
  - G. Pulmonary edema.
  - D. Interstitial emphysema.
30. Inflammation that engulfs the terminal bronchioles and groups of adjacent alveoli is called:
- a. Focal pneumonia.
  - b. Lobar pneumonia.
  - c. Acinous pneumonia.
  - d. Lobular pneumonia.
31. Inflammation covering an entire lobe of the lung is called:

- a. Focal pneumonia.
  - b. Lobar pneumonia.
  - c. Acinous pneumonia.
  - d. Lobular pneumonia.
32. Bronchopneumonia is so called because:
- a. The pathological process begins with the bronchi and passes to the lung tissue through the respiratory tract.
  - b. The pathological factor penetrates the respiratory system hematogenously and the pathological process simultaneously develops in the lungs and bronchi.
  - c. The pathological process begins in the lungs and passes to the bronchi along the ascending pathways.
33. The lung is compacted, red in color, the pleura is smooth, edematous, vitreous, a slightly cloudy liquid flows from the incision surface of the damaged area. Under the microscope, the alveoli are filled with liquid (stained pink with eosin) with single cells (leukocytes and flaked respiratory epithelium), the interalveolar septa and interlobular connective tissue are soaked with edematous fluid. This is a picture of:
- a. Serous pneumonia.
  - b. Catarrhal bronchopneumonia.
  - c. Fibrinous pneumonia.
  - g. Purulent pneumonia.
  - d. Productive pneumonia.
  - e. Necrotic pneumonia.
  - g. Pulmonary edema.
34. Acute catarrhal bronchopneumonia is characterized by:
- a. The lung tissue is compacted, testy.
  - b. The lung tissue is dense, fleshy.
  - c. A viscous grayish or white mucus is squeezed out from the incision surface and from the bronchi
  - . d. A slightly cloudy liquid flows from the incision surface.
  - d. A thick purulent mucous mass is squeezed out from the incision surface and from the bronchi.
  - e. The affected area sinks in water.
  - g. The affected area floats heavily.
35. Often the initial stage of other forms of pneumonia is:
- a. Serous pneumonia.
  - b. Catarrhal bronchopneumonia.
  - B. Fibrinous pneumonia.
  - G. Purulent pneumonia.
  - D. Productive pneumonia.
  - e. Necrotic pneumonia.
  - g. Pulmonary edema.
36. The content of a large number of erythrocytes in the exudate is characterized by:
- a. Serous pneumonia.
  - b. Catarrhal bronchopneumonia.
  - c. Hemorrhagic pneumonia.
  - g. Purulent pneumonia.
  - d. Productive pneumonia.
  - e. Necrotic pneumonia.
  - g. Pulmonary edema.
37. The formation of various sizes of abscesses or catarrhal purulent diffuse inflammation is expressed by:
- a. Serous pneumonia.
  - b. Catarrhal bronchopneumonia.

