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.
June 27, 2025

Department of Pharmacology and Toxicology

EDUCATIONAL WORK PROGRAM

for the discipline

«VETERINARY PHARMACOLOGY»

The level of higher education
SPECIALIST COURSE

Specialty 36.05.01 Veterinary Medicine
Profile: «General clinical veterinary medicine»
Full-time education
Education starts in 2025

Reviewed and adopted
at the meeting of the department
on June 25, 2025.
Protocol No. 13

Head of the Department
of Pharmacology and Toxicology
Candidate of Veterinary Sciences, Associate Professor
_______________ Lunegov A.M.

Saint Petersburg
2025

1. GOALS AND OBJECTIVES OF THE DISCIPLINE

The purpose of the discipline is to study the properties of medicinal substances, their effect on the physiological functions of the animal body, and their use for therapeutic and preventive purposes; studying the rules of prescribing and manufacturing technology, the most common dosage forms used in veterinary medicine, accounting and reporting on the use of medicines, as well as studying the effect of toxic substances of anthropogenic and natural origin on the body of agricultural, wild and commercial animals, fish and bees, on their productivity, reproductive function and sanitary quality of livestock products.

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

- to study the general patterns of the effect of drugs on animals, the features of the pharmacokinetics of various groups of drugs, the dependence of the pharmacological effect on the properties of the substance, ways and methods of its administration, types, age and condition of the body and other conditions;

- to study the classification of substances into groups based on the systemic principle and for each group to study the general characteristics, mechanisms of action and pharmacodynamics, indications and contraindications for use, possible cases of poisoning and first aid measures in this case. When characterizing individual drugs, know their Latin name, pharmacokinetics, mechanisms of action and pharmacodynamics, indications and contraindications, doses, forms and routes of administration;

- to study toxicology: classification of toxic substances by origin, degree of danger, effect on the body; to study methods for assessing the toxicity of drugs used in agriculture and veterinary medicine; features of the course of poisoning and principles of their diagnosis; rules for providing animals with different types of medical care for poisoning, taking into account the physico-chemical structure and action of toxic substances; principles of prevention of poisoning by toxic substances, plants, substandard feed, etc.; rules and regulations for sampling feed, water, pathological material, animal and plant products for chemical and toxicological analysis.

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 FSE on 05.36.01 "Veterinary Medicine".

The field of professional activity:

13 Agriculture

2.1. The student's competencies formed (acquired) as a result of mastering the discipline

The education of the discipline should form the following competencies:

a) General professional competencies (GPC):

GPC-3. Is able to carry out and improve professional activities in accordance with regulatory legal acts in the field of agro-industrial complex

GPC -3 ID-3 - To possess skills of: the legal framework and ethical standards in the implementation of professional activities.

b) Professional competencies (PC):

PC-5. To carry out plan of animal treatment, based on the stated diagnosis and animals individual character ristics, signature of necessary remedies of chemical and biological nature for the treatment, taking into account combination of its pharmacological effect on the animal body.

PC-5 ID-1 - To be able to use specialized information databases at a choice of animal treatment methods.

PC-5 ID-2 - To be able to calculate the amount of remedies for the treatment of animals and the prevention of diseases with the receipts signature for a certain period.

PC-5 ID-3 - To be able to calculate the amount of remedies for the treatment of animals and for the prevention of diseases with the receipts signature for a certain period, using digital technologies as well.

PC-5 ID-4 - To be able to administer drugs to the animals body in various techniques.

PC-5 ID-5 - To know the methods of pharmacological treatment of sick animals and indications for its administration, in accordance with the guidelines, instructions, manuals, rules of diagnosis, prevention and treatment.

PC-5 ID-6 - To know the state register of medicines for veterinary use.

PC-5 ID-7 - To know the pharmacological and toxicological characteristics of medicinal raw materials, remedies of chemical and biological nature, biologically active additives for the prevention and treatment of animal diseases of various etiology.

PC-5 ID-8 - To know the ways of drug injections, used both for animals enteral (oral, sublingual and rectal administration) and parenteral (injections, inhalations and skin applications) methods.

PC-7 Statement of the necessity of surgical techniques application for the animals' treatment, development of a surgical operation plan, including the method of anesthesia

PC-7 ID-3 - To know drugs used to anesthetize animals in veterinary surgery. doses and methods of its administration, side effects.

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

Discipline B1.O.25.01 "Veterinary pharmacology" is a discipline of Block 1 of the mandatory part of module B1.O.25 "Veterinary pharmacology and Toxicology" of the federal state educational standard of higher education in the specialty 36.05.01 "Veterinary Medicine" (specialty level). It is mastered in the 5th and 6th semesters in the 3rd year.

When teaching the discipline "Veterinary Pharmacology", the knowledge and skills acquired by students during the development of disciplines are used: Animal anatomy; Cytology, histology and embryology; Pathological animal physiology; Animal feeding with the basics of feed production; Veterinary microbiology and mycology; Animal Physiology; Biological Chemistry; Organic, physical and colloidal Chemistry; Inorganic and analytical Chemistry.

The discipline "Veterinary Pharmacology" is the basic one on which most subsequent disciplines are based, such as: Internal non-infectious diseases; General and private surgery; Obstetrics and gynecology; Parasitology and invasive diseases; Epizootology and infectious diseases, Toxicology.

4. THE SCOPE OF DISCIPLINE AND TYPES OF ACADEMIC WORK

4.1. The scope of the discipline for full-time education

Type of educational work	Hours	Semesters	
		5	**6**
Classroom classes (total)	**100**	**50**	**50**
Including:	**-**	**-**	**-**
Lectures, including interactive forms	32	16	16
Practical lessons (PL), including interactive forms, among which are:	68	34	34
practical training (PT)	12	6	6
Self-study	**116**	**58**	**31**
Control	**27**	**0**	**27**
Type of intermediate and final certification (test, exam)	Test, exam	Test	Exam
Total labor intensity hours/credits	**216/6**	**108/3**	**108/3**

5. THE CONTENT OF THE DISCIPLINE AND TYPES OF CLASSES
5.1. The content of the discipline (full-time education)

№	The title	Achieved competences	Semester	Types of academic work, including students' self-study and labor intensity (in hours)			
				Lectures	**Practical lessons**	**Practical training**	**Self-study**
Section 1. General Pharmacology							
1.	Introduction to general pharmacology. The history of the development of pharmacology. Connection with other sciences.	***GPC-3. Is able to carry out and improve professional activities in accordance with regulatory legal acts in the field of agro-industrial complex:*** GPC -3 ID-3 - **To possess skills of:** the legal framework and ethical standards in the implementation of professional activities. ***PC-5. To carry out plan of animal treatment, based on the stated diagnosis and animals individual character ristics, signature of necessary remedies of chemical and biological nature for the treatment, taking into account combination of its pharmacological effect on the animal body.*** PC-5 ID-6 - To know the state register of medicines for veterinary use. PC-5 ID-7 - To know the pharmacological and toxicological characteristics of medicinal raw materials, remedies of chemical and biological nature, biologically active additives for the prevention and treatment of animal diseases of various etiology. PC-5 ID-8 - To know the ways of drug injections, used both for animals enteral (oral, sublingual and rectal administration) and parenteral (injections, inhalations and skin applications) methods.	5	2	6	-	4
2.	Pharmacokinetics		5		2		4
3.	Pharmacodynamics.		5	-	4	-	4
Section 2. Medicines acting on the central nervous system							
4.	Drugs for anesthesia.	***PC-5. To carry out plan of animal treatment, based on the stated diagnosis and animals individual character ristics, signature of necessary remedies of chemical and biological nature for the treatment, taking into account combination of its pharmacological effect on the animal body.*** PC-5 ID-1 - To be able to use specialized information databases at a choice of animal treatment methods. PC-5 ID-2 - To be able to calculate the amount of remedies for the treatment of animals and the prevention of diseases with the receipts signature for a certain period.	5	2	1	1	4

