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

APPROVED BY
Vice-Rector
for Educational Work
and Youth Policy
_____ Sukhinin A.A.
June 27, 2025

Department of Parasitology named after V.L. Yakimov

EDUCATIONAL WORK PROGRAM

for the discipline

"PARASITOLOGY AND INVASIVE DISEASES OF ANIMALS"

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 24, 2025.
Protocol No. 8

Head Department of Parasitology named after V.L. Yakimov,
Doctor of Veterinary Sciences
Associate Professor
_____ Y.E. Kuznetsov

Saint Petersburg
2025

1. AIMS AND OBJECTIVES OF THE DISCIPLINE

The main goal of the discipline is to give students theoretical and practical knowledge on issues related to parasitic diseases of animals, to instill clinical and practical work skills, and to contribute to the formation of a comprehensively trained agricultural specialist.

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

a) The general educational task is to in-depth familiarize students with the structure of the animal body and provide fundamental biological education in accordance with the requirements for higher educational institutions of biological profile.

b) The applied task covers issues related to the morphology, biology, epizootology of pathogens of parasitic diseases and the development of the principles of development of treatment and preventive measures for parasitic diseases.

c) The special task is to familiarize students with modern methods for diagnosing parasitic animal diseases. As well as existing achievements in this area.

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2. THE LIST OF PLANNED TRAINING RESULTS ACCORDING TO THE DISCIPLINE (MODULE), CORRELATED WITH THE PLANNED RESULTS OF MASTERING THE 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 36.05.01 "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-6.

Is able to analyze, identify and assess the risk danger of the occurrence and spread of the disease

GPC-6ID-1

To know: existing programs for the prevention and control of zoonosis, contagious diseases, emergent or newly emerging infections, the use of animal identification systems, trace and control by the relevant veterinary services

GPC-6ID-2

To be able to: assess the risk of animal diseases, including the import of animals and animal products and other measures of veterinary services, the control of prohibited substances in the body of animals, animal products and feed;

GPC-6ID-3

To possess skills to: conduct identification procedures, select and implement measures that can be used to reduce the risk level

B) Professional competencies:

Type of tasks prof. activity: medical

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-5ID-1

To be able to use specialized information databases at a choice of animal treatment methods.

PC-5ID-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-5ID-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-5ID-4

To be able to administer drugs to the animals body in various techniques;

PC-5ID-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-5ID-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.

GPC-6.

Is able to analyze, identify and assess the risk danger of the occurrence and spread of the disease

GPC-6ID-1

To know: existing programs for the prevention and control of zoonosis, contagious diseases, emergent or newly emerging infections, the use of animal identification systems, trace and control by the relevant veterinary services

GPC-6ID-2

To be able to: assess the risk of animal diseases, including the import of animals and animal products and other measures of veterinary services, the control of prohibited substances in the body of animals, animal products and feed;

GPC-6ID-3

To possess skills to: conduct identification procedures, select and implement measures that can be used to reduce the risk level.

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-5ID-1

To be able to use specialized information databases at a choice of animal treatment methods.

PC-5ID-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-5ID-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-5ID-4

To be able to administer drugs to the animals body in various techniques;

PC-5ID-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-5ID-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-11

Design of an annual plan of antiepizootic measures, a plan for the prevention of non-contagious animal diseases, a plan of veterinary and sanitary measures

PC-11ID-1

To be able to collect and analyze information, including veterinary statistics data, necessary for planning preventive antiepizootic measures, prevention of non-contagious animal diseases, veterinary and sanitary measures

PC-11ID-2

To know the methods of collecting and analyzing information for veterinary planning, using information databases as well.

PC-13

Development of the enterprise protection measures from the introduction of infectious and invasive diseases in accordance with the plan of antiepizootic measures:

PC-13ID-1

To know the types of measures to ensure veterinary and sanitary safety and the requirements for its implementation in accordance with the legislation of the Russian Federation in the field of veterinary medicine

PC-14

Development of preventive immunization (vaccination), therapeutic and preventive treatments of animals in accordance with the plan of antiepizootic measures, analysis of the effectiveness of the measures for the prevention of animal diseases and its improvement:

PC-14ID-1 To be able to evaluate the effectiveness of preventive measures and ways to implement them, using digital technologies as well;

PC-14ID-2

To know the procedure for conducting a clinical study of animals when planning preventive measures

PC-14ID-3 To know the types of antiepizootic measures and the requirements for their implementation in accordance with the guidelines, instructions, manuals, rules of diagnosis, prevention and treatment of animals.

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

The discipline B1.O.34 “Parasitology and invasive animal diseases” is a discipline in Block 1 of the mandatory part of the federal state educational standard of higher education in specialty 36.05.01 “Veterinary Medicine” (specialty level).

Mastered in 7-8-9 semesters (full-time).

When teaching the discipline “Parasitology and invasive diseases of animals”, the knowledge and skills acquired by students in mastering the disciplines - Biology with basic ecology, Animal Anatomy, Latin language, Cytology, histology and embryology, Pathological physiology, Veterinary pharmacology, are used. Clinical diagnostics, the discipline “Parasitology and invasive diseases” is the basic one on which most subsequent disciplines are built, such as:

1.Pathological anatomy

2.Epizootology and infectious diseases

3. Internal non-communicable diseases

4.Veterinary and sanitary examination

5.Organization of veterinary affairs

4. THE SCOPE OF THE DISCIPLINE AND TYPES OF ACADEMIC WORK “PARASITOLOGY AND INVASIVE ANIMAL DISEASES"

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

Type of educational work	Hours	Semesters		
		7	8	9
Classroom classes (total)	**148**	**32**	**48**	**68**
Including:	**-**		**-**	**-**
Lectures, including interactive forms	**66**	**16**	**16**	**34**
Practical lessons (PL), including interactive forms, among which are:	82	16	32	34
practical training (PT)	18	4	6	8
Self-study	**149**	**40**	**60**	**76**
Course project (work)	**+**			**+**
Type of intermediate and final certification (test, exam)	Test, exam	Test	Test	Exam
Total labor intensity hours/credits	**324/9**	**72/2**	**108/3**	**144/4**

5. CONTENT OF THE DISCIPLINE "PARASITOLOGY AND INVASIVE DISEASES OF ANIMALS"

5.1. Content of the discipline "Parasitology and Invasive Diseases of Animals" for full-time education

№	Nomination	Formed competencies	Semester	Types of academic work, including independent work of students and labor intensity (in hours)			
				L	PL	PT	SS
1.	Biodiversity of parasites and the spread of parasitism in the animal world. Methods and ways of parasite penetration into the host organism. Safety precautions and personal hygiene rules.	GPC-6 Able to analyze, identify and assess the danger of the risk of occurrence and spread of diseases GPC-6ID-1 Know existing programs for the prevention and control of zoonoses, contagious diseases, emerging or re-emerging infections, the use of animal identification systems, tracing and control by the relevant veterinary services PC-14 Organization of preventive immunizations (vaccinations), therapeutic and prophylactic treatments of animals in accordance with the plan of anti-epizootic measures, analysis of the effectiveness of measures to prevent animal diseases in order to improve them PC-14ID-3 Know the types of anti-epizootic measures and the requirements for their implementation in accordance with guidelines, instructions, manuals, rules for diagnosis, prevention and treatment of animals	7	2	1		5

2.	General characteristics of ticks. Parasitiform ticks.	PC-5 Development of a treatment plan for animals based on the established diagnosis and individual characteristics of animals, selection of necessary chemical and biological drugs for the treatment of animals, taking into account their combined pharmacological effect on the body PC-5ID-5 Know the methods of drug treatment of sick animals and indications for their use in accordance with guidelines, instructions, manuals, rules for diagnosis, prevention and treatment of animals PC-11 Development of an annual plan for anti-epizootic measures, a plan for the prevention of non-communicable animal diseases, a plan for veterinary and sanitary measures PC-11ID-2 Know the methods of collecting and analyzing information in veterinary planning, including the use of information databases PC-13 Organization of measures to protect the organization from the introduction of infectious and invasive diseases in accordance with the plan for anti-epizootic measures PC-13ID-2 Know the types of measures to ensure veterinary and sanitary safety and the requirements for their implementation in accordance with the legislation of the Russian Federation in the field of veterinary medicine PC-14 Organization of preventive immunizations (vaccinations), therapeutic and preventive treatment of animals in accordance with the plan of anti-epizootic measures, analysis of the effectiveness of measures to prevent animal diseases in order to improve them PC-14ID-1 Be able to evaluate the effectiveness of preventive measures taken and methods for their implementation, including using digital technologies PC-14ID-2 Know the procedure for conducting a clinical study of animals when planning preventive measures	7	2	2	1	5

3.	Acariform mites.	PC-5 Development of a treatment plan for animals based on the established diagnosis and individual characteristics of animals, selection of necessary chemical and biological drugs for the treatment of animals, taking into account their combined pharmacological effect on the body PC-5ID-5 Know the methods of drug treatment of sick animals and indications for their use in accordance with guidelines, instructions, manuals, rules for diagnosis, prevention and treatment of animals PC-11 Development of an annual plan for anti-epizootic measures, a plan for the prevention of non-communicable animal diseases, a plan for veterinary and sanitary measures PC-11ID-2 Know the methods of collecting and analyzing information in veterinary planning, including the use of information databases PC-13 Organization of measures to protect the organization from the introduction of infectious and invasive diseases in accordance with the plan for anti-epizootic measures PC-14 Organization of preventive immunizations (vaccinations), therapeutic and preventive treatment of animals in accordance with the plan of anti-epizootic measures, analysis of the effectiveness of measures to prevent animal diseases in order to improve them PC-14ID-1 Be able to evaluate the effectiveness of preventive measures taken and methods for their implementation, including using digital technologies PC-14ID-2 Know the procedure for conducting a clinical study of animals when planning preventive measures	7	2	2		5

4.	Trombidiform mites. Acarids are pests of food.	PC-5 Development of a treatment plan for animals based on the established diagnosis and individual characteristics of animals, selection of necessary chemical and biological drugs for the treatment of animals, taking into account their combined pharmacological effect on the body PC-5ID-5 Know the methods of drug treatment of sick animals and indications for their use in accordance with guidelines, instructions, manuals, rules for diagnosis, prevention and treatment of animals PC-11 Development of an annual plan of anti-epizootic measures, a plan for the prevention of non-communicable animal diseases, a plan for veterinary and sanitary measures PC-11ID-1 Be able to collect and analyze information, including veterinary statistics, necessary for planning preventive anti-epizootic measures, prevention of non-communicable animal diseases, veterinary and sanitary measures PC-13 Organization of measures to protect the organization from the introduction of infectious and invasive diseases in accordance with the plan of anti-epizootic measures PC-13ID-2 Know the types of measures to ensure veterinary and sanitary safety and the requirements for their implementation in accordance with the legislation of the Russian Federation in the field veterinary science PC-14 Organization of preventive immunizations (vaccinations), therapeutic and prophylactic treatments of animals in accordance with the plan of anti-epizootic measures, analysis of the effectiveness of measures to prevent animal diseases in order to improve them PC-14ID-1 Be able to evaluate the effectiveness of preventive measures taken and methods for their implementation, including using digital technologies PC-14ID-2 Know the procedure for conducting a clinical study of animals when planning preventive measures	7	2	2		5