- c. Fibrinous pneumonia.
  - G. Purulent pneumonia.
  - D. Productive pneumonia.
  - e. Necrotic pneumonia.
  - g. Pulmonary edema.
38. Croup pneumonia has the following stages:
- a. Stage of hyperemia.
  - b. Stage of gray hepatitis.
  - c. Stage of hypostasis.
  - d. Stage of yellow hepatitis.
  - d. Stage of red hepatitis.
  - e. Stage of resolution.
39. Croup pneumonia begins with a sharp expansion of blood vessels. This is
- a. The stage of hyperemia.
  - b. The stage of gray hepatitis.
  - c. The stage of hypostasis.
  - d. The stage of yellow hepatitis.
  - d. The stage of red hepatitis.
  - e. The stage of resolution.
40. The stage of red hepatitis is characterized by:
- a. The affected area is compacted.
  - b. A cloudy reddish liquid flows from the incision surface of the affected area.
  - c. The affected area is red.
  - d. The affected area is gray.
  - D. The lung becomes liver-like in consistency.
  - E. The lung has a testy consistency.
41. In cattle, the lung with fibrinous pneumonia has the following pattern:
- a. Concentric stripes.
  - b. "Sebaceous" lung ("sebaceous pneumonia").
  - c. "Marble" lung.
  - G. Nutmeg lung.
42. In dogs, the lungs with croup pneumonia have the form:
- a. Concentric stripes.
  - b. "Sebaceous" lung ("sebaceous pneumonia").
  - c. "Marble" lung.
  - G. Nutmeg lung.
43. Possible outcomes of fibrinous pneumonia:
- a. Induration of the affected area.
  - b. Lung mummification.
  - b. Cornification of the affected area.
  - g. Formation of sequesters.
  - d. Formation of abscesses.
  - e. Formation of aneurysms.
  - g. Development of pleurisy.
  - z. Development of gangrene.
44. Metastatic pneumonia develops as a result of:
- a. Penetration of the pathogen from the overlying respiratory tract during their inflammation.
  - b. The introduction of the pathogen by blood or lymph from other organs.
  - c. The transfer of inflammation to the lungs from the affected surrounding tissues.
45. Serous pleurisy is characterized (select the appropriate one):
- a. Accumulation of cloudy fluid in the chest cavity.
  - b. Accumulation of transparent fluid in the chest cavity. c.

Accumulation of fluid with white flakes in the chest cavity.

G. The pleura is dull.

D. The pleura is shiny.

E. The pleura is reddened, there are spot hemorrhages.

g. There is no hyperemia on the pleura.

46. Thoracic dropsy is characterized by:

a. Accumulation of cloudy fluid in the thoracic cavity.

b. Accumulation of clear liquid in the chest cavity.

c. Accumulation of liquid with white flakes in the chest cavity.

G. The pleura is dull.

D. The pleura is shiny.

E. The pleura is reddened, there are spot hemorrhages.

g. There is no hyperemia on the pleura.

47. The chest cavity contains cloudy exudate with white films and flakes, These films and layers cover both the costal and pulmonic pleura. In acute cases, the layers covering the pleura are easily separated, while the red rough pleura is exposed. In chronic cases, they germinate with connective tissue, and it is not possible to separate them from the pleura. This pattern is characteristic of:

a. Serous pleurisy.

b. Fibrinous pleurisy.

c. Hemorrhagic pleurisy.

g. Purulent pleurisy.

d. Ichorous pleurisy.

E. Productive pleurisy.

48. The pleura is thickened, white, uneven. Often, the pulmonary pleura fuses with the costal pleura. There is usually no liquid exudate in the pleural cavity. Pleural changes can be both diffuse and focal in nature. This pattern is characteristic of:

a. Serous pleurisy.

b. Fibrinous pleurisy.

c. Hemorrhagic pleurisy.

g. Purulent pleurisy.

d. Ichorous pleurisy.

E. Productive pleurisy

49. The chest cavity contains thick to creamy, yellowish, greenish or white exudate. The pleura is dull, with overflowing vessels, covered with exudate. When examining the pleura, it is possible to detect either a penetrating injury to the thoracic cavity or an abscess in the lung opening into the thoracic cavity. This pattern is characteristic of:

a. Serous pleurisy.

b. Fibrinous pleurisy.

c. Hemorrhagic pleurisy.

g. Purulent pleurisy.

d. Ichorous pleurisy.

E. Productive pleurisy

50. In case of postmortem scar swelling, unlike in vivo tympania, there is no:

a. Redistribution of blood.

b. The content of a large number of gases and semi-liquid, fermenting, foamed feed masses in the rumen.

c. Anemia of the abdominal organs.

d. Pulmonary edema.

51. Upon autopsy of the corpse of an animal that has fallen from acute tympanum of a scar, it is noted (to choose the appropriate one):

a. Visible mucous cyanosis.