5.	Sleeping pills. The alcohol group. Social danger.	PC-5 ID-3 - To be able to calculate the amount of remedies for the treatment of animals and for the prevention of diseases with the receipts signature for a certain period, using digital technologies as well. PC-5 ID-4 - To be able to administer drugs to the animals body in various techniques. PC-5 ID-5 - To know the methods of pharmacological treatment of sick animals and indications for its administration, in accordance with the guidelines, instructions, manuals, rules of diagnosis, prevention and treatment. PC-5 ID-6 - To know the state register of medicines for veterinary use. PC-5 ID-7 - To know the pharmacological and toxicological characteristics of medicinal raw materials, remedies of chemical and biological nature, biologically active additives for the prevention and treatment of animal diseases of various etiology. PC-5 ID-8 - To know the ways of drug injections, used both for animals enteral (oral, sublingual and rectal administration) and parenteral (injections, inhalations and skin applications) methods.	5	-	2	-	4
6.	Antipsychotics, tranquilizers, sedatives.		5	-	1	1	4
7.	Narcotic and non-narcotic analgesics. Social danger.	***PC-7 Statement of the necessity of surgical techniques application for the animals' treatment, development of a surgical operation plan, including the method of anesthesia*** PC-7 ID-3 - To know drugs used to anesthetize animals in veterinary surgery. doses and methods of its administration, side effects.	5	2	1	1	4
8.	Purine bases. Camphor preparations, cordiamine. Herbal CNS stimulants.	***PC-5. To carry out plan of animal treatment, based on the stated diagnosis and animals individual character ristics, signature of necessary remedies of chemical and biological nature for the treatment, taking into account combination of its pharmacological effect on the animal body.*** PC-5 ID-1 - To be able to use specialized information databases at a choice of animal treatment methods. PC-5 ID-2 - To be able to calculate the amount of remedies for the treatment of animals and the prevention of diseases with the receipts signature for a certain period. PC-5 ID-3 - To be able to calculate the amount of remedies for the treatment of animals and for the prevention of diseases with the receipts signature for a certain period, using digital technologies as well. PC-5 ID-4 - To be able to administer drugs to the animals body in various techniques. PC-5 ID-5 - To know the methods of pharmacological treatment of sick animals and indications for its administration, in accordance with the guidelines, instructions, manuals, rules of diagnosis, prevention and treatment. PC-5 ID-6 - To know the state register of medicines for veterinary use. PC-5 ID-7 - To know the pharmacological and toxicological characteristics of medicinal raw materials, remedies of chemical and biological nature, biologically active additives for the prevention and treatment of animal diseases of various etiology. PC-5 ID-8 - To know the ways of drug injections, used both for animals enteral (oral, sublingual and rectal administration) and parenteral (injections, inhalations and skin applications) methods.	5	-	3	1	4
9	Neurotropic drugs (general characteristics).		5	2	-	-	4
10.	Cholinergic substances, their classification. Indications and contraindications for use.		5	2	1	1	4
11.	Adrenergic substances, their classification. Indications and contraindications for use		5	2	1	1	4
12.	Agents that affect the endings of afferent nerves.		5	2	4	-	6
13.	Regulatory and legal documentation in the field of circulation of medicines for animals.	***GPC-3. Is able to carry out and improve professional activities in accordance with regulatory legal acts in the field of agro-industrial complex:*** GPC -3 ID-3 - **To possess skills of:** the legal framework and ethical standards in the implementation of professional activities.	5	2	-	-	4
14.	Licensing of pharmaceutical activities		5	-	2	-	4
TOTAL FOR THE 5TH SEMESTER:				**16**	**28**	**6**	**58**

Section 3. Chemotherapeutic agents							
15.	Disinfectants and antiseptics (general characteristics).	***PC-5. To carry out plan of animal treatment, based on the stated diagnosis and animals individual character ristics, signature of necessary remedies of chemical and biological nature for the treatment, taking into account combination of its pharmacological effect on the animal body.*** PC-5 ID-1 - To be able to use specialized information databases at a choice of animal treatment methods. PC-5 ID-2 - To be able to calculate the amount of remedies for the treatment of animals and the prevention of diseases with the receipts signature for a certain period. PC-5 ID-3 - To be able to calculate the amount of remedies for the treatment of animals and for the prevention of diseases with the receipts signature for a certain period, using digital technologies as well. PC-5 ID-4 - To be able to administer drugs to the animals body in various techniques. PC-5 ID-5 - To know the methods of pharmacological treatment of sick animals and indications for its administration, in accordance with the guidelines, instructions, manuals, rules of diagnosis, prevention and treatment. PC-5 ID-6 - To know the state register of medicines for veterinary use. PC-5 ID-7 - To know the pharmacological and toxicological characteristics of medicinal raw materials, remedies of chemical and biological nature, biologically active additives for the prevention and treatment of animal diseases of various etiology. PC-5 ID-8 - To know the ways of drug injections, used both for animals enteral (oral, sublingual and rectal administration) and parenteral (injections, inhalations and skin applications) methods.	6	2	-	-	2
16.	Disinfectants and antiseptics (classification, mechanism of action of each group)		6	-	3	1	4
17.	Chemotherapeutic agents. General classification, application features. Sulfonamide drugs, nitrofurans, quinolones, oxyquinoline derivatives,		6	2	3	1	4
18.	Antibiotics of the penicillin group, cephalosporins and tetracyclines, aromatic series, glycosides and aminoglycosides, etc.		6	2	3	1	4
19.	Antiparasitic drugs. Colloquium.		6	2	3	1	6
Section 4. Means regulating the functions of organs and systems							
20.	Laxatives, hepatoprotective and choleretic agents	***PC-5. To carry out plan of animal treatment, based on the stated diagnosis and animals individual character ristics, signature of necessary remedies of chemical and biological nature for the treatment, taking into account combination of its pharmacological effect on the animal body.*** PC-5 ID-1 - To be able to use specialized information databases at a choice of animal treatment methods. PC-5 ID-2 - To be able to calculate the amount of remedies for the treatment of animals and the prevention of diseases with the receipts signature for a certain period. PC-5 ID-3 - To be able to calculate the amount of remedies for the treatment of animals and for the prevention of diseases with the receipts signature for a certain period, using digital technologies as well. PC-5 ID-4 - To be able to administer drugs to the animals body in various techniques. PC-5 ID-5 - To know the methods of pharmacological treatment of sick animals and indications for its administration, in accordance with the guidelines, instructions, manuals, rules of diagnosis, prevention and treatment. PC-5 ID-6 - To know the state register of medicines for veterinary use. PC-5 ID-7 - To know the pharmacological and toxicological characteristics of medicinal raw materials, remedies of chemical and biological nature, biologically active additives for the prevention and treatment of animal diseases of various etiology. PC-5 ID-8 - To know the ways of drug injections, used both for animals enteral (oral, sublingual and rectal administration) and parenteral (injections, inhalations and skin applications) methods.	6	2	2	-	4
21.	Diuretic medicines.		6	-	2	-	4
22.	Salts of alkaline and alkaline earth metals. Plasma-substituting solutions.		6	2	3	1	6
23.	Medicines that affect the cardiovascular system and blood		6	-	3	1	4
24.	Hormonal drugs.		6	2	2	-	6
25.	Uterine products.		6	-	2	-	6
26.	Correctors of immunodeficiency, stress and productivity		6	2	-	-	4
27.	Vitamin and enzyme preparations		6	-	2	-	4
TOTAL FOR THE 6TH SEMESTER:				**16**	**28**	**6**	**58**

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

6.1. Guidelines for self-work

1. Textbook on general and medical prescription / comp. N. L. Andreeva [et al.]; SPbGAVM. Saint Petersburg : SPbGAVM, 2014. 79 p. – Text: electronic. – URL: https://clck.ru/VeWVV (accessed 25.06.2025). – Access mode: for authorization. EB SPbGUVM users.

4. Medicines with a predominant effect on the central nervous system: an educational and methodical manual on veterinary pharmacology for students of the Faculty of Veterinary Medicine / author-comp.: A.M. Lunegov, N. L. Andreeva, V. A. Baryshev, O. S. Popova [et al.]; Ministry of Agriculture of the Russian Federation, SPbGUVM. - Saint Petersburg : FSBEI HE SPbGUVM, 2020. - 55 p. – Text: electronic. – URL: https://clck.ru/UKry4 (accessed 25.06.2025). – Access mode: for authorization. EB SPbGUVM users.

6.2. Literature for self-work

1. Workshop on veterinary pharmacology : studies.- the method. the manual; rec. Department of Higher Education of the Russian Federation. Part 1 / V. D. Sokolov, N. L. Andreeva, S. N. Preobrazhensky [et al.] ; SPbSAVM. - St. Petersburg : Publishing house of SPbSAVM, 2009. - 58 p.

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

7.1. Basic literature

1. Sokolov, V. D. Pharmacology : textbook / V. D. Sokolov. — 4th ed., ispr. and add. — Saint Petersburg : Lan, 2022. — 576 p. — ISBN 978-5-8114-0901-3.

2. Medicines regulating the functions of organs and systems : method. manual on vet. Pharmacology / comp. N. L. Andreeva [et al.]; SPbGAVM. - 2nd ed., additional and revised Saint Petersburg : SPbGAVM, 2013. 58 p. – Text: electronic. – URL: https://clck.ru/UJnv8 (accessed 25.06.2025). – Access mode: for authorization. EB SPbGUVM users.

7.2. Additional literature

1. Educational and methodical manual for practical classes in veterinary toxicology for full-time, part-time, and part-time students of the Veterinary Faculty / comp.: N. L. Andreeva [et al.]; SPbGAVM. - St. Petersburg : SPbGAVM, 2017. - 59 p. – Text: electronic. – URL: https://clck.ru/VeXZ8 (accessed 25.06.2025). – Access mode: for authorization. EB SPbGUVM users.