5.	General characteristics of insects. Gadfly diseases.	PC-5 Development of a treatment plan for animals based on the established diagnosis and individual characteristics of animals, selection of necessary chemical and biological drugs for the treatment of animals, taking into account their combined pharmacological effect on the body PC-5ID-5 Know the methods of drug treatment of sick animals and indications for their use in accordance with guidelines, instructions, manuals, rules for diagnosis, prevention and treatment of animals PC-11 Development of an annual plan of anti-epizootic measures, a plan for the prevention of non-communicable animal diseases, a plan for veterinary and sanitary measures PC-11ID-1 Be able to collect and analyze information, including veterinary statistics, necessary for planning preventive anti-epizootic measures, prevention of non-communicable animal diseases, veterinary and sanitary measures PC-13 Organization of measures to protect the organization from the introduction of infectious and invasive diseases in accordance with the plan of anti-epizootic measures PC-13ID-2 Know the types of measures to ensure veterinary and sanitary safety and the requirements for their implementation in accordance with the legislation of the Russian Federation in the field veterinary science PC-14 Organization of preventive immunizations (vaccinations), therapeutic and prophylactic treatments of animals in accordance with the plan of anti-epizootic measures, analysis of the effectiveness of measures to prevent animal diseases in order to improve them PC-14ID-1 Be able to evaluate the effectiveness of preventive measures taken and methods for their implementation, including using digital technologies PC-14ID-2 Know the procedure for conducting a clinical study of animals when planning preventive measures	7	2	2	1	5

6.	Horseflies, flies, bloodsuckers	PC-5 Development of a treatment plan for animals based on the established diagnosis and individual characteristics of animals, selection of necessary chemical and biological drugs for the treatment of animals, taking into account their combined pharmacological effect on the body PC-5ID-5 Know the methods of drug treatment of sick animals and indications for their use in accordance with guidelines, instructions, manuals, rules for diagnosis, prevention and treatment of animals PC-11 Development of an annual plan of anti-epizootic measures, a plan for the prevention of non-communicable animal diseases, a plan for veterinary and sanitary measures PC-11ID-2 Know the methods of collecting and analyzing information in veterinary planning, including the use of information databases PC-13 Organization of measures to protect the organization from the introduction of infectious and invasive diseases in accordance with the plan of anti-epizootic measures PC-13ID-2 Know the types of measures to ensure veterinary and sanitary safety and the requirements for their implementation in accordance with the legislation of the Russian Federation in the field veterinary science PC-14 Organization of preventive immunizations (vaccinations), therapeutic and prophylactic treatments of animals in accordance with the plan of anti-epizootic measures, analysis of the effectiveness of measures to prevent animal diseases in order to improve them PC-14ID-1 Be able to evaluate the effectiveness of preventive measures taken and methods for their implementation, including using digital technologies PC-14ID-2 Know the procedure for conducting a clinical study of animals when planning preventive measures	7	2	2		5

7.	Mosquitoes, midges, biting midges, mosquitoes	PC-5 Development of a treatment plan for animals based on the established diagnosis and individual characteristics of animals, selection of necessary chemical and biological drugs for the treatment of animals, taking into account their combined pharmacological effect on the body PC-5ID-5 Know the methods of drug treatment of sick animals and indications for their use in accordance with guidelines, instructions, manuals, rules for diagnosis, prevention and treatment of animals PC-11 Development of an annual plan of anti-epizootic measures, a plan for the prevention of non-communicable animal diseases, a plan for veterinary and sanitary measures PC-11ID-2 Know the methods of collecting and analyzing information in veterinary planning, including the use of information databases PC-13 Organization of measures to protect the organization from the introduction of infectious and invasive diseases in accordance with the plan of anti-epizootic measures PC-13ID-2 Know the types of measures to ensure veterinary and sanitary safety and the requirements for their implementation in accordance with the legislation of the Russian Federation in the field veterinary science PC-14 Organization preventive immunizations (vaccinations), therapeutic and preventive treatment of animals in accordance with the plan of anti-epizootic measures, analysis of the effectiveness of measures to prevent animal diseases in order to improve them PC-14ID-1 Be able to evaluate the effectiveness of preventive measures taken and methods for their implementation, including using digital technologies PC-14ID-2 Know the procedure for conducting a clinical study of animals when planning preventive measures	7	2	2		5

8.	Lice eaters, lice eaters, feather eaters, lice, fleas, bedbugs.	PC-5 Development of a treatment plan for animals based on the established diagnosis and individual characteristics of animals, selection of necessary chemical and biological drugs for the treatment of animals, taking into account their combined pharmacological effect on the body PC-5ID-5 Know the methods of drug treatment of sick animals and indications for their use in accordance with guidelines, instructions, manuals, rules for diagnosis, prevention and treatment of animals PC-11 Development of an annual plan of anti-epizootic measures, a plan for the prevention of non-communicable animal diseases, a plan for veterinary and sanitary measures PC-11ID-2 Know the methods of collecting and analyzing information in veterinary planning, including the use of information databases PC-13 Organization of measures to protect the organization from the introduction of infectious and invasive diseases in accordance with the plan of anti-epizootic measures PC-13ID-2 Know the types of measures to ensure veterinary and sanitary safety and the requirements for their implementation in accordance with the legislation of the Russian Federation in the field veterinary science PC-14 Organization preventive immunizations (vaccinations), therapeutic and preventive treatment of animals in accordance with the plan of anti-epizootic measures, analysis of the effectiveness of measures to prevent animal diseases in order to improve them PC-14ID-1 Be able to evaluate the effectiveness of preventive measures taken and methods for their implementation, including using digital technologies PC-14ID-2 Know the procedure for conducting a clinical study of animals when planning preventive measures	7	2	2	1	5
TOTAL FOR SEMESTER 7				**16**	**16**	**4**	**40**

9.	General principles of diagnostics of piroplasmosis.	GPC-6 Able to analyze, identify and assess the risk of occurrence and spread of diseases GPC-6ID-2 Be able to conduct, including with the help of digital technologies, an assessment of the risk of occurrence of animal diseases, including the import of animals and animal products and other veterinary services activities, monitor prohibited substances in the body of animals, animal products and feed. PC-11 Developing an annual plan of anti-epizootic measures, a plan for the prevention of non-communicable animal diseases, a plan for veterinary and sanitary measures PC-11ID-2 Know the methods of collecting and analyzing information in veterinary planning, including using information databases PC-14 Organization of preventive immunizations (vaccinations), therapeutic and prophylactic treatments of animals in accordance with the plan of anti-epizootic measures, analysis of the effectiveness of measures to prevent animal diseases in order to improve them PC-14ID-2 Know the procedure for conducting a clinical study of animals when planning preventive measures	8	1	3	1	10

10.	Babesiosis	PC-5 Development of a treatment plan for animals based on the established diagnosis and individual characteristics of animals, selection of necessary chemical and biological drugs for the treatment of animals, taking into account their combined pharmacological effect on the body PC-5ID-5 Know the methods of drug treatment of sick animals and indications for their use in accordance with guidelines, instructions, manuals, rules for diagnosis, prevention and treatment of animals PC-11 Development of an annual plan of anti-epizootic measures, a plan for the prevention of non-communicable animal diseases, a plan for veterinary and sanitary measures PC-11ID-1 Be able to collect and analyze information, including veterinary statistics, necessary for planning preventive anti-epizootic measures, prevention of non-communicable animal diseases, veterinary and sanitary measures PC-13 Organization of measures to protect the organization from the introduction of infectious and invasive diseases in accordance with the plan of anti-epizootic measures PC-13ID-1 Know the types of measures to ensure veterinary and sanitary safety and the requirements for their implementation in accordance with the legislation of the Russian Federation in the field veterinary science PC-14 Organization of preventive immunizations (vaccinations), therapeutic and prophylactic treatments of animals in accordance with the plan of anti-epizootic measures, analysis of the effectiveness of measures to prevent animal diseases in order to improve them PC-14ID-2 Know the procedure for conducting a clinical study of animals when planning preventive measures	8	1	3		10

11.	Theileriosis .	PC-5 Development of a treatment plan for animals based on the established diagnosis and individual characteristics of animals, selection of necessary chemical and biological drugs for the treatment of animals, taking into account their combined pharmacological effect on the body PC-5ID-5 Know the methods of drug treatment of sick animals and indications for their use in accordance with guidelines, instructions, manuals, rules for diagnosis, prevention and treatment of animals PC-11 Development of an annual plan for anti-epizootic measures, a plan for the prevention of non-communicable animal diseases, a plan for veterinary and sanitary measures PC-11ID-1 Be able to collect and analyze information, including veterinary statistics, necessary for planning preventive anti-epizootic measures, prevention of non-communicable animal diseases, veterinary and sanitary measures PC-13 Organization of measures to protect the organization from the introduction of infectious and invasive diseases in accordance with the plan for anti-epizootic measures PC-13ID-1 Know the types of measures to ensure veterinary and sanitary safety and the requirements for their implementation in accordance with the legislation of the Russian Federation in the field veterinary science PC-14 Organization of preventive immunizations (vaccinations), therapeutic and preventive treatment of animals in accordance with the plan of anti-epizootic measures, analysis of the effectiveness of measures to prevent animal diseases in order to improve them PC-14ID-2 Know the procedure for conducting a clinical study of animals when planning preventive measures	8	2	2		6

12.	General characteristics of coccidia. Eimeriosis.	PC-5 Development of a treatment plan for animals based on the established diagnosis and individual characteristics of animals, selection of necessary chemical and biological drugs for the treatment of animals, taking into account their combined pharmacological effect on the body PC-5ID-5 Know the methods of drug treatment of sick animals and indications for their use in accordance with guidelines, instructions, manuals, rules for diagnosis, prevention and treatment of animals PC-11 Development of an annual plan for anti-epizootic measures, a plan for the prevention of non-communicable animal diseases, a plan for veterinary and sanitary measures PC-11ID-1 Be able to collect and analyze information, including veterinary statistics, necessary for planning preventive anti-epizootic measures, prevention of non-communicable animal diseases, veterinary and sanitary measures PC-13 Organization of measures to protect the organization from the introduction of infectious and invasive diseases in accordance with the plan for anti-epizootic measures PC-13ID-1 Know the types of measures to ensure veterinary and sanitary safety and the requirements for their implementation in accordance with the legislation of the Russian Federation in the field veterinary science PC-14 Organization of preventive immunizations (vaccinations), therapeutic and preventive treatment of animals in accordance with the plan of anti-epizootic measures, analysis of the effectiveness of measures to prevent animal diseases in order to improve them PC-14ID-2 Know the procedure for conducting a clinical study of animals when planning preventive measures	8	2	2		5