- b. Visible mucous jaundice.
  - c. Stagnation of blood in peripheral vessels.
  - d. Anemia of abdominal organs.
  - d. Pulmonary edema.
  - e. Pulmonary emphysema.
  - g. There may be adhesions between the walls of the scar and the diaphragm.
  - h. There may be a rupture of the scar wall or diaphragm.
52. Traumatic reticulitis can be complicated by:
- a. Traumatic pericarditis.
  - b. Traumatic pleurisy.
  - c. Traumatic myocarditis.
  - g. Traumatic renitis.
  - d. Traumatic peritonitis.
  - e. Traumatic cystitis.
  - g. Traumatic arthritis.
  - z. Traumatic hepatitis.
53. Inflammation of the jejunum is called:
- a. Duodenitis.
  - b. Typhlitis.
  - c. Eyunitis.
  - g. Proctitis.
  - d. Ileitis.
  - E. Colitis.
54. Inflammation of the colon is called:
- a. Duodenitis.
  - b. Typhlitis.
  - c. Eyunit.
  - g. Proctitis.
  - d. Ileitis.
  - E. Colitis.
55. Acute catarrhal gastroenteritis is characterized by:
- a. Thickening and compaction of the mucous membrane and its folds.
  - b. Swelling and loosening of the mucous membrane.
  - c. Uneven spotted hyperemia.
  - d. Loss of gloss of the mucous membrane.
  - d. Gray-brown or slate-gray color with multiple black dots.
  - E. The presence in the contents of the stomach and intestines of a large amount of thick, viscous, cloudy mucus (on the surface of the mucous membrane in the form of hard-to-wash overlays).
  - g. The mucous membrane is covered with a thick, viscous translucent, serous-mucous (m.b. mucopurulent or with an admixture of blood) coating, which contains gray-white cloudy flakes.
56. Chronic catarrhal gastroenteritis is characterized by:
- a. Thickening and compaction of the mucous membrane and its folds.
  - b. Swelling and loosening of the mucous membrane.
  - c. Uneven spotted hyperemia.
  - d. Loss of gloss of the mucous membrane.
  - d. Gray-brown or slate-gray color with multiple black dots.
  - e. The presence in the contents of the stomach and intestines of a large amount of thick, viscous, cloudy mucus (on the surface of the mucous membrane in the form of hard-to-wash overlays).
  - g. The mucous membrane is covered with a thick, viscous translucent, serous-mucous (m.b. mucopurulent or with an admixture of blood) plaque, which contains gray -white cloudy flakes.

57. In the presence of easily removable fibrinous plaque on the surface of the mucous membrane, after removal of which a swollen, edematous and hyperemic mucous membrane is found, enteritis is called -

- a. Croup.
- b. Fibrous.
- B. Diphtheria.

58. When fibrin effusion occurs in the thickness of the mucous membrane, and often submucosal membranes, and it is associated with necrosis of the mucous membrane, then with the forcible removal of fibrinous masses, more or less deep defects are noted, gastritis or enteritis is called -

- a. Croup.
- b. Fibrous.
- c. Diphtheria.

59. The mucous membrane is gray - red in color, edematous, loose, with many hemorrhages in it, covered with a liquid or thick mucopurulent exudate of a gray - greenish or greenish color. This pattern is typical for:

- a. Serous gastroenteritis.
- b. Acute catarrhal gastroenteritis.
- c. Fibrinous gastroenteritis.
- g. Hemorrhagic gastroenteritis.
- d. Purulent gastritis and enteritis.

60. The mucous membrane is dull, edematous and loosened, dark cherry color, with multiple hemorrhages in it. The contents of the stomach and intestines are soaked with a large amount of bloody fluid and colored red. This pattern is characteristic of:

- a. Serous gastroenteritis.
- b. Acute catarrhal gastroenteritis.
- c. Fibrinous gastroenteritis.
- g. Hemorrhagic gastroenteritis.
- d. Purulent gastritis and enteritis.

61. Colic is:

- a. A symptom complex characteristic of diseases of the gastrointestinal tract.
- b. A symptom complex characterized by a violation of the motor and enzymatic functions of the intestine.
- c. A symptom complex manifested by sudden onset of cutting pains in the abdominal cavity, due to diseases of the organs located in the abdominal cavity.