2. Antimicrobial and antiparasitic agents : an educational and methodical manual on veterinary pharmacology / Andreeva Nadezhda Lukoyanovna, Lunegov Alexander Mikhailovich, Popova Olga Sergeevna, Baryshev Viktor Anatolyevich ; Ministry of Agriculture of the Russian Federation, St. Petersburg State University. - Saint Petersburg : SPbGAVM, 2019. - 58 p. – Text: electronic. – URL: https://clck.ru/VeWpz (accessed 25.06.2025). – Access mode: for authorization. EB SPbGUVM users.

8.THE LIST OF RESOURCES OF THE INFORMATION AND TELECOMMUNICATION NETWORK "INTERNET" NECESSARY FOR EDUCATION OF THE DISCIPLINE

To prepare for laboratory classes and perform self-work, students can use the following online resources:

1. rlsnet.ru Encyclopedia of medicines and pharmacy products
2. Vidal.ru The Vidal Veterinarian Handbook
3. www.vetlek.ru
4. fsvps.gov.ru Rosselkhoznadzor
5. meduniver.com Medical Information Site

Electronic library systems

1. ELS "SPBGUVM"
2. Legal reference system "ConsultantPlus"
3. University information system "RUSSIA"
4. Full-text database POLPRED.COM
5. Scientific electronic Library ELIBRARY.RU
6. Russian Scientific Network
7. Full-text interdisciplinary database on agricultural and environmental sciences ProQuest AGRICULTURAL AND ENVIRONMENTAL SCIENCE DATABASE
8. Electronic books of the publishing house "Prospekt Nauki" http://prospektnauki.ru/ebooks/
9. Collection "Agriculture. Veterinary medicine" publishing house "Quadro" ELS "Elibris" publishing house "Quadro" https://elibrica.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 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 master 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 transist 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 takimg 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 cod, 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 activityare 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 conrol 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 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://spbguvm.ru/academy/eios/

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

№	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/КЛ
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**
Veterinary Pharmacology	115 (196084, St. Petersburg, Chernihiv str., 5) Classroom for conducting seminar-type classes, group and individual consultations, ongoing monitoring and intermediate certification	Specialized furniture: desks, chairs, blackboard. Technical training facilities: multimedia projector, screen, computer. Visual aids and educational materials: pharmacological collection by groups of medicinal substances, herbarium of medicinal and poisonous plants, presentations on pharmacology
	211 (196084, St. Petersburg, Chernihiv str., 5) Classroom for conducting seminar-type classes, group and individual consultations, ongoing monitoring and intermediate certification	Specialized furniture: desks, chairs, blackboard. Technical training facilities: multimedia projector, screen, computer. Visual aids and educational materials: pharmacological collection by groups of medicinal substances, herbarium of medicinal and poisonous plants, presentations on pharmacology
	211A (196084, St. Petersburg, Chernihiv str., 5) Classroom for conducting seminar-type classes, group and individual consultations, ongoing monitoring and intermediate certification	Specialized furniture: desks, chairs, blackboard. Technical training facilities: multimedia projector, screen, computer. Visual aids and educational materials: pharmacological collection by groups of medicinal substances, herbarium of medicinal and poisonous plants, presentations on pharmacology
	313 (196084, St. Petersburg, Chernihiv str., 5) Classroom for conducting seminar-type classes, group and individual consultations, ongoing monitoring and intermediate certification	Specialized furniture: desks, chairs, blackboard. Technical means of training: multimedia projector, screen, computer, scales: laboratory, manual, calibration; torsion; dispenser; homogenizer; magnetic stirrer; thermostat; laboratory refractometer microscope; refrigerator, laboratory utensils, exhaust cabinet; Visual aids and educational materials: pharmacological collection by groups of medicinal substances, herbarium of medicinal and poisonous plants, presentations on pharmacology
	314 (196084, St. Petersburg, Chernihiv str., 5) Classroom for conducting seminar-type classes, group and individual consultations, ongoing monitoring and intermediate certification	Specialized furniture: desks, chairs, blackboard. Technical means of training: multimedia projector, screen, computer, scales: laboratory, manual, calibration; torsion; dispenser; homogenizer; magnetic stirrer; thermostat; laboratory refractometer microscope; refrigerator, laboratory utensils, exhaust cabinet; Visual aids and educational materials: pharmacological collection by groups of medicinal substances, herbarium of medicinal and poisonous plants, presentations on pharmacology
	114 (196084, St. Petersburg, Chernihiv str., house 5) Educational laboratory of the department.	Specialized furniture: chairs, laboratory cabinets, laboratory tables Technical training tools: Sapop FC -128 copier), HP LJ 1022 printer; multimedia projector, portable screen, computer, scales: laboratory, manual, torsion; torsion; dispenser; homogenizer; distiller.

		magnetic stirrer; laboratory heater; thermostat; microscope; laboratory refractometer; refrigerator, laboratory utensils, educational dummy dog "Jerry".
	206 Large reading room (196084, St. Petersburg, Chernigovskaya str., 5) Room for self-work	Specialized furniture: tables, chairs Technical means of education: computers connected to the Internet and access to an electronic information and educational environment
	214 Small reading room (196084, St. Petersburg, Chernigovskaya str., 5) Room for self-work	Specialized furniture: tables, chairs Technical means of education: computers connected to the Internet and access to an electronic information and educational environment
	324 Information Technology Department (196084, St. Petersburg, Chernigovskaya str., 5) Room for storage and preventive maintenance of educational equipment	Specialized furniture: tables, chairs, special equipment, materials and spare parts for preventive maintenance of technical training facilities
	Box No. 3 Carpentry workshop (196084, St. Petersburg, Chernigovsaya str., 5) Room for storage and preventive maintenance of educational equipment	Specialized furniture: tables, chairs, special equipment, materials and spare parts for preventive maintenance of technical training facilities

Developer:

Head of the Department of Pharmacology and Toxicology,
Candidate of Veterinary Sciences, Associate Professor  Lunegov A.M.

Annex 1

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

Department of Department of Pharmacology and Toxicology

FUND OF ASSESMENT TOOLS
for the discipline
"VETERINARY PHARMACOLOGY"

Level of higher education
SPECIALIST COURSE

Specialty 36.05.01 Veterinary medicine
Profile: «General clinical veterinary medicine»
Full-time education.

Education starts in 2025

Saint Petersburg
2025

1. PASSPORT OF THE FUND OF ASSESMENT TOOLS

№	Acquired competence	Assessed modules of a discipline	Assesment tool
1.	***GPC-3. Is able to carry out and improve professional activities in accordance with regulatory legal acts in the field of agro-industrial complex:*** GPC -3 ID-3 - **To possess skills of:** the legal framework and ethical standards in the implementation of professional activities. ***PC-5. To carry out plan of animal treatment, based on the stated diagnosis and animals individual character ristics, signature of necessary remedies of chemical and biological nature for the treatment, taking into account combination of its pharmacological effect on the animal body.*** PC-5 ID-6 - To know the state register of medicines for veterinary use. PC-5 ID-7 - To know the pharmacological and toxicological characteristics of medicinal raw materials, remedies of chemical and biological nature, biologically active additives for the prevention and treatment of animal diseases of various etiology. PC-5 ID-8 - To know the ways of drug injections, used both for animals enteral (oral, sublingual and rectal administration) and parenteral (injections, inhalations and skin applications) methods.	Section 1. General Pharmacology	Knowledge survey, tests
2.	***GPC-3. Is able to carry out and improve professional activities in accordance with regulatory legal acts in the field of agro-industrial complex:*** GPC -3 ID-3 - **To possess skills of:** the legal framework and ethical standards in the implementation of professional activities. ***PC-5. To carry out plan of animal treatment, based on the stated diagnosis and animals individual character ristics, signature of necessary remedies of chemical and biological nature for the treatment, taking into account combination of its pharmacological effect on the animal body.*** PC-5 ID-1 - To be able to use specialized information databases at a choice of animal treatment methods. PC-5 ID-2 - To be able to calculate the amount of remedies for the treatment of animals and the prevention of diseases with the receipts signature for a certain period. PC-5 ID-3 - To be able to calculate the amount of remedies for the treatment of animals and for the prevention of diseases with the receipts signature for a certain period, using digital technologies as well. PC-5 ID-4 - To be able to administer drugs to the animals body in various techniques. PC-5 ID-5 - To know the methods of pharmacological treatment of sick animals and indications for its administration, in accordance with the guidelines, instructions, manuals, rules of diagnosis, prevention and treatment. PC-5 ID-6 - To know the state register of medicines for veterinary use. PC-5 ID-7 - To know the pharmacological and toxicological characteristics of medicinal raw materials, remedies of chemical and biological nature, biologically active additives for the prevention and treatment of animal diseases of various etiology. PC-5 ID-8 - To know the ways of drug injections, used both for animals enteral (oral, sublingual and rectal administration) and parenteral (injections, inhalations and skin applications) methods. ***PC-7 Statement of the necessity of surgical techniques application for the animals' treatment, development of a surgical operation plan, including the method of anesthesia*** PC-7 ID-3 - To know drugs used to anesthetize animals in veterinary surgery. doses and methods of its administration, side effects.	Section 2. Medicines acting on the central nervous system	Seminar, tests