13.	Isosporosis. Toxoplasmosis	PC-5 Development of a treatment plan for animals based on the established diagnosis and individual characteristics of animals, selection of necessary chemical and biological drugs for the treatment of animals, taking into account their combined pharmacological effect on the body PC-5ID-5 Know the methods of drug treatment of sick animals and indications for their use in accordance with guidelines, instructions, manuals, rules for diagnosis, prevention and treatment of animals PC-11 Development of an annual plan for anti-epizootic measures, a plan for the prevention of non-communicable animal diseases, a plan for veterinary and sanitary measures PC-11ID-1 Be able to collect and analyze information, including veterinary statistics, necessary for planning preventive anti-epizootic measures, prevention of non-communicable animal diseases, veterinary and sanitary measures PC-13 Organization of measures to protect the organization from the introduction of infectious and invasive diseases in accordance with the plan for anti-epizootic measures PC-13ID-1 Know the types of measures to ensure veterinary and sanitary safety and the requirements for their implementation in accordance with the legislation of the Russian Federation in the field veterinary science PC-14 Organization of preventive immunizations (vaccinations), therapeutic and preventive treatment of animals in accordance with the plan of anti-epizootic measures, analysis of the effectiveness of measures to prevent animal diseases in order to improve them PC-14ID-2 Know the procedure for conducting a clinical study of animals when planning preventive measures	8	2	4	1	6

14.	Sarcocystosis, beznoitiosis, cryptosporidiosis	PC-5 Development of a treatment plan for animals based on the established diagnosis and individual characteristics of animals, selection of necessary chemical and biological drugs for the treatment of animals, taking into account their combined pharmacological effect on the body PC-5ID-5 Know the methods of drug treatment of sick animals and indications for their use in accordance with guidelines, instructions, manuals, rules for diagnosis, prevention and treatment of animals PC-11 Development of an annual plan for anti-epizootic measures, a plan for the prevention of non-communicable animal diseases, a plan for veterinary and sanitary measures PC-11ID-1 Be able to collect and analyze information, including veterinary statistics, necessary for planning preventive anti-epizootic measures, prevention of non-communicable animal diseases, veterinary and sanitary measures PC-13 Organization of measures to protect the organization from the introduction of infectious and invasive diseases in accordance with the plan for anti-epizootic measures PC-13ID-1 Know the types of measures to ensure veterinary and sanitary safety and the requirements for their implementation in accordance with the legislation of the Russian Federation in the field veterinary science PC-14 Organization of preventive immunizations (vaccinations), therapeutic and preventive treatment of animals in accordance with the plan of anti-epizootic measures, analysis of the effectiveness of measures to prevent animal diseases in order to improve them PC-14ID-2 Know the procedure for conducting a clinical study of animals when planning preventive measures	8	2	4	1	6

15.	Trypanosomiasis, leishmaniasis .	PC-5 Development of a treatment plan for animals based on the established diagnosis and individual characteristics of animals, selection of necessary chemical and biological drugs for the treatment of animals, taking into account their combined pharmacological effect on the body PC-5ID-5 Know the methods of drug treatment of sick animals and indications for their use in accordance with guidelines, instructions, manuals, rules for diagnosis, prevention and treatment of animals PC-11 Development of an annual plan for anti-epizootic measures, a plan for the prevention of non-communicable animal diseases, a plan for veterinary and sanitary measures PC-11ID-1 Be able to collect and analyze information, including veterinary statistics, necessary for planning preventive anti-epizootic measures, prevention of non-communicable animal diseases, veterinary and sanitary measures PC-13 Organization of measures to protect the organization from the introduction of infectious and invasive diseases in accordance with the plan for anti-epizootic measures PC-13ID-1 Know the types of measures to ensure veterinary and sanitary safety and the requirements for their implementation in accordance with the legislation of the Russian Federation in the field veterinary science PC-14 Organization of preventive immunizations (vaccinations), therapeutic and preventive treatment of animals in accordance with the plan of anti-epizootic measures, analysis of the effectiveness of measures to prevent animal diseases in order to improve them PC-14ID-2 Know the procedure for conducting a clinical study of animals when planning preventive measures	8	2	4	1	6

16.	Trichomonosis, histomonosis, and lantidiosis, amoebiasis. Rickettsiosis	PC-5 Development of a treatment plan for animals based on the established diagnosis and individual characteristics of animals, selection of necessary chemical and biological drugs for the treatment of animals, taking into account their combined pharmacological effect on the body PC-5ID-5 Know the methods of drug treatment of sick animals and indications for their use in accordance with guidelines, instructions, manuals, rules for diagnosis, prevention and treatment of animals PC-11 Development of an annual plan for anti-epizootic measures, a plan for the prevention of non-communicable animal diseases, a plan for veterinary and sanitary measures PC-11ID-1 Be able to collect and analyze information, including veterinary statistics, necessary for planning preventive anti-epizootic measures, prevention of non-communicable animal diseases, veterinary and sanitary measures PC-13 Organization of measures to protect the organization from the introduction of infectious and invasive diseases in accordance with the plan for anti-epizootic measures PC-13ID-1 Know the types of measures to ensure veterinary and sanitary safety and the requirements for their implementation in accordance with the legislation of the Russian Federation in the field veterinary science PC-14 Organization of preventive immunizations (vaccinations), therapeutic and preventive treatment of animals in accordance with the plan of anti-epizootic measures, analysis of the effectiveness of measures to prevent animal diseases in order to improve them PC-14ID-2 Know the procedure for conducting a clinical study of animals when planning preventive measures	8	2	8	1	10
			TOTAL FOR SEMESTER 8	**16**	**26**	**6**	**60**

17.	General characteristics of trematodes. Fascioliasis, paramphistomosis, dicrocoeliosis and eurytrematosis	PC-5 Development of a treatment plan for animals based on the established diagnosis and individual characteristics of animals, selection of necessary chemical and biological drugs for the treatment of animals, taking into account their combined pharmacological effect on the body PC-5ID-5 Know the methods of drug treatment of sick animals and indications for their use in accordance with guidelines, instructions, manuals, rules for diagnosis, prevention and treatment of animals PC-11 Development of an annual plan for anti-epizootic measures, a plan for the prevention of non-communicable animal diseases, a plan for veterinary and sanitary measures PC-11ID-2 Know the methods of collecting and analyzing information in veterinary planning, including the use of information databases PC-13 Organization of measures to protect the organization from the introduction of infectious and invasive diseases in accordance with the plan for anti-epizootic measures PC-13ID-2 Know the types of measures to ensure veterinary and sanitary safety and the requirements for their implementation in accordance with the legislation of the Russian Federation in the field of veterinary medicine PC-14 Organization of preventive immunizations (vaccinations), therapeutic and preventive treatment of animals in accordance with the plan of anti-epizootic measures, analysis of the effectiveness of measures to prevent animal diseases in order to improve them PC-14ID-1 Be able to evaluate the effectiveness of preventive measures taken and methods for their implementation, including using digital technologies PC-14ID-2 Know the procedure for conducting a clinical study of animals when planning preventive measures	9	4	2	1	7

18.	Opisthorchiasis, prostogonymosis and echinostomatosis.	PC-5 Development of a treatment plan for animals based on the established diagnosis and individual characteristics of animals, selection of necessary chemical and biological drugs for the treatment of animals, taking into account their combined pharmacological effect on the body PC-5ID-5 Know the methods of drug treatment of sick animals and indications for their use in accordance with guidelines, instructions, manuals, rules for diagnosis, prevention and treatment of animals PC-11 Development of an annual plan for anti-epizootic measures, a plan for the prevention of non-communicable animal diseases, a plan for veterinary and sanitary measures PC-11ID-2 Know the methods of collecting and analyzing information in veterinary planning, including the use of information databases PC-13 Organization of measures to protect the organization from the introduction of infectious and invasive diseases in accordance with the plan for anti-epizootic measures PC-13ID-2 Know the types of measures to ensure veterinary and sanitary safety and the requirements for their implementation in accordance with the legislation of the Russian Federation in the field of veterinary medicine PC-14 Organization of preventive immunizations (vaccinations), therapeutic and preventive treatment of animals in accordance with the plan of anti-epizootic measures, analysis of the effectiveness of measures to prevent animal diseases in order to improve them PC-14ID-1 Be able to evaluate the effectiveness of preventive measures taken and methods for their implementation, including using digital technologies PC-14ID-2 Know the procedure for conducting a clinical study of animals when planning preventive measures	9	2	2		7

19.	General characteristics of cestodes. Diphyllobothriasis and dipylidiosis. Anoplocephalidosis and avitellinosis.	PC-5 Development of a treatment plan for animals based on the established diagnosis and individual characteristics of animals, selection of necessary chemical and biological drugs for the treatment of animals, taking into account their combined pharmacological effect on the body PC-5ID-5 Know the methods of drug treatment of sick animals and indications for their use in accordance with guidelines, instructions, manuals, rules for diagnosis, prevention and treatment of animals PC-11 Development of an annual plan for anti-epizootic measures, a plan for the prevention of non-communicable animal diseases, a plan for veterinary and sanitary measures PC-11ID-2 Know the methods of collecting and analyzing information in veterinary planning, including the use of information databases PC-13 Organization of measures to protect the organization from the introduction of infectious and invasive diseases in accordance with the plan for anti-epizootic measures PC-13ID-2 Know the types of measures to ensure veterinary and sanitary safety and the requirements for their implementation in accordance with the legislation of the Russian Federation in the field of veterinary medicine PC-14 Organization of preventive immunizations (vaccinations), therapeutic and preventive treatment of animals in accordance with the plan of anti-epizootic measures, analysis of the effectiveness of measures to prevent animal diseases in order to improve them PC-14ID-1 Be able to evaluate the effectiveness of preventive measures taken and methods for their implementation, including using digital technologies PC-14ID-2 Know the procedure for conducting a clinical study of animals when planning preventive measures	9	2	4	1	7

20.	General characteristics of taenia. Cysticercosis	PC-5 Development of a treatment plan for animals based on the established diagnosis and individual characteristics of animals, selection of necessary chemical and biological drugs for the treatment of animals, taking into account their combined pharmacological effect on the body PC-5ID-5 Know the methods of drug treatment of sick animals and indications for their use in accordance with guidelines, instructions, manuals, rules for diagnosis, prevention and treatment of animals PC-11 Development of an annual plan for anti-epizootic measures, a plan for the prevention of non-communicable animal diseases, a plan for veterinary and sanitary measures PC-11ID-2 Know the methods of collecting and analyzing information in veterinary planning, including the use of information databases PC-13 Organization of measures to protect the organization from the introduction of infectious and invasive diseases in accordance with the plan for anti-epizootic measures PC-13ID-2 Know the types of measures to ensure veterinary and sanitary safety and the requirements for their implementation in accordance with the legislation of the Russian Federation in the field of veterinary medicine PC-14 Organization of preventive immunizations (vaccinations), therapeutic and prophylactic treatments of animals in in accordance with the plan of anti-epizootic measures, analysis of the effectiveness of measures to prevent animal diseases in order to improve them PC-14ID-1 Be able to evaluate the effectiveness of preventive measures taken and methods for their implementation, including using digital technologies PC-14ID-2 Know the procedure for conducting a clinical study of animals when planning preventive measures	9	4	4	1	7