62. Colic is called true, which:

- a. Are manifested as a result of inflammatory diseases of the abdominal cavity.
- b. Are necessarily accompanied by pain syndrome.
- c. Are manifested as a result of pathological processes in the gastrointestinal tract.

63. Functional disorders of the gastrointestinal tract, leading to a slowdown or cessation of the movement of feed masses while maintaining a free intestinal lumen, are the basis of:

- a. Mechanical obstruction.
- b. Dynamic obstruction.
- c. Hemostatic obstruction.

64. Intestinal vascular embolisms of a metastatic nature or thromboembolism of parasitic origin are the basis of:

- a. Mechanical obstruction.
- b. Dynamic obstruction.
- c. Hemostatic obstruction.

65. When the intestinal lumen is narrowed or closed without tension or infringement of the mesentery, a. Strongulation ileus is observed.

- b. Obturation, stenosing ileus.

66. With tension and infringement of the mesentery and congestive hemorrhagic infarction, the walls of the strangulated intestinal loop are observed -

- a. Strongulation ileus.
- b. Obturation, stenosing ileus.

67. Dynamic colic includes:

- a. Acute gastric dilation.
- b. Hernias and prolapses.
- c. Intestinal methiorism.
- g. Intestinal inversion.
- d. Displacement and inversion of the abomasum (stomach).
- e. Chymostasis.
- g. Caprostasis.
- z. Thromboembolic colic.
- i. Intestinal intussusception.
- k. Intestinal infringement.

68. Mechanical colic includes:

- a. Acute expansion of the stomach.
- b. Hernias and prolapses.
- b. Intestinal methiorism.
- g. Intestinal inversion.
- d. Displacement and inversion of the abomasum (stomach).
- e. Chymostasis. J. Caprostasis.
- z. Thromboembolic colic.
- i. Intestinal intussusception.
- k. Intestinal infringement.

69. For a lifetime rupture of the stomach, it is characteristic:

- a. The corpse of an animal quickly and strongly swells.
- b. Feed masses are found in the stomach, in the abdominal cavity. When washed off, they remain attached to the peritoneum in places.
- c. The edges of the gap are smooth, not soaked in blood.
- d. The edges of the gap are uneven, fringed, contaminated with feed masses and soaked in blood.

D. Feed masses are found only in the stomach cavity, or in the abdominal cavity, but they are easily washed off the serous integuments.

70. Chemostasis is:

- a. Stagnation of contents in the small intestine,
- b. Stagnation of contents in the stomach,
- c. Stagnation of contents in the large intestine.

71. Part of the intestine is embedded in the lumen of another. The serous covering of the invaded part of the intestine is colored dark cherry, there are many spotty hemorrhages on it. The mucous membrane and submucosa are edematous, infiltrated by erythrocytes. This picture is

- a. Thromboembolic colic.
- b. Intestinal obstruction.
- b. Intestinal intussusception.
- G. Hernias.
- d. Prolapses.

72. The exit from the abdominal cavity of the intestinal loop or organ through an anatomical or pathological opening with a rupture of the peritoneum is called -

- a. Thromboembolic colic.
- b. Intestinal obstruction.
- c. Intestinal intussusception.
- d. Hernia.