3.	***PC-5. To carry out plan of animal treatment, based on the stated diagnosis and animals individual character ristics, signature of necessary remedies of chemical and biological nature for the treatment, taking into account combination of its pharmacological effect on the animal body.*** PC-5 ID-1 - To be able to use specialized information databases at a choice of animal treatment methods. PC-5 ID-2 - To be able to calculate the amount of remedies for the treatment of animals and the prevention of diseases with the receipts signature for a certain period. PC-5 ID-3 - To be able to calculate the amount of remedies for the treatment of animals and for the prevention of diseases with the receipts signature for a certain period, using digital technologies as well. PC-5 ID-4 - To be able to administer drugs to the animals body in various techniques. PC-5 ID-5 - To know the methods of pharmacological treatment of sick animals and indications for its administration, in accordance with the guidelines, instructions, manuals, rules of diagnosis, prevention and treatment. PC-5 ID-6 - To know the state register of medicines for veterinary use. PC-5 ID-7 - To know the pharmacological and toxicological characteristics of medicinal raw materials, remedies of chemical and biological nature, biologically active additives for the prevention and treatment of animal diseases of various etiology. PC-5 ID-8 - To know the ways of drug injections, used both for animals enteral (oral, sublingual and rectal administration) and parenteral (injections, inhalations and skin applications) methods.	Section 3. Chemotherapeutic agents	Seminar, tests
4.		Section 4. Means regulating the functions of organs and systems	Seminar, tests

List of assessment tools

№	Name of the assessment tool	Brief description of the assesment tool	Presentation of the assessment tool in the fund
1.	Seminar	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

2. INDICATORS AND CRITERIA FOR ASSESSING COMPETENCIES AT VARIOUS STAGES OF ITS FORMATION, DESCRIPTION OF ASSESSMENT SCALES

Planned results of competency acquaired	The level of development				Assesment tool
	Unsatisfactory	Satisfactory	Good	Exellent	
GPC-3. Is able to carry out and improve professional activities in accordance with regulatory legal acts in the field of agro-industrial complex*:*					
GPC -3 ID-3 - To possess skills of: the legal framework and ethical standards in the implementation of professional activities.	Basic skills were not demonstrated when solving standard tasks, and gross errors occurred	There is a minimal set of skills for solving standard tasks with some shortcomings	Basic skills are demonstrated in solving standard tasks with some shortcomings	Demonstrated skills in solving Non-standard tasks without errors and shortcomings	Seminar, Test, Report, Control work
PC-5. To carry out plan of animal treatment, based on the stated diagnosis and animals individual character ristics, signature of necessary remedies of chemical and biological nature for the treatment, taking into account combination of its pharmacological effect on the animal body.					
PC-5 ID-1 - To be able to use specialized information databases at a choice of animal treatment methods.	Basic skills were not demonstrated when solving standard tasks, and gross errors occurred	Basic skills have been demonstrated, typical tasks with minor errors have been solved, all tasks have been completed, but not in full	All the basic skills have been demonstrated, all the main tasks with minor errors have been solved, all the tasks have been completed in full, but some with flaws	All basic skills have been demonstrated, all basic tasks have been solved with some minor flaws, and all tasks have been completed in full	Seminar, Test, Report, Control work
PC-5 ID-2 - To be able to calculate the amount of remedies for the treatment of animals and the prevention of diseases with the receipts signature for a certain period.	Basic skills were not demonstrated when solving standard tasks, and gross errors occurred	Basic skills have been demonstrated, typical tasks with minor errors have been solved, all tasks have been completed, but not in full	All the basic skills have been demonstrated, all the main tasks with minor errors have been solved, all the tasks have been completed in full, but some with flaws	All basic skills have been demonstrated, all basic tasks have been solved with some minor flaws, and all tasks have been completed in full	Seminar, Test, Report, Control work
PC-5 ID-3 - To be able to calculate the amount of remedies for the treatment of animals and for the prevention of diseases with the receipts signature for a certain period, using digital technologies as well.	Basic skills were not demonstrated when solving standard tasks, and gross errors occurred	Basic skills have been demonstrated, typical tasks with minor errors have been solved, all tasks have been completed, but not in full	All the basic skills have been demonstrated, all the main tasks with minor errors have been solved, all the tasks have been completed in full, but some with flaws	All basic skills have been demonstrated, all basic tasks have been solved with some minor flaws, and all tasks have been completed in full	Seminar, Test, Report, Control work
PC-5 ID-4 - To be able to administer drugs to the animals body in various techniques	Basic skills were not demonstrated when solving standard tasks, and gross errors occurred	Basic skills have been demonstrated, typical tasks with minor errors have been solved, all tasks have been completed, but not in full	All the basic skills have been demonstrated, all the main tasks with minor errors have been solved, all the tasks have been completed in full, but some with flaws	All basic skills have been demonstrated, all basic tasks have been solved with some minor flaws, and all tasks have been completed in full	Seminar, Test

PC-5 ID-5 - To know the methods of pharmacological treatment of sick animals and indications for its administration, in accordance with the guidelines, instructions, manuals, rules of diagnosis, prevention and treatment.	The level of knowledge is below the minimum requirements, gross errors have occurred	The minimum acceptable level of knowledge, many gross mistakes were 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.	Seminar, Test, Report, Control work
PC-5 ID-6 - To know the state register of medicines for veterinary use.	The level of knowledge is below the minimum requirements, gross errors have occurred	The minimum acceptable level of knowledge, many gross mistakes were 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.	Seminar, Test, Report, Control work
PC-5 ID-7 - To know the pharmacological and toxicological characteristics of medicinal raw materials, remedies of chemical and biological nature, biologically active additives for the prevention and treatment of animal diseases of various etiology.	The level of knowledge is below the minimum requirements, gross errors have occurred	The minimum acceptable level of knowledge, many gross mistakes were 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.	Seminar, Test, Report, Control work
PC-5 ID-8 - To know the ways of drug injections, used both for animals enteral (oral, sublingual and rectal administration) and parenteral (injections, inhalations and skin applications) methods	The level of knowledge is below the minimum requirements, gross errors have occurred	The minimum acceptable level of knowledge, many gross mistakes were 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.	Seminar, Test, Report, Control work
GPC-7. To be able to understand the principles of modern information technologies and use them to solve professional tasks					
GPC-7 ID-3 To possess skills to use modern technical means and information technologies to solve analytical and research problems.	When solving standard problems basic skills were not demonstrated, gross errors occurred	There is a minimum set of skills to solve standard tasks with some shortcomings	When solving standard problems basic skills were not demonstrated with some flaws	Skills were demonstrated in solving non-standard tasks without errors and flaws	Seminar, Test

3. A LIST OF CONTROL TASKS AND OTHER MATERIALS, NECESSARY FOR THE ASSESSMENT OF KNOWLEDGE, SKILLS AND WORK EXPERIENCE

3.1. Typical tasks for the current control of academic progress

3.1.1 Questions for seminar

Assessed modules of a discipline	Acquired competence (identification)	Questions on topics/modules of the discipline
Section 1. General Pharmacology	***GPC-3. Is able to carry out and improve professional activities in accordance with regulatory legal acts in the field of agro-industrial complex:*** GPC -3 ID-3 - **To possess skills of:** the legal framework and ethical standards in the implementation of professional activities. ***PC-5. To carry out plan of animal treatment, based on the stated diagnosis and animals individual character ristics, signature of necessary remedies of chemical and biological nature for the treatment, taking into account combination of its pharmacological effect on the animal body.*** PC-5 ID-6 - To know the state register of medicines for veterinary use. PC-5 ID-7 - To know the pharmacological and toxicological characteristics of medicinal raw materials, remedies of chemical and biological nature, biologically active additives for the prevention and treatment of animal diseases of various etiology. PC-5 ID-8 - To know the ways of drug injections, used both for animals enteral (oral, sublingual and rectal administration) and parenteral (injections, inhalations and skin applications) methods.	1. The history of the development of pharmacology and its connection with other sciences. 2. Regulatory documents regulating pharmaceutical activities. 3. Rules for the storage of medicines of different groups. 4. Licensing of pharmaceutical activities. 5. Licensing of pharmaceutical activities for the turnover of narcotic and psychotropic drugs. 6. Methods of destruction of medicines. 7. The State Pharmacopoeia of the Russian Federation 8. The State information system in the field of veterinary medicine is approved by the Federal Service for Veterinary and Phytosanitary Supervision 9. Features of the effect of drugs on the central nervous system. 10. The concept of chemotherapy drugs.
Section 2. Medicines acting on the central nervous system	***GPC-3. Is able to carry out and improve professional activities in accordance with regulatory legal acts in the field of agro-industrial complex:*** GPC -3 ID-3 - **To possess skills of:** the legal framework and ethical standards in the implementation of professional activities. ***PC-5. To carry out plan of animal treatment, based on the stated diagnosis and animals individual character ristics, signature of necessary remedies of chemical and biological nature for the treatment, taking into account combination of its pharmacological effect on the animal body.*** PC-5 ID-1 - To be able to use specialized information databases at a choice of animal treatment methods. PC-5 ID-2 - To be able to calculate the amount of remedies for the treatment of animals and the prevention of diseases with the receipts signature for a certain period. PC-5 ID-3 - To be able to calculate the amount of remedies for the treatment of animals and for the prevention of diseases with the receipts	1. State registration of medicines for animals and feed additives. 2. Information databases of medicines for animals. 3. Dosage forms of medicines 4. Types of action of medicinal substances. 5. Sources and ways of obtaining medicinal substances. 6. Rules for prescribing 7. Interaction of medicinal substances (synergism, antagonism). Side effect of medicinal substances. Drug incompatibility. 8. Dependence of the action of medicinal substances on the dosage form. 9. Dosage of medicinal substances. 10. The concept of pharmacokinetics and pharmacodynamics. 11. Routes of administration of drugs and their distribution in the body. 12. The State Pharmacopoeia of the Russian Federation 13. The State information system in the field of veterinary medicine is approved by the Federal Service for Veterinary and Phytosanitary