21.	Echinococcosis, alveococcosis, coenurosis	PC-5 Development of a treatment plan for animals based on the established diagnosis and individual characteristics of animals, selection of necessary chemical and biological drugs for the treatment of animals, taking into account their combined pharmacological effect on the body PC-5ID-5 Know the methods of drug treatment of sick animals and indications for their use in accordance with guidelines, instructions, manuals, rules for diagnosis, prevention and treatment of animals PC-11 Development of an annual plan for anti-epizootic measures, a plan for the prevention of non-communicable animal diseases, a plan for veterinary and sanitary measures PC-11ID-2 Know the methods of collecting and analyzing information in veterinary planning, including the use of information databases PC-13 Organization of measures to protect the organization from the introduction of infectious and invasive diseases in accordance with the plan for anti-epizootic measures PC-13ID-2 Know the types of measures to ensure veterinary and sanitary safety and the requirements for their implementation in accordance with the legislation of the Russian Federation in the field of veterinary medicine PC-14 Organization of preventive immunizations (vaccinations), therapeutic and preventive treatment of animals in accordance with the plan of anti-epizootic measures, analysis of the effectiveness of measures to prevent animal diseases in order to improve them PC-14ID-1 Be able to evaluate the effectiveness of preventive measures taken and methods for their implementation, including using digital technologies PC-14ID-2 Know the procedure for conducting a clinical study of animals when planning preventive measures	9	4	4	1	7

22.	General characteristics of nematodes. Oxyuratoses	PC-5 Development of a treatment plan for animals based on the established diagnosis and individual characteristics of animals, selection of necessary chemical and biological drugs for the treatment of animals, taking into account their combined pharmacological effect on the body PC-5ID-5 Know the methods of drug treatment of sick animals and indications for their use in accordance with guidelines, instructions, manuals, rules for diagnosis, prevention and treatment of animals PC-11 Development of an annual plan for anti-epizootic measures, a plan for the prevention of non-communicable animal diseases, a plan for veterinary and sanitary measures PC-11ID-2 Know the methods of collecting and analyzing information in veterinary planning, including the use of information databases PC-13 Organization of measures to protect the organization from the introduction of infectious and invasive diseases in accordance with the plan for anti-epizootic measures PC-13ID-2 Know the types of measures to ensure veterinary and sanitary safety and the requirements for their implementation in accordance with the legislation of the Russian Federation in the field of veterinary medicine PC-14 Organization of preventive immunizations (vaccinations), therapeutic and preventive treatment of animals in accordance with the plan of anti-epizootic measures, analysis of the effectiveness of measures to prevent animal diseases in order to improve them PC-14ID-1 Be able to evaluate the effectiveness of preventive measures taken and methods for their implementation, including using digital technologies PC-14ID-2 Know the procedure for conducting a clinical study of animals when planning preventive measures	9	2	2	1	7

23.	Ascaridosis of animals and birds	PC-5 Development of a treatment plan for animals based on the established diagnosis and individual characteristics of animals, selection of necessary chemical and biological drugs for the treatment of animals, taking into account their combined pharmacological effect on the body PC-5ID-5 Know the methods of drug treatment of sick animals and indications for their use in accordance with guidelines, instructions, manuals, rules for diagnosis, prevention and treatment of animals PC-11 Development of an annual plan for anti-epizootic measures, a plan for the prevention of non-communicable animal diseases, a plan for veterinary and sanitary measures PC-11ID-2 Know the methods of collecting and analyzing information in veterinary planning, including the use of information databases PC-13 Organization of measures to protect the organization from the introduction of infectious and invasive diseases in accordance with the plan for anti-epizootic measures PC-13ID-2 Know the types of measures to ensure veterinary and sanitary safety and the requirements for their implementation in accordance with the legislation of the Russian Federation in the field of veterinary medicine PC-14 Organization of preventive immunizations (vaccinations), therapeutic and preventive treatment of animals in accordance with the plan of anti-epizootic measures, analysis of the effectiveness of measures to prevent animal diseases in order to improve them PC-14ID-1 Be able to evaluate the effectiveness of preventive measures taken and methods for their implementation, including using digital technologies PC-14ID-2 Know the procedure for conducting a clinical study of animals when planning preventive measures	9	2	2	1	8

24.	Strongylosis of the digestive tract	PC-5 Development of a treatment plan for animals based on the established diagnosis and individual characteristics of animals, selection of necessary chemical and biological drugs for the treatment of animals, taking into account their combined pharmacological effect on the body PC-5ID-5 Know the methods of drug treatment of sick animals and indications for their use in accordance with guidelines, instructions, manuals, rules for diagnosis, prevention and treatment of animals PC-11 Development of an annual plan for anti-epizootic measures, a plan for the prevention of non-communicable animal diseases, a plan for veterinary and sanitary measures PC-11ID-2 Know the methods of collecting and analyzing information in veterinary planning, including the use of information databases PC-13 Organization of measures to protect the organization from the introduction of infectious and invasive diseases in accordance with the plan for anti-epizootic measures PC-13ID-2 Know the types of measures to ensure veterinary and sanitary safety and the requirements for their implementation in accordance with the legislation of the Russian Federation in the field of veterinary medicine PC-14 Organization of preventive immunizations (vaccinations), therapeutic and preventive treatment of animals in accordance with the plan of anti-epizootic measures, analysis of the effectiveness of measures to prevent animal diseases in order to improve them PC-14ID-1 Be able to evaluate the effectiveness of preventive measures taken and methods for their implementation, including using digital technologies PC-14ID-2 Know the procedure for conducting a clinical study of animals when planning preventive measures	9	4	4	1	8

25.	Strongylosis of the respiratory system	PC-5 Development of a treatment plan for animals based on the established diagnosis and individual characteristics of animals, selection of necessary chemical and biological drugs for the treatment of animals, taking into account their combined pharmacological effect on the body PC-5ID-5 Know the methods of drug treatment of sick animals and indications for their use in accordance with guidelines, instructions, manuals, rules for diagnosis, prevention and treatment of animals PC-11 Development of an annual plan for anti-epizootic measures, a plan for the prevention of non-communicable animal diseases, a plan for veterinary and sanitary measures PC-11ID-2 Know the methods of collecting and analyzing information in veterinary planning, including the use of information databases PC-13 Organization of measures to protect the organization from the introduction of infectious and invasive diseases in accordance with the plan for anti-epizootic measures PC-13ID-2 Know the types of measures to ensure veterinary and sanitary safety and the requirements for their implementation in accordance with the legislation of the Russian Federation in the field of veterinary medicine PC-14 Organization of preventive immunizations (vaccinations), therapeutic and preventive treatment of animals in accordance with the plan of anti-epizootic measures, analysis of the effectiveness of measures to prevent animal diseases in order to improve them PC-14ID-1 Be able to evaluate the effectiveness of preventive measures taken and methods for their implementation, including using digital technologies PC-14ID-2 Know the procedure for conducting a clinical study of animals when planning preventive measures	9	4	4	1	8

26.	Trichocephalatosis, rhabdiatosis and spiruratosis. General characteristics of acanthocephales. Macrocanthorhynchosis and polymorphosis	PC-5 Development of a treatment plan for animals based on the established diagnosis and individual characteristics of animals, selection of necessary chemical and biological drugs for the treatment of animals, taking into account their combined pharmacological effect on the body PC-5ID-5 Know the methods of drug treatment of sick animals and indications for their use in accordance with guidelines, instructions, manuals, rules for diagnosis, prevention and treatment of animals PC-11 Development of an annual plan for anti-epizootic measures, a plan for the prevention of non-communicable animal diseases, a plan for veterinary and sanitary measures PC-11ID-2 Know the methods of collecting and analyzing information in veterinary planning, including the use of information databases PC-13 Organization of measures to protect the organization from the introduction of infectious and invasive diseases in accordance with the plan for anti-epizootic measures PC-13ID-2 Know the types of measures to ensure veterinary and sanitary safety and the requirements for their implementation in accordance with the legislation of the Russian Federation in the field of veterinary medicine PC-14 Organization of preventive immunizations (vaccinations), therapeutic and preventive treatment of animals in accordance with the plan of anti-epizootic measures, analysis of the effectiveness of measures to prevent animal diseases in order to improve them PC-14ID-1 Be able to evaluate the effectiveness of preventive measures taken and methods for their implementation, including using digital technologies PC-14ID-2 Know the procedure for conducting a clinical study of animals when planning preventive measures	9	6	6		10

27.	Methods of laboratory diagnostics of helminthic diseases.	PC-11 Development of an annual plan of anti-epizootic measures, a plan for the prevention of non-communicable animal diseases, a plan for veterinary and sanitary measures PC-11ID-2 Know the methods of collecting and analyzing information in veterinary planning, including the use of information databases PC-13 Organization of measures to protect the organization from the introduction of infectious and invasive diseases in accordance with the plan of anti-epizootic measures PC-13ID-2 Know the types of measures to ensure veterinary and sanitary safety and the requirements for their implementation in accordance with the legislation of the Russian Federation in the field of veterinary medicine PC-14 Organization of preventive immunizations (vaccinations), therapeutic and prophylactic treatments of animals in accordance with the plan of anti-epizootic measures, analysis of the effectiveness of measures to prevent animal diseases in order to improve them PC-14ID-2 Know the procedure for conducting a clinical study of animals when planning preventive measures	9	2			
		TOTAL FOR SEMESTER 9		**34**	**34**	**8**	**76**

6. List of educational and methodological support for independent work of students

6.1. Methodological instructions for independent work

1. A teaching aid for independent study of the discipline "Parasitic diseases" for students studying in the direction of "Veterinary and sanitary examination" with the graduation qualification of "bachelor" / compiled by: L. M. Belova, N. A. Gavrilova, V. A. Shiryaeva [et al.]; Ministry of Agriculture of the Russian Federation, St. Petersburg State University of Veterinary Medicine. - St. Petersburg: FGBOU VO SPbGAVM, 2019. - 37 p. - URL: https://search.spbguvm.informsystema.ru/viewer.jsp?aWQ9NTQwJnBzPTM3 (date of access: 24.06.2025). - Access mode: for authorized users of the SPbGUVM Electronic Library.