- D. By falling out.
73. Thromboembolic colic is accompanied by:
- Intestinal obstruction.
  - The development of hemorrhagic or anemic infarcts in the intestinal wall.
  - Necrosis of the intestinal wall.
  - The development of venous congestion and edema of the intestinal wall.
  - The development of peritonitis.
74. The exit from the abdominal cavity of the intestinal loop or organ through an anatomical or pathological opening with the preservation of the peritoneum is called:
- Thromboembolic colic.
  - Intestinal obstruction.
  - Intestinal intussusception.
  - Hernia.
- D. By falling out.
75. Toxic liver dystrophy is characterized by:
- Mosaic (mottled) coloring of the organ.
  - The presence of inflammatory processes in the liver parenchyma.
  - The presence of dystrophic, atrophic and necrobiotic processes in the parenchyma.
  - A sharp violation of blood circulation.
  - The growth of the connective tissue of the organ.
76. Inflammation of the liver capsule is called:
- Pangepatitis.
  - Parahepatitis.
  - Perigepatitis.
77. Inflammation of the gallbladder is called:
- Cholecystitis.
  - Cystitis.
  - Cholangitis.
78. Cirrhosis of the liver is:
- Reduced in volume and compacted liver of red color.
  - The liver is enlarged in volume due to the proliferation of connective tissue.
  - The proliferation of connective tissue in the liver and deformation of the organ.
79. Cirrhosis can be:
- Atrophic.
  - Biliary.
  - Hypertrophic.
  - Necrobiotic.
  - Anular.
  - Focal.
  - Glomerular.
  - Diffuse.
  - Parenchymal.
80. The liver increases in volume and weight, dense consistency, with a smooth or slightly granular surface, yellow or greenish in color. This pattern is typical for:
- Atrophic cirrhosis.
  - Biliary cirrhosis.
  - Hypertrophic cirrhosis.
  - Necrobiotic cirrhosis.
  - Anular cirrhosis.
  - Focal cirrhosis.
  - Glomerular cirrhosis.
  - Diffuse cirrhosis.

I. Parenchymal cirrhosis.

81. The liver is slightly enlarged in volume, bumpy, as the process progresses, it decreases, and the bumpiness becomes more pronounced. The growth of connective tissue occurs around the bile ducts. Histologically, the accumulation of bile in the bile capillaries is noted - bile clots. This pattern is typical for:

- a. Atrophic cirrhosis
- b. Biliary cirrhosis.
- B. Hypertrophic cirrhosis.
- G. Necrobiotic cirrhosis.
- D. Anular cirrhosis.
- E. Focal cirrhosis.
- g. Glomerular cirrhosis.
- H. Diffuse cirrhosis.
- I. Parenchymal cirrhosis.

82. Nephrosis is:

- a. Dystrophic changes in the glomeruli or tubules of the kidneys.
- b. Inflammation of the kidneys.
- c. A dystrophic change that is accompanied by a serious violation of kidney function.

83. The inflammatory process in the kidneys, which begins with the renal glomeruli and in which the main lesions are observed in the renal glomeruli, is called:

- a. Glomerulonephritis.
- b. Pyelonephritis.
- c. Interstitial nephritis.

84. The inflammatory process in the kidneys, which mainly occurs in the interstitial tissue, is called:

- a. Glomerulonephritis.
- b. Pyelonephritis.
- c. Interstitial nephritis.

85. Acute glomerulonephritis is characterized by:

- a. Serous or hemorrhagic character.
- b. Proliferative character.
- c. The capsule is removed with some effort.
- d. The capsule is removed easily.
- d. The kidney is slightly enlarged.
- E. The kidney is lighter than normal and has a mottled color.
- g. The cortical layer is thickened and has grayish - red dots (enlarged glomeruli).
- h. The kidney is of normal size or slightly reduced.
- i. The kidney is wrinkled, unevenly bumpy.
- k. The consistency of the organ is close to normal.
- l. The consistency of the organ is noticeably compacted

M. The cortical layer is thin, numerous grayish strokes and stripes are visible in it (the result of an overgrowth of connective tissue).

86. Chronic glomerulonephritis is characterized by:

- a. Serous or hemorrhagic character.
- b. Proliferative character.
- c. The capsule is removed with some effort.
- d. The capsule is removed easily.
- d. The kidney is slightly enlarged.
- E. The kidney is lighter than normal and has a mottled color.
- g. The cortical layer is thickened and has grayish -red dots (enlarged glomeruli).
- h. The kidney is of normal size or slightly reduced.
- I. The kidney is wrinkled, irregularly bumpy.