	signature for a certain period, using digital technologies as well. PC-5 ID-4 - To be able to administer drugs to the animals body in various techniques. PC-5 ID-5 - To know the methods of pharmacological treatment of sick animals and indications for its administration, in accordance with the guidelines, instructions, manuals, rules of diagnosis, prevention and treatment. PC-5 ID-6 - To know the state register of medicines for veterinary use. PC-5 ID-7 - To know the pharmacological and toxicological characteristics of medicinal raw materials, remedies of chemical and biological nature, biologically active additives for the prevention and treatment of animal diseases of various etiology. PC-5 ID-8 - To know the ways of drug injections, used both for animals enteral (oral, sublingual and rectal administration) and parenteral (injections, inhalations and skin applications) methods. ***PC-7 Statement of the necessity of surgical techniques application for the animals' treatment, development of a surgical operation plan, including the method of anesthesia*** PC-7 ID-3 - To know drugs used to anesthetize animals in veterinary surgery. doses and methods of its administration, side effects.	Supervision 14. Features of the effect of drugs on the central nervous system. The difference and similarity with the effect of caffeine. 15. The effect of camphor on the central nervous system and respiration. 16. The effect of camphor on the cardiovascular system. 17. Characteristics of preparations of the camphor group. 18. Local and resorptive action of camphor. Indications for use. 19. Herbal CNS stimulants. 20. Classification of neurotropic drugs. 21. The effect of caffeine on the cardiovascular system and skeletal muscles. 22. Caffeine and camphor, the difference and similarity in the manifestation of action. 23. Caffeine. Mechanism of action. Application in veterinary medicine. 24. Cytitone and lobelin, mechanism of action, indications for use. 25. Definition of anesthesia. Stages and levels of anesthesia. 26. Characteristics of drugs for inhalation anesthesia. 27. Characteristics of drugs for non-inhalation anesthesia. 28. Comparative characteristics of inhalation and non-inhalation drugs for anesthesia. 29. Alcohol group. Local and resorptive effect of alcohol. 30. Sleeping pills. 31. Side effects when using narcotic drugs and their correction. 32. The concept of analgesia. Pain receptors. Ways of conducting pain. 33. Comparative evaluation of antipyretic and analgesic agents of different chemical groups. 34. Comparative characteristics of narcotic and non-narcotic analgesics. 35. Characteristics of narcotic analgesics. 36. Characteristics of non-narcotic analgesics. 37. Neuroleptics. Mechanism of action, classification, application in veterinary medicine. 38. Characteristics of analeptics. 39. Tranquilizers, mechanism of action, indications for use. 40. Sedatives. Action, application, side effect and its correction.
Section 3. Chemotherapeutic agents	***PC-5. To carry out plan of animal treatment, based on the stated diagnosis and animals individual character ristics, signature of necessary remedies of chemical and biological nature for the treatment, taking into account combination of its pharmacological effect on the animal body.*** PC-5 ID-1 - To be able to use specialized information databases at a choice of animal treatment methods. PC-5 ID-2 - To be able to calculate the amount of remedies for the treatment of animals and the prevention of diseases with the receipts signature for a certain period.	1. Classification and characteristics of disinfectants and antiseptics. 2. Oxygen-releasing antiseptics. 3. Phenol and its derivatives. 4. Alkalis and acids. 5. Aldehydes. 6. Pharmaldehyde preparations. 7. Iodine preparations. 8. Chlorine preparations. 9. Antiseptic paints.

	PC-5 ID-3 - To be able to calculate the amount of remedies for the treatment of animals and for the prevention of diseases with the receipts signature for a certain period, using digital technologies as well. PC-5 ID-4 - To be able to administer drugs to the animals body in various techniques. PC-5 ID-5 - To know the methods of pharmacological treatment of sick animals and indications for its administration, in accordance with the guidelines, instructions, manuals, rules of diagnosis, prevention and treatment. PC-5 ID-6 - To know the state register of medicines for veterinary use. PC-5 ID-7 - To know the pharmacological and toxicological characteristics of medicinal raw materials, remedies of chemical and biological nature, biologically active additives for the prevention and treatment of animal diseases of various etiology. PC-5 ID-8 - To know the ways of drug injections, used both for animals enteral (oral, sublingual and rectal administration) and parenteral (injections, inhalations and skin applications) methods.	10. Antiseptic agents of the metal group. 11. Strategy and tactics of antibiotic therapy. 12. The concept of chemotherapy drugs. 13. Sulfonamides, mechanism of action, classification. 14. Double-acting sulfonamides. 15. The mechanism of action of double-acting sulfonamides. 16. Nitrofurans, mechanism of action, application. 17. Quinoxalines. 18. Fluoroquinolones, mechanism of action, application. 19. Classification of antibiotics. 20. Antibiotics of the penicillin group. 21. Semi-synthetic penicillins. 22. Prolonged penicillins. 23. Tetracyclines, mechanism of action, application. 24. Antibiotics of the macrolide group. 25. Antibiotics of the tylosin subgroup. 26. Antibiotics are polyene. 27. Antibiotics of the levomycetin group. 28. Antibiotics aminoglycosides. 29. Antibiotics of the streptomycin group. 30. Antiparasitic agents (general characteristics, classification) 31. Anthelmintic agents 32. Anti-parasitic drugs 33. Anti-inflammatory drugs 34. Acaricidal agents 35. Insecticidal agents 36. Deratization means
Section 4. Means regulating the functions of organs and systems		1. Характеристика гепатопротекторных и желчегонных facilities. Action and classification. Indications and contraindications for use. Medication. 2. Classification of diuretics and their general characteristics. 3. Pharmacodynamics, mechanism of action of osmotic diuretics. Medication. Indications and indications 4. Pharmacodynamics, the mechanism of action of herbal diuretics. Medication. 5. Pharmacodynamics, mechanism of action of carbonic anhydrase inhibitors. Medication. 6. Pharmacodynamics, the mechanism of action of herbal diuretics. Medication. 7. Classification of laxatives by origin and mechanism of action. Indications and contraindications for the use of laxatives. 8. The predominant effect of laxatives on the gastrointestinal tract. 9. General characteristics and importance of minerals in the processes of vital activity of the body, the physiological needs of animals and birds in sodium, potassium, calcium and magnesium salts.

		10. Local and resorptive effects of salts on the body. 11. Alkali metal salts (sodium and potassium preparations). 12. Salts of alkaline earth metals (calcium and magnesium preparations). 13. Characteristics of heavy metal preparations, local and general effects. 14. Routes of administration of drugs and their distribution in the body. 15. General characteristics of plasma substitutes, classification and requirements for them. 16. Characteristics of hemodynamic and detoxification plasma substitutes (preparations and indications for use). 17. Characteristics of blood-substituting fluids for parenteral nutrition, regulators of water-salt and acid-base balance and complex action (drugs, indications for use). 18. Cardiac glycosides, sources of production, standardization, dosing. 19. The main effect of cardiac glycosides, indications and contraindications for their use. Preparations of foxglove, goricolor, lily of the valley and strophanthus. 20. Antiarrhythmic drugs and features of their action. 21. Antispasmodic agents and their use. 22. Drugs that affect blood clotting. 23. Blood substitutes. 24. General principles of hormone therapy. 25. Determination of hormones, their classification and regulation. 26. Sources of production and principles of biological standardization. 27. Preparations of pituitary hormones. The effect of hormones of the anterior pituitary gland on the activity of the endocrine glands. 28. The effect of hormones of the posterior pituitary gland on the myometrium, on the tone of the intestine and blood vessels. 29. Preparations of thyroid and parathyroid hormones. The effect on metabolism. Therapeutic use. 30. Preparations of pancreatic hormones. Synthetic insulin substitutes. 31. Preparations of hormones of the adrenal cortex. 32. Preparations of sex hormones. 33. Characteristics and classification of uterine products. 34. Prostaglandins. 35. Drugs that stimulate rhythmic contractions of the uterus. 36. Drugs that stimulate tonic contractions of the uterus. 37. Means relaxing the myometrium. 38. Water-soluble vitamins 39. Fat-soluble vitamins. 40. Productivity correctors 41. Immunomodulators