2. A teaching aid for independent study of the discipline "Parasitology and invasive diseases" for students studying in the direction of training "Biology", in the training profile - "Bioecology" with the graduation qualification - "bachelor" / compiled by: L. M. Belova, N. A. Gavrilova, A. N. Tokarev [et al.]; Ministry of Agriculture of the Russian Federation, St. Petersburg State University of Medicine and Microbiology. - St. Petersburg, 2016. - 45 p. - URL: https://search.spbguvm.informsystema.ru/viewer.jsp?aWQ9MjgzJnBzPTQ1 (date of access: 24.06.2025). - Access mode: for authorized users of the SPbGUVM Electronic Library.

3. Textbook and methodological manual for independent study of the discipline "Parasitology and invasive diseases": for students studying in accordance with the educational standard of the Federal State Educational Standard of Higher Education in the field of training 06.03.01 "Biology" (bachelor's degree level) / compiled by: L. M. Belova, N. A. Gavrilova, A. N. Tokarev [et al.]; Ministry of Agriculture of the Russian Federation, St. Petersburg State University of Medicine and Microbiology. - St. Petersburg, 2016. - 47 p. - URL: https://search.spbguvm.informsystema.ru/viewer.jsp?aWQ9MjA0OTImcHM9NDc= (date of access: 06/24/2025). - Access mode: for authorized users of the SPbGUVM Electronic Library.

4. Intravital Diagnostics of Animal Helminthiasis / M. V. Shustrova, L. M. Belova, V. I. Loskot [et al.]; SPbGAVM. - St. Petersburg: SPbGAVM Publishing House, 2010. - 57 p.

5. Postmortem Diagnostics of Animal Helminthiasis / M. V. Shustrova, L. M. Belova, V. I. Loskot [et al.]; SPbGAVM. - St. Petersburg: SPbGAVM Publishing House, 2010. - 76 p.

6.2. Literature for Independent Study

1. Krylov M. V. Identifier of Parasitic Protozoa (Humans, Domestic Animals, and Agricultural Plants). - St. Petersburg: Nauka, 1996. - 604 p.

2. Veterinary and sanitary assessment of meat and slaughter products for invasive and non-infectious animal diseases: methodological recommendations / A. V. Smirnov, V. G. Urban, A. S. Smolkina [et al.]; compiled by A. V. Smirnov [et al.]; SPbGAVM. - St. Petersburg: Publishing house of SPbGAVM, 2015. - 16 p. - URL: https://search.spbguvm.informsystema.ru/viewer.jsp?aWQ9MTg2MzEmcHM9MTU= (date of access: 24.06.2025). - Access mode: for authorized users of the SPbGUVM Electronic Library. 3. Vodyanov, A.A. Morphology, biology and laboratory diagnostics of causative agents of invasive animal diseases: a teaching aid in 3 parts. Part 2: Veterinary arachnoentomology. [Electronic resource]: Study guides / A. A. Vodyanov, S. N. Lutsuk, V. P. Tolokonnikov. - Electronic data. - Stavropol: Stavropol State Agrarian University, 2009. - 84 p. - Access mode: http://e.lanbook.com/book/5737 (accessed: 24.06.2025)

4. Vodyanov, A. A. Morphology, biology and laboratory diagnostics of causative agents of invasive animal diseases: a teaching aid in 3 parts. Part 3: Veterinary arachnoentomology. [Electronic resource]: Textbooks / A.A. Vodyanov, S.N. Lutsuk, V.P. Tolokonnikov. - Electronic data - Stavropol: Stavropol State Agrarian University, 2009. - 60 p. - Access mode: http://e.lanbook.com/book/5738 (accessed: 06/24/2025)

5. Vodyanov, A.A. Morphology, biology and laboratory diagnostics of causative agents of protozoan diseases of animals: a teaching aid. [Electronic resource]: Textbooks / A.A. Vodyanov, S.N. Lutsuk, V.P. Tolokonnikov, Yu.V. Dyachenko. - Electronic data - Stavropol: Stavropol State

Agrarian University, 2009. - 60 p. – Access mode: http://e.lanbook.com/book/5739 (date accessed: 24.06.2025)

8. Reznicenko, L.V. Invasive diseases transmitted to humans through meat and fish, veterinary and sanitary assessment of slaughter products. [Electronic resource]: Textbooks / L.V. Reznicenko, S.N. Vodyanitskaya, S.B. Noskov, N.A. Denisova. – Electronic data. – St. Petersburg: Lan, 2016. – 80 p. – Access mode: http://e.lanbook.com/book/87588 (date accessed: June 24, 2025)

7. LIST OF BASIC AND ADDITIONAL LITERATURE REQUIRED FOR MASTERING THE DISCIPLINE

A) basic literature:

1. Parasitology and Invasive Diseases of Farm Animals: A Textbook in the Specialty "Veter-inary Science" / K. I. Abuladze et al.; edited by K. I. Abuladze. - 3rd ed., revised and enlarged. - Moscow: Agropromizdat, 1990. - 463 p. - (Textbooks and teaching aids for higher agricultural ed-ucational institutions. Veterinary Science).

2. Parasitology and invasive diseases of animals: recommended by the Ministry of Agricul-ture and Food of the Russian Federation as a textbook for university students majoring in 310800 "Veterinary Medicine" / M. Sh. Akbaev, A. A. Vodyanov, N. E. Kosminkov [et al.]; edited by M. Sh. Akbaev. - 2nd ed., corrected. - Moscow: Kolos, 2000. - 743 p.: ill. - (Textbooks and teaching aids for students of higher educational institutions). - URL: https://search.spbguvm.informsystema.ru/viewer.jsp?aWQ9MzMxJnBzPTM3NA== (accessed: 24.06.2025). - Access mode: for authorization.

b) Further reading:

1. Timofeev, B. A. Trypanosomiasis of animals / Timofeev B. A., Menshikov V. G., Vasilevich F. I. - Moscow: Zoomedlit, 2013. - 118 p. (Textbooks and teaching aids for students of higher educational institutions) - ISBN 978-5-91233-005-9. - Text: electronic // URL: Timofeev B. F. Trypanosomiasis of animals 2009 (date of access: June 24, 2025)

2. Methods of diagnostics of diseases of farm animals: a teaching aid for universities / A. P. Kurdeko, S. P. Kovalev, V. N. Aleshkevich [et al.]; Edited by A. P. Kurdeko and S. P. Kovalev. — 3rd ed., erased. - St. Petersburg: Lan, 2021. - 208 p. — ISBN 978-5-8114-8317-4. — Text: electronic // Lan: electronic library system. — URL: https://e.lanbook.com/book/174996 (access date: June 24, 2025)

3. Shustrova M.V., P.I. Pashkin, L.M. Belova, V.P. Novikov, A.N. Voronov, V.I. Loskot, N.A. Gavrilova, I.V. Koltsov, A.V. Panas. Parasitology and invasive animal diseases / Textbook. for students secondary vocational educational institutions. M.: "Academy", 2006. 447 p.

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

To prepare for laboratory classes and to complete independent work, students can use the following Internet resources:

http://www.infectology.ru/ Bulletin of Parasitology
http://www.zin.ru/projects/kronaros/index.html Blood-sucking insects of Russia
http://www.parasitology.ru/ Parasitology
https://ru.wikipedia.org/wiki/Разитология Parasitology

Electronic library systems:
1. EBS "SPbGUVM"
2. EBS "Student consultant"
3. Reference and legal system "ConsultantPlus"
4. University information system "RUSSIA"
5. Full-text database POLPRED.COM
6. Scientific electronic library ELIBRARY.RU
7. Russian scientific network

8. Electronic library system IQlib

9. Database of international scientific citation indices Web of Science

10. Full-text interdisciplinary database on agricultural and environmental sciences ProQuest AGRICULTURAL AND ENVIRONMENTAL SCIENCE DATABASE

11. Electronic books of the publishing house "Prospekt Nauki" http://prospektnauki.ru/ebooks/

12. Collection "Agriculture. Veterinary Science" of the publishing house "Quadro" http://www.iprbookshop.ru/586.html

13. Belova L.M., Khokhlova L.A. Lectures on parasitic diseases of animals (section: "Protozoan diseases of animals") teaching aid". State registration number of the mandatory copy of the electronic publication 0321400080 dated 10.06.2014

14. Guide and atlas of infectious and parasitic diseases of humans. Compact disc. Edited by Yu. V. Lobzin and S. S. Kozlov, 2008-2013.

9. METHODOLOGICAL INSTRUCTIONS FOR STUDENTS ON MASTERING THE DISCIPLINE

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

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

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

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

• Recommendations for working on lecture material

When preparing for a lecture, a student is recommended to:

1) review the notes of the previous lecture and recall the previously studied material;

2) it is useful to review the upcoming material of the future lecture;

3) if independent study of individual fragments of the topic of the previous lecture is assigned, then it must be completed without delay;

4) psychologically prepare for the lecture.

This work includes two main stages: taking notes on lectures and subsequent work on the lecture material.

Note-taking means compiling a summary, i.e. a brief written presentation of the content of something (an oral presentation - a speech, lecture, report, etc. or a written source - a document, article, book, etc.).

The methodology for taking notes on oral presentations differs significantly from the methodology for taking notes on written sources.

When taking notes from written sources, a student has the opportunity to read the necessary passage of text several times, reflect on it, highlight the author's main ideas, formulate them briefly, and then write them down. If necessary, he can also note his attitude to this point of view. When listening to a lecture, a student must put off most of the above-mentioned work for another time, trying to use every minute to write down the lecture, and not to comprehend it - there is no time left for this. Therefore, when taking notes from a lecture, it is recommended to separate fields on each page for subsequent notes in addition to the notes.

Having recorded a lecture or compiled its notes, one should not leave work on the lecture material until the beginning of preparation for the test. It is necessary to do as early as possible the work that accompanies the note-taking of written sources and that 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 ideas, note questions that require additional processing, in particular, consultation with the teacher.

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

For each lecture, practical lesson and laboratory work, the number, topic, list of issues to be considered, volume in hours and links to recommended literature are provided. For classes conducted in interactive forms, their organizational form must be indicated: computer simulation, business or role-playing game, analysis of a specific situation, etc. • Recommendations for preparation for practical classes

Practical (seminar) classes are an important part of the professional training of students. The main goal of practical (seminar) classes is to develop students' analytical and creative thinking by acquiring practical skills. Practical classes are also held to deepen and consolidate the knowledge gained in lectures and in the process of independent work on regulatory documents, educational and scientific literature. In preparation for a practical class, students must study or review the theoretical material on a given topic.

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

1) familiarize themselves with the plan of the upcoming lesson;

2) study the literary sources that were recommended and familiarize themselves with the introductory notes to the relevant sections.

Methodological instructions for practical (seminar) classes on a 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 disciplines in the sections "List of topics for practical (seminar) classes".

The most important component of any form of practical classes are assignments. The basis of the assignment is an example, which is analyzed from the standpoint of the theory developed in the lecture. As a rule, the main attention is paid to the formation of specific skills, abilities, 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 the recommended literature, as well as attentive attitude to the lecture course;
- consolidate knowledge obtained in the process of lecture training and independent work on literature;
- expand the volume of professionally significant knowledge, abilities, and skills;
- allow you to check the correctness of previously acquired knowledge;
- instill the skills of independent thinking, oral presentation;
- promote free handling of terminology;
- provide the teacher with the opportunity to systematically monitor the level of independent work of students.