- K. The consistency of the organ is close to normal.
- l. The consistency of the organ is noticeably compacted  
 . The cortical layer is thin, numerous grayish strokes and stripes are visible in it (the result of an overgrowth of connective tissue).
87. Non-purulent interstitial nephritis is characterized by:
- a. An increase in kidney size.
  - b. Spotty coloration.
  - c. A decrease in kidney size.
  - g. Separation of the capsule with a certain effort.
  - d. Yellowish color of the kidney.
  - e. The capsule is removed easily.
  - g. Formation of cysts at the border of the cortical and cerebral layers.
  - h. Multiple hemorrhages.
88. Among the following nephritis, the urogenic character is:
- a. Glomerulonephritis.
  - b. Pyelonephritis.
  - c. Interstitial nephritis.
89. Pyelonephritis is usually accompanied by:
- a. Pyelitis.
  - b. Glomerulitis
  - . Cystitis.
  - g. Ureteritis.
  - d. Hepatitis.
  - e. Urethritis.
90. In pyelonephritis, inflammation, as a rule, has
- a. Catarrhal character.
  - b. Hemorrhagic character.
  - c. Proliferative character.
  - g. Purulent character.
  - d. Fibrinous character.
91. Inflammation of the bladder is called:
- a. Urocystitis.
  - b. Urethritis.
  - c. Ureteritis.
92. Inflammation of the ureters is called:
- a. Urocystitis.
  - b. Urethritis.
  - c. Ureteritis.
93. Inflammation of the surrounding connective tissue of the uterus together with the broad uterine ligament is called:
- a. Endometritis.
  - b. Metritis.
  - c. Parametritis.
  - g. Perimetritis.
  - d. Pyometra.
  - e. Panmetritis.
94. Acute or chronic purulent infection of the uterus, characterized by the accumulation of purulent exudate (thick or liquid pus) in the uterine cavity with a closed neck is called:
- a. Endometritis.
  - b. Metritis.
  - c. Parametritis.
  - g. Perimetritis.

- d. Pyometra.
  - e. Panmetritis.
95. Inflammation of the membranes of the brain and the substance of the brain is called.
- a. Meningoencephalitis.
  - b. Pachymeningitis.
  - c. Leptomeningitis.
  - g. Encephalomyelitis.
  - d. Polioencephalitis.
  - e. Panencephalitis.
  - g. Leukoencephalitis.
96. Inflammation of the soft meninges is called:
- a. Meningoencephalitis.
  - b. Pachymeningitis.
  - c. Leptomeningitis.
  - g. Encephalomyelitis.
  - d. Polioencephalitis.
  - e. Panencephalitis.
  - g. Leukoencephalitis.
97. Inflammation, observed mainly in the gray matter of the cortex or the stem part of the brain, is called:
- a. Meningoencephalitis.
  - b. Pachymeningitis.
  - V. Leptomeningitis.
  - g. Encephalomyelitis.
  - D. Polioencephalitis.
  - E. Panencephalitis.
  - J. Leukoencephalitis.
98. The exudative component of acute non-purulent encephalitis includes:
- a. Tigrilysis.
  - b. Vacuolization of the cytoplasm of neurons.
  - c. Reproduction of glial cells and formation of glial nodules.
  - g. Blood filling of vessels.
  - d. Cerebral edema.
  - e. Vacuolization and lysis of the nucleus.
  - g. Hemorrhages.
  - z. Formation of perivascular couplings.
  - i. Death of neurons.
99. The alterative component of acute non-purulent encephalitis includes:
- a. Tigrilysis.
  - b. Vacuolization of the cytoplasm of neurons.
  - b. Reproduction of glial cells and formation of glial nodules.
  - g. Blood filling of vessels.
  - d. Cerebral edema.
  - e. Vacuolization and lysis of the nucleus.
  - g. Hemorrhages.
  - z. Formation of perivascular couplings.
  - i. Death of neurons.
100. The proliferative component of acute non-purulent encephalitis includes:
- a. Tigrilysis.
  - b. Vacuolization of the cytoplasm of neurons.
  - c. Reproduction of glial cells and the formation of glial nodules.
  - g. Blood filling of vessels.