3.1.2 Test-questions

Competence assessment tests:
PC-5 Development of an animal treatment plan based on the established diagnosis and individual characteristics of animals, selection of necessary medicines of chemical and biological nature for the treatment of animals, taking into account their combined pharmacological effect on the body;

Competence indicators:
PC-5.1 Be able to use specialized information databases when choosing animal treatment methods
PC-5.2 Be able to calculate the amount of medicines for the treatment of animals and the prevention of diseases with prescriptions for a certain period
PC-5.3 Be able to calculate the amount of medicines for the treatment of animals and the prevention of diseases with prescriptions for a certain period, including using digital technologies
PC-5.5 To know the methods of drug treatment of sick animals and indications for their use in accordance with the guidelines, instructions, guidelines, rules of diagnosis, prevention and treatment of animals

TASKS OF A COMBINED TYPE WITH THE CHOICE OF ONE OR MORE CORRECT ANSWERS FROM THE SUGGESTED OPTIONS

PC-5.1 Be able to use specialized information databases when choosing animal treatment methods

Task 1.
Read the text and choose the correct answer.
Which of the following documents sets standards for veterinary drugs in Russia?
1. Federal Law on Veterinary Medicine
2. The State Pharmacopoeia
3. Order of the Ministry of Agriculture
4. Regulations on veterinary control
Answer: 2

Task 2.
Read the text and choose the correct answer.
What is the importance of the state pharmacopoeia for ensuring the quality of medicines?
1. Regulates the prices of medicines
2. Sets quality and manufacturing standards
3. Defines the rules of drug marketing
4. Provides advertising for drugs
Answer: 2

Task 3.
Read the text and choose the correct answer.
The Federal State Veterinary Information System VetIS collects, processes, analyzes, stores, searches and provides information to the user, including about medicines, pharmaceutical substances and feed additives. Which component of the VetIS special information systems is designed to monitor the safety of medicinal products for veterinary use, record side effects, serious adverse reactions, unforeseen adverse reactions when using medicinal products for veterinary use and provide information about this?
1. Galen;

2. Argus;
3. Cyrano.
Answer: 1

Task 4.
Read the text and choose the correct answers.
Choose several correct answers regarding the state pharmacopoeia.:
1. It contains quality standards for all medicines.
2. It regulates the methods of testing and control of medicines.
3. Only pharmacologists have access to it.
4. It is used for the development of the unified international pharmacopoeia.
Correct answers: 1, 2

PC-5.2 Be able to calculate the amount of medicines for the treatment of animals and the prevention of diseases with prescriptions for a certain period

Task 5.
Read the text and choose the correct answer.
The breadth of the therapeutic effect of the drug is:
1. therapeutic dose of the medicine;
2. the ratio of the drug concentration in an organ or tissue to its concentration in blood plasma;
3. the range between the minimum therapeutic and minimum toxic
concentrations of the drug in plasma;
4. Percentage of non-protein-bound drugs;
5. The range between the minimum and maximum therapeutic concentrations of the drug.
Answer: 5

CLOSED-TYPE COMPLIANCE ASSIGNMENTS

PC-5.1 Be able to use specialized information databases when choosing animal treatment methods
Task 6.
Read the text and make a match.
Compare the types of medicines, taking into account the pharmacological group and their field of application:

Application areas		**Pharmacological group**	
А	Treatment of infectious diseases	1	Antibiotics
Б	Disease prevention	2	Vaccines
В	Treatment of parasitic infections	3	Antiprotozoal agents

Write down the selected numbers under the corresponding letters in the table.

А	Б	В

Answer: А1Б2В3

PC-5.2 Be able to calculate the amount of medicines for the treatment of animals and the prevention of diseases with prescriptions for a certain period

Task 7.
Read the text and make a match.
Establish the sequence of stages of the pharmacokinetic pathway of the drug in the body:

Sequence number of the stage		Stage name	
А	The first stage	1	Absorption into the bloodstream
Б	The second stage	2	Metabolism in the liver
В	The third stage	3	Excretion through the kidneys
Г	The fourth stage	4	Distribution in body tissues
Д	The fifth stage	5	Effect on receptors

Write down the selected numbers under the corresponding letters in the table.

А	Б		В	Г	Д

Answer: А1Б2В3Г4Д5

РС-5.3 Be able to calculate the amount of medicines for the treatment of animals and the prevention of diseases with prescriptions for a certain period, including using digital technologies

Task 8.

Read the text and make a match.

In the manufacture of liquid dosage forms, in some cases it is necessary to know the ratio of medicinal substances and solvent. Establish the correspondence of the dosage form in relation to the solvent.

Dosage form		Solvent ratio	
А	Infusions and decoctions	1	1:10
Б	Digitalis infusion	2	1:30
В	Flax seed mucus	3	1:50
Г	Starch slime	4	1:400

Write down the selected numbers under the corresponding letters in the table.

А	Б	В	Г

Answer: А1Б4В2Г3.

Task 9.

Read the text and make a match.

I use emulsifiers in the manufacture of emulsions. Adjust the ratio of the emulsifier to the oil.

Emulsifier		Oil ratio	
А	Tragacanth	1	1:2
Б	Gelatosis	2	1:15
В	Egg yolk	3	1:20

Write down the selected numbers under the corresponding letters in the table.

А	Б	В

Answer: А3Б1В2.

Task 10.

Read the text and make a match.

Solutions, both simple and complex, are prepared by volume, weight, and bulk methods, in some cases pre-calculated using the formula. Establish a correspondence between the term and the phrase that accurately expresses the method of manufacturing solutions.

The method of manufacturing solutions		**Definition**	
А	The volumetric method	1	To the weighted mass of the medicinal substance poured into a measuring vessel, add 1/2 - 1/3 of the calculated volume of the solvent measured with measuring utensils. After dissolving the medicinal substance (by shaking, stirring with a glass wand or using a magnetic stirrer), the solution is brought to the required volume
Б	Weight method	2	The soluble medicinal substance and solvent are taken by weight
В	Weight-volume method	3	The production of less concentrated solutions from concentrated solutions is calculated using the formula: The required concentration is multiplied by the required volume, divided by the initial concentration, and we get the initial volume, which we bring with the solvent to the required volume.

Write down the selected numbers under the corresponding letters in the table.

А	Б	В

Answer: А3Б2В1.

CLOSED-TYPE TASKS FOR ESTABLISHING THE SEQUENCE

PC-5.2 Be able to calculate the amount of medicines for the treatment of animals and the prevention of diseases with prescriptions for a certain period

Task 11.
Read the text and set the sequence.
Set the sequence of actions when calculating the dose for the treatment of an animal:
1. Determine the weight of the animal
2. Calculate the dose based on the weight and dosage of the drug
3. Apply the drug in the right dose
4. Check the animal's reaction to the drug
5. Study the instructions for the drug
Answer: 51234

Task 12.
Read the text and set the sequence.
Set the dose sequence in the prescription in the appointment section:
1. Course dose
2. Daily dose
3. Single dose
Answer: 321

PC-5.5 To know the methods of drug treatment of sick animals and indications for their use in accordance with the guidelines, instructions, guidelines, rules of diagnosis, prevention and treatment of animals

Task 13.

Read the text and set the sequence.

Establish the sequence of medical treatment of animals with food poisoning by an unknown poison:

1. Assign adsorbents
2. Rinse the stomach
3. Prescribe diuretics
4. Prescribe enveloping agents
5. Symptomatic therapy

Answer: 21345

Task 14.

Read the text and set the sequence.

The bacteriostatic effect of sulfonamide drugs is associated with their competitive antagonism with paraaminobenzoic acid, thus disrupting the chain of transformations for the synthesis of purine and pyrimidine bases of the microbial cell. Establish the sequence of synthesis of nucleic acids of a microbial cell:

1. Synthesis of tetrahydrofolic acid
2. Synthesis of dihydropteroate synthetase
3. Synthesis of dihydrofolic acid
4. Synthesis of purine and pyrimidine bases

Answer: 2314

Task 15.

Read the text and set the sequence.

The list of medicinal substances (Designatio materiarum) included in the dosage form is prescribed in a strict sequence in complex prescriptions.:

1. the main active substance (basis), from which the main therapeutic effect is expected;
2. substances that correct the taste or eliminate the unpleasant odor of medicinal substances (corrigens). Their use ensures the voluntary intake of medicines by animals.
3. adjuvants, which enhance the effect of the main substance, weaken its side effects or eliminate complications that occur during the course and development of the main and concomitant diseases.
4. Shaping substances (constituens) that give medicines the necessary shape.

Answer: 1324

AN OPEN TYPE TASK

PC-5.1 Be able to use specialized information databases when choosing animal treatment methods

Task 16.

Read the text and give a detailed, reasoned answer.

Describe the importance of the state pharmacopoeia for veterinary practice. How does it affect the quality and safety of medicines?

Answer: The State Pharmacopoeia sets standards for the quality, safety and effectiveness of veterinary drugs.