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

• Recommendations for working with literature.

Working with literature is an important stage of a student’s independent work on mastering a subject, which not only helps to consolidate knowledge, but also to broaden one’s horizons, mental abilities, memory, ability to think, express and confirm one’s hypotheses and ideas. In addition, the skills of scientific research work necessary for further professional activity are developed.

When starting to study literature on a topic, it is necessary to make summaries, extracts, notes. It is mandatory to take notes on the works of theorists, which allow one to comprehend the theoretical basis of the research. Otherwise, one can limit oneself to extracts from the studied sources. All extracts and quotations must have an exact “return address” (author, title of work, year of publication, page, etc.). It is advisable to write an abbreviated title of the question to which the extract or quotation relates. In addition, it is necessary to learn how to immediately compile a card index of specialized literature and publications of sources, both suggested by the teacher and independently identified, and also to refer to bibliographic reference books, annals of journal articles, book annals, and abstract journals. In this case, 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 (last name, 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 author's thought or a fact from this book on only one specific issue. If the work, even in the same paragraph or phrase, contains other judgments or facts on another issue, they should be written out on a separate card. The presentation should be concise, precise, without subjective assessments. On the back of the card you can make your own notes about the book or article, its content, structure, sources it was written on, etc.

• Explanations on working with course test materials, recommendations for completing homework.

Testing allows you to determine whether the actual behavior of a program corresponds to the expected behavior by completing a specially selected set of tests. A test is the fulfillment of certain conditions and actions necessary to check the operation of the function being tested or part of it. Each question on the subject must be answered correctly by choosing one option.

• Recommendations for completing a test (if it is included in the curriculum), determining students' knowledge of the material covered through independent work, including theoretical assignments and several practical assignments. • Recommendations for completing coursework (if it is included in the curriculum), defining their thematic focus, goals and objectives of completion, requirements for content, volume, design and organization of management of their preparation by departments and teachers.

According to the methodological instructions presented in the list of methodological instructions.

10. EDUCATIONAL WORK

Within the framework 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, civic 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, for the awareness of the social significance of their future profession.

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

11.1. The educational process for the discipline provides for the use of information technologies:
 lecturing and conducting practical classes using multimedia;
 interactive technologies (conducting lectures, dialogues, collective discussion of various approaches to solving a particular educational and professional task);
 interaction with students via e-mail;
 joint work in the Electronic Information and Educational Environment of SPbGUVM: https://spbguvm.ru/academy/eios

11.2. Software

List of licensed and freely distributed software, including domestic production

№	Name of technical and computer training aids recommended for sections and topics of the program	License
1	MS PowerPoint	67580828
2	LibreOffice	free software
3	ОС Альт Образование 8	AAO.0022.00
4	АБИС "МАРК-SQL"	02102014155
5	MS Windows 10	67580828
6	ConsultantPlus System	503/КЛ
7	Android ОС	free software

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

Name of the discipline (module), practice in accordance with the curriculum	**Name of special rooms and rooms for independent work**	**Equipment of special rooms and rooms for independent work**
Parasitology and invasive diseases of animals	301 (196084, St. Petersburg, Chernigovskaya St., Building 5) Classroom for lectures, seminar-type classes, group and individual consultations, ongoing monitoring and midterm assessment	Specialized furniture: cabinets for preparations, desks, chairs, stools, a blackboard, lamps for microscopy, Technical teaching aids: a multimedia projector, a screen, a laptop, biological microscopes and magnifying glasses for practical classes Visual aids and teaching materials: macro- and micropreparations of the parasites being studied, posters and presentations on sections of the discipline being studied, training kits for conducting diagnostic tests for blood parasite diseases and helminthological studies, samples of anthelmintics, insectoacaricides, coccidiostatics.
	302 (196084, St. Petersburg, Chernigovskaya St., Building 5) Museum and classroom for lectures, seminar-type classes, group and individual consultations, ongoing monitoring and midterm assessment	Specialized furniture: cabinets for preparations, display cases for macropreparations and museum exhibits, desks, chairs, a blackboard, lamps Technical teaching aids: an interactive whiteboard with an Internet connection, a multimedia projector, a laptop, biological microscopes and magnifying glasses for practical classes Visual aids and teaching materials: macro- and micropreparations of the

		parasites being studied, posters and presentations on sections of the discipline being studied, training kits for conducting diagnostic tests for blood parasite diseases and helminthological studies, samples of anthelmintics, insectoacaricides, coccidiostatics
	310 (196084, St. Petersburg, Chernigovskaya St., Building 5) Laboratory for conducting seminar-type classes, group and individual consultations, ongoing monitoring and midterm assessment	Specialized furniture: cabinets for laboratory glassware, desks, chairs, stools, a blackboard. Technical teaching aids: multimedia projector, laptop, biological microscopes and magnifying glasses for practical classes Visual aids and teaching materials: macro- and micropreparations of the parasites being studied, posters and presentations on sections of the discipline being studied, training kits for conducting diagnostic tests for blood parasite diseases and helminthological studies, samples of anthelmintics, insectoacaricides, coccidiostatics
	312 (196084, St. Petersburg, Chernigovskaya St., Building 5) Classroom for conducting seminar-type classes, group and individual consultations, ongoing monitoring and midterm assessment	Specialized furniture: desks, chairs, lamps Technical teaching aids: interactive whiteboard with Internet connection, biological microscopes and magnifying glasses for practical classes. Visual aids and teaching materials: macro- and micropreparations of the parasites being studied, posters and presentations on sections of the discipline being studied, training kits for conducting diagnostic tests for blood parasite diseases and helminthological studies, samples of anthelmintics, insectoacaricides, coccidiostatics.
	309 (196084, St. Petersburg, Chernigovskaya str., 5) Educational laboratory of the department	Specialized furniture: a table for parasitological research, a stainless steel sink, cabinets with laboratory glassware and auxiliary materials for practical classes in the discipline Technical training aids: a centrifuge, a light microscope, laboratory glassware (slides and cover glasses, Petri dishes,

		flotation liquid solutions) Visual aids and teaching materials: native micropreparations for practical classes
	206 Large reading room (196084, St. Petersburg, Chernigovskaya str., 5) Room for self-work	Specialized furniture: tables, chairs Technical teaching aids: computers with Internet connection and access to the electronic information and educational environment
	214 Small reading room (196084, St. Petersburg, Chernigovskaya str., 5) Room for self-work	Specialized furniture: tables, chairs Technical teaching aids: computers with Internet connection and access to the 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 teaching aids
	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 for preventive maintenance of specialized furniture

Developer:

Head of the Department of Parasitology
Doctor of Veterinary Sciences Y.E. Kuznetsov

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 Parasitology named after V.L. Yakimov

FUND OF ASSESMENT TOOLS
for the discipline
“PARASITOLOGY AND INVASIVE DISEASES OF ANIMAL”

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 ASSESSMENT TOOLS

Table 1

№	Acquired competence	Assessed modules of a discipline	Assesment tool
1.	GPC-6. Is able to analyze, identify and assess the risk danger of the occurrence and spread of the disease GPC-6ID-1 To know: existing programs for the prevention and control of zoonosis, contagious diseases, emergent or newly emerging infections, the use of animal identification systems, trace and control by the relevant veterinary services GPC-6ID-2 To be able to: assess the risk of animal diseases, including the import of animals and animal products and other measures of veterinary services, the control of prohibited substances in the body of animals, animal products and feed; GPC-6ID-3 To possess skills to: conduct identification procedures, select and implement measures that can be used to reduce the risk level. 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-5ID-1 To be able to use specialized information databases at a choice of animal treatment methods. PC-5ID-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-5ID-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-5ID-4 To be able to administer drugs to the animals body in various techniques; PC-5ID-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-5ID-8	Section 1. Parasitology and invasive diseases of animals (5th year, correspondence course)	Control work, Seminar, tests, course project (work)
		Section 2. Arachnozes	Seminar, tests, course project (work)
3.		Section 3. Entomoses	Seminar, tests, course project (work)
4.		Section 4. Protozooses	Seminar, tests, course project (work)
5.		Section 5. Trematodoses	Seminar, tests, course project (work)
6.		Section 6. Cestodoses	Seminar, tests, course project (work)
7.		Section 5. Ascaridosis	Seminar, tests, course project (work)
8.		Section 6. Oxyuratoses	Seminar, tests, course project (work)
9.		Section 7. Strongylatoses	Seminar, tests, course project (work)
8.		Section 8. Trichuridosis	Seminar, tests, course project (work)
9.		Section 9. Spirotoses	Seminar, tests, course project (work)

10.	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-11 Design of an annual plan of antiepizootic measures, a plan for the prevention of non-contagious animal diseases, a plan of veterinary and sanitary measures PC-PC-11ID-1 To be able to collect and analyze information, including veterinary statistics data, necessary for planning preventive antiepizootic measures, prevention of non-contagious animal diseases, veterinary and sanitary measures PC-11ID-2 To know the methods of collecting and analyzing information for veterinary planning, using information databases as well. PC-13 Development of the enterprise protection measures from the introduction of infectious and invasive diseases in accordance with the plan of antiepizootic measures: PC-13ID-1 To know the types of measures to ensure veterinary and sanitary safety and the requirements for its implementation in accordance with the legislation of the Russian Federation in the field of veterinary medicine PC-14 Development of preventive immunization (vaccination), therapeutic and preventive treatments of animals in accordance with the plan of antiepizootic measures, analysis of the effectiveness of the measures for the prevention of animal diseases and its improvement: PC-14ID-1 To be able to evaluate the effectiveness of preventive measures and ways to implement them, using digital technologies as well; PC-14ID-2 To know the procedure for conducting a clinical study of animals when planning preventive measures PC-14ID-3 To know the types of antiepizootic measures and the requirements for their implementation in accordance with the guidelines, instructions, manuals, rules of diagnosis, prevention and treatment of animals	Section 10. Filariasis	Seminar, tests, course project (work)
11.		Section 11. Dioctophymosis	Seminar, tests, course project (work)
12.		Section 12. Acanthocephaloses	Seminar, tests, course project (work)

2. List of assessment tools

Table 2

№	Name of the evaluation tool	Brief description of the assessment tool	Presentation of the valuation tool in the fund
1.	Seminar	A means of monitoring the assimilation of educational material of a topic, section or sections of a discipline, organized as a training session 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 for the automation of the procedure for measuring the level of knowledge and skills of a student	Test task fund
3.	Control work	A means of testing the ability to apply acquired knowledge to solve problems of a certain type on a topic or section	Set of control tasks by options
4	Course project (work)	A means of testing the ability to apply acquired knowledge to solve problems of a certain type on a topic or section	Set of topics for sections of the discipline