- d. Cerebral edema.
- e. Vacuolization and lysis of the nucleus.
- g. Hemorrhages.
- z. Formation of perivascular couplings.
- i. Death of neurons.

### 3.2. Questions for the test on Pathohistological diagnosis

The competence being formed:

He is able to understand the essence of typical pathological processes and specific diseases, conduct an autopsy and establish a postmortem diagnosis, objectively assess the correctness of treatment in the order of forensic veterinary examination and arbitration proceedings, comply with the rules for the storage and disposal of corpses, biological waste (**competencies PC-4ID-1 PC-4ID-2 PC-4ID-3 PC-4ID-4 PC-4ID-5 PC-4 ID-6 PC-4ID-10 PC-4ID-11**).

1. Pathological anatomy and its role in the theory and practice of veterinary medicine. Materials and methods of pathoanatomical studies.
2. The development of pathological anatomy as a science, domestic schools of veterinary pathologists.
3. Collection and transfer of patmaterial for histological, bacteriological, virological and chemical-toxicological studies.
4. Posthumous changes.
5. Determining the prescription of death by postmortem changes.
6. Necrosis and its outcomes (macro- and micro-picture).
7. Dystrophy: definition, classification, general pathogenesis.
8. Cellular dysproteinoses: pathogenesis, pathomorphology.
9. Extracellular dysproteinosis: pathogenesis, pathomorphology.
10. Mixed dysproteinoses: impaired metabolism of chromoproteins.
11. Mixed dysproteinoses: impaired nucleoprotein metabolism.
12. Mixed dysproteinoses: impaired glycoprotein metabolism.
13. Pathogenesis and pathanatomy of disorders of fat metabolism. Fat infiltration and decomposition (macro- and micro-picture).
14. Morphogenesis of calcium metabolism disorders.
15. Stones and concretions, the conditions of their formation and their significance in pathology.
16. Jaundice: classification, pathogenesis and pathomorphology.
17. Carbohydrate dystrophy.
18. Hemorrhages: classification, morphology, outcome. Differential diagnosis of bruises and cadaveric spots.
19. Pathomorphology of thrombosis and embolism.
20. Pathogenesis and pathomorphology of heart attacks.
21. Atrophy, hypertrophy, hyperplasia (types, morphogenesis).
22. Pathogenesis and pathomorphology of edema and watermarks.
23. Morphogenesis of regeneration of various tissues.
24. Metaplasia: the concept, morphology.
25. Inflammation: definition, classification.
26. Morphogenesis of alterative inflammation.
27. Morphogenesis of exudative inflammation.
28. Morphogenesis of productive inflammation.
29. Pathanatomy of the central organs of the immune system.
30. Pathanatomy of peripheral organs of the immune system.
31. Tumors: definition, classification, theories of tumor growth.
32. Morphological characteristics of benign tumors.
33. Morphological characteristics of malignant tumors.



34. Leukemia: definition, etiology, classification.
35. Pathomorphology of leukemia in different species of animals and birds.
36. Gastritis: classification, pathomorphology.
37. Enteritis and colitis: classification and pathomorphology.
38. Hepatitis and hepatosis: classification and pathomorphology.
39. Hernias and prolapses: pathogenesis and pathomorphology.
40. Pathogenesis and pathomorphology of pre-ventricular tympanum. The difference between tympanum and postmortem bloating.
41. Pathanatomy of acute gastric dilation and rupture; difference from postmortem changes.
42. Pathogenesis and pathomorphology of inversion, intussusception and intestinal infraction.
43. Endocarditis: pathogenesis, pathomorphology.
44. Myocarditis: pathogenesis, pathomorphology.
45. Pericarditis: pathogenesis, pathomorphology.
46. Pathoanatomic changes in blood vessels: hyalinosis, calcification, atherosclerosis.
47. Emphysema, atelectasis and pulmonary edema: classification and pathomorphology.
48. Pneumonia: classification and pathomorphological characteristics of various pneumonias.
49. Pleurisy: classification and pathomorphology.
50. Nephritis and nephrosis: classification and pathomorphology.
51. Pathomorphology of encephalitis and meningitis.
52. Pathanatomy of thyroid and adrenal gland dysfunction.