PC-5.2 Be able to calculate the amount of medicines for the treatment of animals and the prevention of diseases with prescriptions for a certain period

Task 17.

Read the text and give a detailed, reasoned answer.

Describe how pharmacokinetics affects the choice of dose for the treatment of animals.

Answer: Pharmacokinetics helps to take into account how the drug is absorbed, distributed, metabolized and excreted from the body. This is important to determine the optimal dose that will ensure maximum effectiveness with minimal side effects.

Task 18.

Read the text and give a detailed, reasoned answer.

What factors should be considered when calculating the dose of a medicinal product for an animal?

Answer: When calculating the dose, it is necessary to take into account the body weight of the animal, its age, the presence of diseases, the condition of the liver and kidneys, as well as the individual characteristics of metabolism.

PC-5.5 To know the methods of drug treatment of sick animals and indications for their use in accordance with the guidelines, instructions, guidelines, rules of diagnosis, prevention and treatment of animals

Task 19.

Read the text and give a detailed, reasoned answer.

Describe the differences between oral and injectable methods of administration of drugs for animals. How does this affect the dosage?

Answer: Unlike the injectable method of drug administration, with the oral method, the bioavailability of the drug is lower and the dose is higher due to the metabolic biotransformation of the drug in the liver, but at the same time the route of drug administration is painless. The injection method differs from the oral method by up to 100% bioavailability, painful route of administration, but it is possible to administer drugs in an unconscious state.

Task 20.

Read the text and give a detailed, reasoned answer.

Antimicrobial agents have the ability to have a detrimental effect on cells. What is the distinctive feature of the effect on cells of drugs of the antiseptic and disinfectant group in comparison with antibiotics?

Answer: Antiseptics and disinfectants do not selectively act on cells, unlike antibiotics, which selectively act on Gram-positive or Gram-negative microorganisms.

Competency assessment tests:

PC-7 Determining the need to use surgical techniques in

treatment of animals, development of a surgical operation plan, including the choice of an analgesia method:

Competence indicators:

PC-7.3 Know the drugs. used to anesthetize animals in veterinary

surgery. doses and methods of their application, side effects.

TASKS OF A COMBINED TYPE WITH THE CHOICE OF ONE OR MORE CORRECT ANSWERS FROM THE SUGGESTED OPTIONS

PC-7.3 Know the drugs used for analgesia of animals in veterinary surgery, the doses and methods of their use, side effects.

Task 1.
Read the text and choose the correct answer.
What is a side effect of a drug?
1. This is an undesirable reaction of the body to the use of the drug in a toxic dose
2.This is an undesirable reaction of the body to the use of the drug in a lethal dose.
3. This is the body's desired reaction to the drug.
4. This is an undesirable reaction of the body to the use of the drug in a therapeutic dose.
Answer: 4

Task 2.
Read the text and choose the correct answer.
Which group of medications does tramadol belong to?
1. Hormonal drugs
2. Vitamins
3. Antibiotics
4. Opioid analgesics
Answer: 4

Task 3.
Read the text and choose the correct answer.
Which of the drugs does not have analgesic effect?
1. Analgin
2. Ketoprofen
3. Ditilin
4. Paracetamol
Answer: 3

Task 4.
Read the text and choose the correct answers.
What drug is used for epidural anesthesia?
1. lidocaine
2. Gabapentin
3. cap
4. espumizan
Answer: 1

Task 5.
Read the text and choose the correct answer.
Which drug is used for inhalation anesthesia in animals?
1. sinulox
2. Isoflurane
3. Propofol
4. Ketamine hydrochloride
Answer: 2

CLOSED-TYPE COMPLIANCE ASSIGNMENTS

PC-7.3 Know the drugs. used for anesthesia of animals in veterinary surgery, doses and methods of their application, side effects.

Task 6.

Read the text and make a match.

Compare the drug with the pharmacological group.:

Pharmacological group		**Medicinal product**	
А	A means for inhalation anesthesia	1	Cordiamine-vet
Б	The analeptic	2	Isoflurane
В	Psychostimulant	3	Caffeine benzoate-sodium

Write down the selected numbers under the corresponding letters in the table.

А	Б	В

Answer: А2Б1В3

Task 7.

Read the text and make a match.

Compare the name of the corresponding stage of anesthesia when using inhalation drugs for anesthesia.:

Stage sequence number		**Stage name**	
А	The first stage	1	Excitement
Б	The second stage	2	Analgesia
В	The third stage	3	Surgical anesthesia
Г	The fourth stage	4	The Awakening

Запишите в таблицу выбранные цифры под соответствующими буквами.

А	Б	В	Г

Answer: А2Б1В3Г4

Task 8.

Read the text and make a match.

Compare the drug with the pharmacological group.:

Pharmacological group		**Medicinal product**	
А	The anesthetic	1	Lidocaine hydrochloride
Б	Analgesic	2	Drotaverine hydrochloride
В	Antispasmodic	3	Morphine Hydrochloride
Г	Non-inhalation drug for anesthesia	4	Ketamine hydrochloride

Write down the selected numbers under the corresponding letters in the table.

А	Б	В	Г

Answer: А1Б3В2Г4.

Task 9.

Read the text and make a match.

When using medications, various routes of administration are used. Establish the correspondence of the route of administration, taking into account the drug.

The route of introduction		**Medicinal product**	
А	Inhalation	1	Propofol
Б	Intravenous	2	Isoflurane
В	Intramuscular	3	Cordiamine-vet
Г	Subcutaneous	4	Ketamine hydrochloride

Write down the selected numbers under the corresponding letters in the table.

А	Б	В	Г

Answer: А2Б1В4Г3.

Task 10.
Read the text and make a match.
Compare a non-narcotic analgesic agent based on the classification group:

Classification groups		**Medicinal product**	
А	Salicylates	1	Salicylic acid
Б	Pyrazolone derivatives	2	Metamizole
В	Aniline derivatives	3	Paracetamol
Г	Koksibs	4	Onsior

Write down the selected numbers under the corresponding letters in the table.

А	Б	В	Г

Answer: А1Б2В3Г4.

CLOSED-TYPE TASKS FOR ESTABLISHING THE SEQUENCE

PC-7.3 Know the drugs. used for anesthesia of animals in veterinary surgery, doses and methods of their application, side effects.

Task 11.
Read the text and set the sequence.
Establish the sequence of anesthesia stages when using inhalation drugs for anesthesia:
1. Arousal
2. Analgesia
3. Surgical anesthesia
4. The Awakening
Answer: 2134

Task 12.
Read the text and set the sequence.
Establish the sequence of administration of drugs acting on alpha2-adrenergic receptors:
1. Medetomidine hydrochloride
2. Atypamezol hydrochloride
Answer: 12

Task 13.
Read the text and set the sequence.
Establish the sequence of action of inhalation anesthesia agents on the central nervous system with a sequential increase in the dose.:
1. Moderate depression of the entire central nervous system
2. Uneven suppression of different parts of the central nervous system, including the brain
3. Uniform suppression of the brain and, somewhat weaker, of the spinal cord.
Answer: 123

Task 14.

Read the text and set the sequence.

Specify the sequence of application of drugs for introducing the animal into a state of inhalation anesthesia:

1. Systemic anesthetic
2. A drug that reduces the secretion of glands
3. A remedy for anesthesia

Answer: 213

Task 15.

Read the text and set the sequence.

When administering drugs for inhalation and non-inhalation anesthesia in the third stage of anesthesia, four levels of surgical anesthesia are distinguished. Specify the sequence of levels:

Level 1 light anesthesia
Level 2 surface anesthesia
Level 3 deep anesthesia
Level 4 ultra-deep anesthesia

Answer: 2134

AN OPEN TYPE TASK

PC-7.3 Know the drugs. used for anesthesia of animals in veterinary surgery, doses and methods of their application, side effects.

Task 16.

Read the text and give a detailed, reasoned answer.

What should a doctor know about a drug before using it?

Answer: The route of administration, the dose, the frequency of application, the weight of the animal, for calculating the dose, possible side effects, compatibility with other drugs.

Task 17.

Read the text and give a detailed, reasoned answer.

What is the danger of long-term use of narcotic analgesics?

Answer: Narcotic analgesics cause mental and physical dependence.

Task 18.

Read the text and give a detailed, reasoned answer.

What side effects do non-narcotic analgesics cause in animals?

Answer: With prolonged use of non-narcotic analgesics, animals develop gastritis, including stomach ulcers. It is also necessary to take into account the species predisposition of animals, for example, paracetamol is toxic to cats.

Task 19.

Read the text and give a detailed, reasoned answer.

What are the advantages and disadvantages of inhalation drugs for anesthesia?

Answer: Unlike non-inhalation drugs for anesthesia, inhalation drugs for anesthesia have the following significant advantage: when they are used, anesthesia is considered controlled, since when the inhalation drug is stopped, the body quickly comes out of the state of anesthesia. The disadvantages include the fact that drugs for inhalation anesthesia require additional equipment for their use, irritate the mucous membrane, are explosive and expensive.