3.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 – 6 .– to be able to analyze, identify and assess the risk danger of the occurrence and spread of the disease					
GPC - 6 ID -1 To know existing programs for the prevention and control of zoonosis, contagious diseases, emergent or newly emerging infections, the use of animal identification systems, trace and control by the relevant veterinary services.	The level of knowledge is below the minimum requirements, gross errors have occurred	The minimum acceptable level of knowledge, many minor errors have been made	The level of knowledge corresponds to the training program, several minor errors have been made	The level of knowledge corresponds to the training program, no errors have been made	Seminar, Test, Report, Control work
GPC - 6 ID -2 To be able to assess the risk of animal diseases, including the import of animals and animal products and other measures of veterinary services, the control of prohibited substances in the body of animals, animal products and feed.	Basic skills were not demonstrated in solving standard tasks, and gross errors occurred	Basic skills have been demonstrated, typical problems have been solved with minor errors, all tasks have been completed, but not in full	All the basic skills have been demonstrated, all the main tasks have been solved with minor errors, all the tasks have been completed in full, but some with flaws	All basic skills have been demonstrated, all main tasks have been solved with some minor flaws, all tasks have been completed in full	Seminar, Test, Report, Control work

GPC-6 ID-3 To possess skills to conduct identification procedures, select and implement measures that can be used to reduce the risk level.	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, Report, Control work
PC-5 To carry out plan of animal treatment, based on the stated diagnosis and animals individ-ual 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-5ID-1 To be able to use specialized information databases at a choice of animal treatment meth-ods.	Basic skills were not demonstrated in solving standard tasks, and gross errors occurred	Basic skills have been demonstrated, typical problems have been solved with minor errors, all tasks have been completed, but not in full	All the basic skills have been demonstrated, all the main tasks have been solved with minor errors, all the tasks have been completed in full, but some with flaws	All basic skills have been demonstrated, all main tasks have been solved with some minor flaws, all tasks have been completed in full	Seminar, Test, Report, Control work
PC-5ID-2 To be able to calculate the amount of remedies for the treatment of animals and the pre-vention of diseases with the receipts signature for a certain period.	Basic skills were not demonstrated in solving standard tasks, and gross errors occurred	Basic skills have been demonstrated, typical problems have been solved with minor errors, all tasks have been completed, but not in full	All the basic skills have been demonstrated, all the main tasks have been solved with minor errors, all the tasks have been completed in full, but some with flaws	All basic skills have been demonstrated, all main tasks have been solved with some minor flaws, all tasks have been completed in full	Seminar, Test, Report, Control work

PC-5ID-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 in solving standard tasks, and gross errors occurred	Basic skills have been demonstrated, typical problems have been solved with minor errors, all tasks have been completed, but not in full	All the basic skills have been demonstrated, all the main tasks have been solved with minor errors, all the tasks have been completed in full, but some with flaws	All basic skills have been demonstrated, all main tasks have been solved with some minor flaws, all tasks have been completed in full	Seminar, Test, Report, Control work
PC-5ID-4 To be able to administer drugs to the animals body in various techniques;	Basic skills were not demonstrated in solving standard tasks, and gross errors occurred	Basic skills have been demonstrated, typical problems have been solved with minor errors, all tasks have been completed, but not in full	All the basic skills have been demonstrated, all the main tasks have been solved with minor errors, all the tasks have been completed in full, but some with flaws	All basic skills have been demonstrated, all main tasks have been solved with some minor flaws, all tasks have been completed in full	Seminar, Test, Report, Control work
PC-5ID-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, pre-vention and treatment.	The level of knowledge is below the minimum requirements, gross errors have occurred	The minimum acceptable level of knowledge, many minor errors have been made	The level of knowledge corresponds to the training program, several minor errors have been made	The level of knowledge corresponds to the training program, no errors have been made	Seminar, Test, Report, Control work
PC-5ID-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 minor errors have been made	The level of knowledge corresponds to the training program, several minor errors have been made	The level of knowledge corresponds to the training program, no errors have been made	Seminar, Test, Report, Control work

PC-11 Design of an annual plan of antiepizootic measures, a plan for the prevention of non-contagious animal diseases, a plan of veterinary and sanitary measures					
PC-11ID-1 To be able to collect and analyze information, including veterinary statistics data, neces-sary for planning preventive antiepizootic measures, prevention of non-contagious animal diseas-es, veterinary and sanitary measures	Basic skills were not demonstrated in solving standard tasks, and gross errors occurred	Basic skills have been demonstrated, typical problems have been solved with minor errors, all tasks have been completed, but not in full	All the basic skills have been demonstrated, all the main tasks have been solved with minor errors, all the tasks have been completed in full, but some with flaws	All basic skills have been demonstrated, all main tasks have been solved with some minor flaws, all tasks have been completed in full	Seminar, Test, Report, Control work
PC-11ID-2 To know the methods of collecting and analyzing information for veterinary planning, us-ing information databases as well.	The level of knowledge is below the minimum requirements, gross errors have occurred	The minimum acceptable level of knowledge, many minor errors have been made	The level of knowledge corresponds to the training program, several minor errors have been made	The level of knowledge corresponds to the training program, no errors have been made	Seminar, Test, Report, Control work
PC-13 Development of the enterprise protection measures from the introduction of infectious and invasive diseases in accordance with the plan of antiepizootic measures:					
PC-13ID-1 To know the types of measures to ensure veterinary and sanitary safety and the require-ments for its implementation in accordance with the legislation of the Russian Federation in the field of veterinary medicine	The level of knowledge is below the minimum requirements, gross errors have occurred	The minimum acceptable level of knowledge, many minor errors have been made	The level of knowledge corresponds to the training program, several minor errors have been made	The level of knowledge corresponds to the training program, no errors have been made	Seminar, Test, Report, Control work
PC-14 Development of preventive immunization (vaccination), therapeutic and preventive treat-ments of animals in accordance with the plan of antiepizootic measures, analysis of the effective-ness of the measures for the prevention of animal diseases and its improvement:					

PC-14ID-1 To be able to evaluate the effectiveness of preventive measures and ways to implement them, using digital technologies as well;	Basic skills were not demonstrated in solving standard tasks, and gross errors occurred	Basic skills have been demonstrated, typical problems have been solved with minor errors, all tasks have been completed, but not in full	All the basic skills have been demonstrated, all the main tasks have been solved with minor errors, all the tasks have been completed in full, but some with flaws	All basic skills have been demonstrated, all main tasks have been solved with some minor flaws, all tasks have been completed in full	Seminar, Test, Report, Control work
PC-14ID-2 To know the procedure for conducting a clinical study of animals when planning preventive measures	The level of knowledge is below the minimum requirements, gross errors have occurred	The minimum acceptable level of knowledge, many minor errors have been made	The level of knowledge corresponds to the training program, several minor errors have been made	The level of knowledge corresponds to the training program, no errors have been made	Seminar, Test, Report, Control work
PC-14ID-3 To know the types of antiepizootic measures and the requirements for their implementation in accordance with the guidelines, instructions, manuals, rules of diagnosis, prevention and treatment of animals	The level of knowledge is below the minimum requirements, gross errors have occurred	The minimum acceptable level of knowledge, many minor errors have been made	The level of knowledge corresponds to the training program, several minor errors have been made	The level of knowledge corresponds to the training program, no errors have been made	Seminar, Test, Report, Control work

4 LIST OF TEST TASKS AND OTHER MATERIALS REQUIRED FOR ASSESSING KNOWLEDGE, ABILITIES, SKILLS AND EXPERIENCE

4.1 Typical tasks for the current control of academic progress

4.1.1 Questions for knowledge survey (writing variant)

Questions for assessing competence
GPC-6
Able to analyze, identify and assess the risk of occurrence and spread of diseases:
GPC -6ID-1
Know existing programs for the prevention and control of zoonoses, contagious diseases, emerging or re-emerging infections, the use of animal identification systems, tracing and control by the relevant veterinary services;

1. Types of unicellular organisms and features of their morphology.
2. Nutrition, reproduction of unicellular organisms.
3. Zoonoses are diseases caused by protozoa.
4. Permanent insect ectoparasites

GPC-6ID-2
Be able to conduct, including with the help of digital technologies, an assessment of the risk of occurrence of animal diseases, including the import of animals and animal products and other measures of veterinary services, monitor prohibited substances in the body of animals, animal products and feed;

5. Types of immunity in animals with protozoan diseases.
6. Types of circulation of pathogens of piroplasmosis in ticks.
7. Characteristics of sections of trypanosomatids.
8. Localization of skin beetles, skin beetles and itch mites in animals
9. Features of the structure and localization of Knemidocoptes ticks in birds
10. Insects with complete and incomplete metamorphosis
11. Blood-sucking and non-blood-sucking flies
12. Features of the development cycles of representatives of midges
13. Immaginal cestodiasis of cattle and small ruminants

GPC-6ID-3
Have the skills to carry out identification procedures, select and implement measures that can be used to reduce the risk level

14. Pathogenesis of piroplasmosis.
15. Diagnostics of tritrichomoniasis in cattle.
16. Diagnostics of animal piroplasmosis
17. Diagnostics of afanipterosis and trichodectosis in dogs

18. Methods of diagnostics of intestinal and pulmonary nematodoses
19. Diagnostics of animal ascariasis
20. Features of laboratory diagnostics of equine oxyurosis
21. Etiological factors of animal parafilariasis
22. Intermediate hosts of animal filariasis pathogens

Questions for assessing competence
PC-5
Developing a treatment plan for animals based on the established diagnosis and individual characteristics of the animals, selecting the necessary chemical and biological drugs for treating animals, taking into account their combined pharmacological effects on the body:
PC-5ID-1
Be able to use specialized information databases when choosing methods for treating animals;

23. Control and prevention measures against flies, mosquitoes, midges, biting midges, mosquitoes and horseflies

PC-5ID-2
Be able to calculate the amount of medications for treating animals and preventing diseases with the preparation of prescriptions for a certain period;

24. Treatment and prevention of anaplasmosis in cattle
25. Treatment of cattle with babesiosis
26. Treatment of cows with demodicosis.
27. Treatment of horses with sarcoptoidosis.
28. Treatment of pigs with sarcoptosis.
29. Treatment of dogs with canine cheyletiellosis.

PC-5ID-3
Be able to calculate the amount of medications for the treatment of animals and disease prevention with the preparation of prescriptions for a certain period, including using digital technologies;

30. Acaricidal drugs used for sarcoptosis and notoedrosis of carnivores
31. Acaricidal drugs used for psoroptosis of rabbits
Anthelmintic drugs for imaginal cestodiasis of ruminants

PC-5ID-4
Be able to administer drugs to the body of animals in various ways;

32. Early and late chemotherapy for hypodermatosis
33. Insecticidal drugs and methods of treating animals
34. Effective anthelmintics for fascioliasis

35. Anthelmintic drugs for the treatment of birds with ascariasis and methods of administration

PC-5ID-5
Know the methods of drug treatment of sick animals and indications for their use in accordance with guidelines, instructions, manuals, rules for diagnostics, prevention and treatment of animals;

36. Insecticidal preparations used to treat carnivores.
37. Insecticidal preparations used to treat carnivores.
38. Insecticidal preparations used for mallophagosis of birds.