#### **4. METHODOLOGICAL MATERIALS DEFINING THE PROCEDURE FOR ASSESSING KNOWLEDGE, SKILLS AND WORK EXPERIENCE CHARACTERIZING THE STAGES OF COMPETENCE FORMATION**

##### **Criteria for evaluating students' knowledge during testing:**

The test result is evaluated on a percentage rating scale. Each student is offered a set of test tasks consisting of 25 questions:

- Mark "excellent" – 25-22 correct answers.
- Mark "good" – 21-18 correct answers.
- The mark "satisfactory" is 17-13 correct answers.
- Mark "unsatisfactory" – less than 13 correct answers

##### **Criteria of knowledge during the credits:**

• The grade "credited" must correspond to the parameters of any of the positive grades ("excellent", "good", "satisfactory").

• The grade "not credited" must correspond to the parameters of the grade "unsatisfactory".

• Mark "excellent" – all types of educational work provided for in the curriculum have been completed. The student demonstrates the compliance of knowledge, skills, and abilities with the indicators given in the tables, operates with acquired knowledge, skills, and applies them in situations of increased complexity. At the same time, inaccuracies, difficulties in analytical operations, transfer of knowledge and skills to new, non-standard situations may be allowed.

• Mark "good" – all types of educational work provided for in the curriculum have been completed. The student demonstrates the compliance of knowledge, skills, and abilities with the indicators given in the tables, operates with acquired knowledge, skills, and applies them in standard situations. At the same time, minor errors, inaccuracies, difficulties in analytical operations, transfer of knowledge and skills to new, non-standard situations may be made.

- Mark "satisfactory" – one or more types of educational work provided for in the curriculum have not been completed. The student demonstrates incomplete compliance of knowledge, skills, and abilities with the indicators given in the tables, significant errors are made, a partial lack of knowledge, skills, and skills is manifested in a number of indicators, the student experiences significant difficulties in operating with knowledge and skills when transferring them to new situations. –

- Mark "unsatisfactory" – the types of educational work provided for in the curriculum have not been completed. demonstrates incomplete compliance of knowledge, skills, and abilities given in the tables of indicators, significant errors are made, a lack of knowledge, skills, and skills is manifested for a large number of indicators, the student experiences significant difficulties in operating with knowledge and skills when transferring them to new situations

### **Accessibility and quality of education for persons with disabilities**

If necessary, persons with disabilities and persons with disabilities are given additional time to prepare an answer for the test.

When conducting the procedure for evaluating the learning outcomes of persons with disabilities and persons with disabilities, their own technical means can be used.

The procedure for evaluating the learning outcomes of persons with disabilities and persons with disabilities in the discipline provides for the provision of information in forms adapted to the limitations of their health and perception of information:

- For persons with visual impairments: – in printed form in enlarged font,  
– in the form of an electronic document.

- For persons with hearing impairments: – in printed form,  
– in the form of an electronic document.

- For persons with disorders of the musculoskeletal system – in printed form, the device:  
– in the form of an electronic document.

When conducting the procedure for evaluating the learning outcomes of persons with disabilities and persons with disabilities in the discipline, it ensures that the following additional requirements are met, depending on the individual characteristics of the students:

- a) instructions on the procedure for conducting the assessment procedure are provided in an accessible form (orally, in writing);

- b) an accessible form of assignment of assessment tools (in printed form, in printed form in enlarged font, in the form of an electronic document, assignments are read out by the teacher);

- c) an accessible form of providing answers to tasks (written on paper, a set of answers on a computer, orally).

If necessary, for students with disabilities and the disabled, the procedure for evaluating the results of training in the discipline can be carried out in several stages.

The procedure for evaluating the learning outcomes of people with disabilities and persons with disabilities is allowed using distance learning technologies.