Task 20.

Read the text and give a detailed, reasoned answer.

What licensing requirements must be observed when trafficking narcotic drugs and potent substances in veterinary medicine?

Answer: Such medicines are stored in a separate room with an entrance door with two locks of the 3rd burglar protection class. The room must be equipped with light and sound alarms. The drugs are stored in a metal safe bolted to the wall or floor of the 3rd class of protection against burglary with strict accounting logging by a responsible person appointed by order of the head of the organization. Roszdravnadzor issues a license only if it has a license for the right to conduct pharmaceutical activities by the Rosselkhoznadzor.

3.1.3. Exam questions

The competence achieved:

GPC-3 Is able to carry out and improve professional activities in accordance with regulatory legal acts in the field of agro-industrial complex:

GPC -3 ID-3 To possess skills of: the legal framework and ethical standards in the implementation of professional activities.

1. Regulatory documents regulating pharmaceutical activities.
2. Rules for the storage of medicines of different groups.
3. Licensing of pharmaceutical activities.
4. Licensing of pharmaceutical activities for the trafficking of narcotic and psychotropic drugs.
5. Methods of destruction of medicines.
6. State registration of medicines for animals and feed additives.
7. Information databases of medicines for animals.

PC-5 To carry out plan of animal treatment, based on the stated diagnosis and animals individual character ristics, signature of necessary remedies of chemical and biological nature for the treatment, taking into account combination of its pharmacological effect on the animal body.

PC-5 ID-1 - To be able to use specialized information databases at a choice of animal treatment methods.

PC-5 ID-2 - To be able to calculate the amount of remedies for the treatment of animals and the prevention of diseases with the receipts signature for a certain period.

PC-5 ID-3 - To be able to calculate the amount of remedies for the treatment of animals and for the prevention of diseases with the receipts signature for a certain period, using digital technologies as well.

PC-5 ID-4 - To be able to administer drugs to the animals body in various techniques.

PC-5 ID-5 - To know the methods of pharmacological treatment of sick animals and indications for its administration, in accordance with the guidelines, instructions, manuals, rules of diagnosis, prevention and treatment.

PC-5 ID-6 - To know the state register of medicines for veterinary use.

PC-5 ID-7 - To know the pharmacological and toxicological characteristics of medicinal raw materials, remedies of chemical and biological nature, biologically active additives for the prevention and treatment of animal diseases of various etiology.

PC-5 ID-8 - To know the ways of drug injections, used both for animals enteral (oral, sublingual and rectal administration) and parenteral (injections, inhalations and skin applications) methods.

1. Pharmacology and its relation to other sciences.
2. Sources and ways of obtaining medicinal substances.
3. Ways of administration of medicinal substances.
4. Pharmacokinetics of medicinal substances.
5. The transformation of medicinal substances in the body.
6. The mechanism and types of action of medicinal substances.
7. Principles of dosage of medicinal substances.
8. Features of the action of drugs during repeated administration.
9. Factors influencing the effect of medicinal substances.
10. Dependence of the action of medicinal substances on the dosage form.
11. Drug interactions. Drug incompatibility. Synergism, antagonism.
12. Side effects of medicinal substances.
13. Pharmacodynamics of medicinal substances.
14. Principles of dosage of medicinal substances.
15. Psychostimulants.
16. Analeptics.
17. What is the fundamental difference in the mechanism of action of caffeine and cardiac glycosides on the heart?
18. Cholinomimetic and anticholinesterase agents.
19. Cholinolytic drugs.
20. Adrenomimetic agents.
21. Adrenoblockers.
22. Uterine products (hormonal and herbal).
23. Hormonal preparations of the thyroid gland and adrenal cortex.
24. Gonadotropic drugs and prostaglandins.
25. Muscle relaxants.
26. Local anesthetics (anesthesin, trimecaine, novocaine, lidocaine).
27. Antiemetics.
28. Emetics, expectorants and ruminators.
29. Astringents, adsorbing, mucous agents.
30. True and aromatic bitterness.
31. Cardiac glycosides (goricvet, lily of the valley, strophanthus).
32. Agents acting on the cardiovascular system and blood (coagulants, anticoagulants, blood substitutes).
33. Salts of alkaline and alkaline earth metals (sodium, calcium, potassium).
34. Iron-containing preparations and their characteristics.
35. Preparations of heavy metals. Therapeutic and toxic effects.
36. Laxatives (vegetable and oil).
37. Saline and synthetic laxatives.
38. Diuretics.
39. Preparations of fat-soluble vitamins.
40. Preparations of water-soluble vitamins.
41. Immunomodulators.
42. The concept of ergotropics. Classification.
43. Antihistamines.
44. Productivity correctors.
45. Anti-stress drugs.
46. Characteristics and requirements for antiseptics and disinfectants.
47. Acids and alkalis of disinfecting action.
48. Acids and alkalis of therapeutic action.
49. Characteristics and mechanism of action of disinfectants of the aldehyde group.

50. Preparations of the phenol group.
51. Chlorine group preparations used as disinfectants.
52. Preparations of the iodine group and oxygen-releasing substances as disinfectants.
53. Characteristics and classification of chemotherapeutic agents.
54. Sulfonamide preparations (short and medium-acting).
55. Sulfonamide preparations (prolonged and combined).
56. Nitrofuran and oxy-quinoline preparations.
57. Fluoroquinolones. Characteristics, mechanism of action, drugs.
58. Antibiotics. Classification. The strategy and tactics of antibiotic therapy.
59. Characteristics of antibiotics of the penicillin group.
60. Characteristics of tetracycline group antibiotics.
61. Characteristics of antibiotics of the glycoside and aminoglycoside groups.
62. Characteristics of antibiotics of the levomycetin group.
63. Macrolide and polyene antibiotics.
64. Antibiotics of the tylosin subgroup.
65. Cephalosporins: classification (5 generations), indications for use.
66. Improving the effectiveness of chemotherapeutic agents.
67. Insecticidal agents.
68. Antiemerious, antihemosporidious drugs.
69. Organochlorine and carbamate acaroinsecticides.
70. Anthelmintic agents. Classification, general characteristics.
71. The main active ingredients of anthelmintic agents.
72. Anthelmintic agents of plant origin.
73. Anthelmintic agents (organic paints and metal salts).

PC-7 Statement of the necessity of surgical techniques application for the animals' treatment, development of a surgical operation plan, including the method of anesthesia

PC-7 ID-3 - To know drugs used to anesthetize animals in veterinary surgery. doses and methods of its administration, side effects.

1. Advantages and disadvantages of inhalation and non-inhalation drugs for anesthesia.
2. Factors determining the sequence of stages of anesthesia.
3. The concept of anesthesia, stages and levels of anesthesia.
4. Inhalation drugs for anesthesia.
5. Non-inhalation drugs for anesthesia.
6. Alcohol group. Side effect. Social danger.
7. Characteristics of analgesic drugs.
8. Narcotic analgesics.
9. Non-narcotic analgesics.
10. Neuroleptics, tranquilizers and sedatives.

4. METHODOLOGICAL MATERIALS DEFINING THE PROCEDURES FOR ASSESSING KNOWLEDGE, SKILLS AND ABILITIES AND WORK EXPERIENCE CHARACTERIZING THE STAGES OF COMPETENCE FORMATION

4.1. Criteria for evaluating students' knowledge during the knowledge survey

Mark "**excellent"** - the student clearly expresses his point of view on the issues under consideration, giving appropriate examples.

Mark "**good**" - the student admits some errors in the answer

The mark «**satisfactory**" - the student discovers gaps in knowledge of the basic educational and normative material.

The mark "**unsatisfactory**" - the student discovers significant gaps in knowledge of the basic provisions of the discipline, the inability to obtain the correct solution to a specific practical problem with the help of a teacher.

4.2. 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 of 25 questions:

The mark "**excellent**" is 25-22 correct answers.

The mark "**good**" is 21-18 correct answers.

The mark "**satisfactory**" is 17-13 correct answers.

The mark "**unsatisfactory**" is less than 13 correct answers

4.3. Criteria of knowledge during the test

The mark "**accepted** " must correspond to the parameters of any of the positive ratings ("excellent", "good", "satisfactory").

The mark "**not accepted** " rating should correspond to the parameters of the "unsatisfactory" rating.

The 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.

The 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. –

The 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 knowledge and skills when transferring them to new situations

4.4. Criteria of knowledge during the examination

The 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 various 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. –

The 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 can 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 are manifested in a number of indicators, the student experiences significant difficulties in operating with knowledge and skills when transferring them to new situations.

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

5. ACCESSIBILITY AND QUALITY OF EDUCATION FOR DISABLED PEOPLE

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 disabled people and persons with disabilities, their own technical means can be used.

The procedure for evaluating the learning outcomes of disabled people 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 people with visual impairments:	– in printed form in enlarged font; – in the form of an electronic document.
For people with hearing impairments:	– in printed form; – in the form of an electronic document.
For people 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 disabled people 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 disabled people and persons with disabilities is allowed using distant learning technologies.