PC-5ID-8
Know the technique of administering drugs into the animal's body by enteral (oral, sublingual and rectal administration) and parenteral (injections, inhalations and skin applications).

39. Principles of pathogenetic therapy for protozoal diseases
40. Treatment of cattle with babesiosis and theileriosis
41. Early and late chemotherapy for hypodermatosis.
42. Control and prevention measures against flies, mosquitoes, midges, biting midges, mosquitoes and horseflies.
43. Acaricidal preparations and methods of application for arachnoses in animals
44. Effective anthelmintics for pulmonary and intestinal nematodoses

Questions for assessing competence
PC-11
Developing an annual plan for anti-epizootic measures, a plan for the prevention of non-communicable animal diseases, a plan for veterinary and sanitary measures
PC-11ID-1
Be able to collect and analyze information, including veterinary statistics, necessary for planning preventive anti-epizootic measures, prevention of non-communicable animal diseases, veterinary and sanitary measures

45. Characteristics of epizootological foci of piroplasmosis in animals.
46. Pathogenesis and clinical signs of sarcoptosis
47. Features of the development of argasid and parasitiform ticks
48. Sarcoptoidosis of horses
49. Preventive measures taken for acarosis in pigs
50. Features of the morphology and biology of horseflies
51. Features of the morphology and biology of gadflies parasitizing small and large cattle
52. Features of the morphology and biology of gadflies parasitizing single-hoofed animals

53. Features of the morphology and biology of permanent ectoparasites of carnivores
54. Morphology of trematodes
55. Localization of fascioles depending on the stages of development
56. Features of the morphology of the larval and mature stages of pork tapeworm
57. Features of the prevention of cysticercosis in ruminants
58. Features of the morphology and biology of pressures
59. Features of the morphology moniezii
60. Morphology and localization of strongylates of the gastrointestinal tract of ruminants
61. Features of the morphology and biology of the causative agent of strongyloidiasis in ruminants
62. Morphology and biology of trichuros (trichocephalans)
63. Features of the structure and life cycle of the giant acanthocephalan

PC-11ID-2
Know the methods of collecting and analyzing information in veterinary planning, including the use of information databases.

64. Intravital diagnostics of protozoan diseases.
65. Diagnostics of animal piroplasmoses.
66. Diagnostics of bovine besnoitiosis.
67. Localization of demodex in dogs and cats
68. Localization of skin mites in rabbits
69. Localization of itch mites and skin beetles in horses
70. Morphological features of acarimorphic and parasitiform mites
71. Difference between the larva of a parasitiform mite and the imago
72. List ectoparasites - intermediate hosts of pathogens of helminthiasis in carnivores
73. Types of larval stages of cestodes
74. Localization of onchocerces and settaria in the body of animals

Questions for assessing competence
PC-13
Organization of measures to protect the organization from the introduction of infectious and invasive diseases in accordance with the plan of anti-epizootic measures:
PC-13ID-1
Know the types of measures to ensure veterinary and sanitary safety and the requirements for their implementation in accordance with the legislation of the Russian Federation in the field of veterinary medicine;

75. Transmissible protozoan diseases.
76. Ways of infection of animals with the causative agent of toxoplasmosis.
77. Routes of infection of animals with sarcocystosis.

78. Laboratory diagnostics of ruminant trematodes
79. Routes of infection of carnivores with toxocariasis
80. Differential diagnostics of toxocariasis and toxascariosis
81. Routes of infection with bunostomosis of ruminants
82. Control and prevention measures for trichinellosis in animals

PC-14
Organization of preventive immunizations (vaccinations), therapeutic and preventive treatments of animals in accordance with the plan of anti-epizootic measures, analysis of the effectiveness of measures to prevent animal diseases in order to improve them:
PC-14ID-1
Be able to evaluate the effectiveness of preventive measures taken and methods for their implementation, including using digital technologies;

83. Complications in animals with parasitism of the skin-eating mite
84. Diagnostics of cestodiasis in the early and late stages of helminth development
85. Features of the fight against and prevention of ancylostomiasis
86. Features of laboratory diagnostics of intestinal and pulmonary strongylates
87. Diagnostics of thelaziasis in animals

PC-14ID-2
Know the procedure for conducting a clinical study of animals when planning preventive measures;

88. Characteristic clinical signs of psoroptosis in sheep
89. Characteristic clinical signs of chorioptosis in horses
90. Pathogenesis and clinical signs of sarcoptosis
91. Clinical signs of otodectosis in carnivores
92. Clinical signs of sarcoptosis in pigs
93. Localization of mites in pigs
94. Pathogenesis and clinical signs of tenuicol cysticercosis
95. Features of the clinical manifestation of acute and chronic paramphistomatosis
96. Pathogenesis and clinical signs of tenuicol cysticercosis
97. Pathogenesis and clinical signs of prostogonymosis in birds 98. Clinical signs of coenurosis
99. Clinical signs and pathoanatomical changes in hymenolepidiosis
100. Clinical signs of coenurosis
101. Clinical signs and pathological changes in hymenolepidiosis
102. Epizootology, pathogenesis and clinical signs in amidostomosis of birds
103. Pathogenesis and clinical signs in crenosomiasis
104. Clinical signs and pathological changes in dirofilariasis
105. Epizootology, morphology and clinical signs in polymorphosis of ducks

PC-14ID-3
Know the types of anti-epizootic measures and requirements for their implementation in accordance with guidelines, instructions, manuals, rules for diagnostics, prevention and treatment of animals.

106. Babesia development cycle.
107. Theileria development cycle.
108. Toxoplasma development cycle.
109. Cryptosporidium development cycle.
110. Eimeria development cycle.
111. Routes of animal infection with sarcocystosis.
112. Development cycle of the causative agents of aphanipteroses (siphonapterosis) of carnivores
113. Development cycle of pig hematopinus
114. Development cycle of fascioliasis agents
115. Development cycle of the causative agent of dicrocoeliosis
116. Development cycle of the causative agent of opisthorchiasis
117. Development cycle of the causative agents of echinostomatosis
118. Epizootological data for thysanieziosis and avetellinosis
119. Development cycle of the causative agent of bovis cysticercosis
120. Development cycle of the causative agent of echinococcosis
121. Development cycle of the causative agent of coenurosis of small ruminants
122. Development cycle of the causative agent of echinococcosis
123. Development cycle of the causative agent of coenurosis of small ruminants cattle
124. Development cycle of the causative agent of rayetinosis of chickens
125. Epizootological data for thysanieziosis and avetellinosis
126. Development cycle of the pig roundworm
127. Development cycle of the causative agent of heterakiasis
128. Development cycle of the causative agent of passalurosis of rabbits
129. Development cycles of the causative agent of strongylosis of horses
130. Development cycle of the causative agent of delafondiosis of horses
131. Development cycle of the causative agent of chabertia
132. Development cycle of the nematode Ancylostoma caninum
133. Development cycle of dictyocaula parasitizing small and large cattle
134. Development cycle of protostrongyloidids
135. Development cycle of the causative agent of metastrongylosis
136. Development cycle of the causative agent of syngamosis of birds
137. Development cycle of the causative agent of trichinellosis
138. Characteristics of the causative agent of dioctophymosis and the development cycle

3.1.2 Topics of test papers

Topics of test papers for assessing competencies Topics of course projects (papers) for assessing competencies:

GPC-6. Is able to analyze, identify and assess the risk danger of the occurrence and spread of the disease

GPC-6ID-1 To know: existing programs for the prevention and control of zoonosis, contagious diseases, emergent or newly emerging infections, the use of animal identification systems, trace and control by the relevant veterinary services

GPC-6ID-2 To be able to: assess the risk of animal diseases, including the import of animals and animal products and other measures of veterinary services, the control of prohibited substances in the body of animals, animal products and feed;

GPC-6ID-3To possess skills to: conduct identification procedures, select and implement measures that can be used to reduce the risk level.

CLOSED-TYPE COMPLIANCE ASSIGNMENTS

Task 1: Establishing a correspondence between the pathogen and the symptoms of opisthorchiasis

Establish a correspondence between the pathogens of opisthorchiasis and clonorhosis in animals. The pathogens are listed on the left side of the table, and the indicators are listed on the right. Write down the corresponding indicator numbers for the pathogens in the table.

Causative agent	Indicators
Opisthorchis felineus	
Clonorchis sinensis	

Symptoms:

1. Lethargy and depression
2. Decreased appetite and digestive disorders
3. Compact testicles
4. Jaundice of sclera and mucous membranes
5. Liver enlargement
6. Branched testicles

Answer:

- *Opisthorchis felineus*: 1, 2, 3, 4, 5,
- *Clonorchis sinensis* 1, 2, 4, 5, 6

Note: Both species can cause similar symptoms, but in *Clonorchis sinensis* the testes are branched, while in *Opisthorchis* felineus they are compact.

Task 2: Establish a correlation between infection factors and opisthorchiasis prevention measures

Establish a correlation between the factors of infection with opisthorchiasis and preventive measures. The infection factors are listed on the left side of the table, and preventive measures are listed on the right. Write down the appropriate numbers of preventive measures for each infection factor in the table.

Infection factor	Preventive measures
1. Eating raw fish	A. Observing the rules of fish heat treatment
2. Insufficient heat treatment of fish	B Prohibition of the sale of fish in places of unauthorized trade
3.Unauthorized fish trade	C In Regular deworming of animals

Answer: 1 – B, 2 – A, 3 – B.

Note: Regular deworming of animals is a general preventive measure, but it is not directly related to the specific infection factors listed in the assignment.

Task 3: Establish a correspondence between the symptoms and stages of bovine cysticercosis:

Symptoms	Stage of cysticercosis
1. Fever up to 40-41 °C, weakness, poor appetite	
2. Atony of the pancreas, muscle soreness, rapid breathing and palpitations	
3. No visible symptoms, the animals look healthy	
4. Edema, ascites, itchy skin, abdominal and thoracic muscle soreness	

Answers: A, A, C, B.

1**. A** Acute stage
2. **A** Acute stage
3 **- B** Chronic stage (or severe form)
4 – **C** Advanced stage

Task 4: Establish a correspondence between each of the listed terms (A) and its definition or description (B). In each case, choose only one correct option.

Term	Definition or description
1.*Taenia solium*	A The larval stage of a cestode parasitizing the muscles of pigs
2. Porcine cysticercosis	B The sexually mature stage of a cestode that is parasitic in the human intestine
3. Prevention of cysticercosis	C Mandatory inspection of meat at meat processing plants and slaughterhouses.
4. Veterinary and sanitary expertise	D A set of measures aimed at preventing infection of pigs and humans.
5. Cysticercs	F.A zoonotic disease of pigs caused by cestode larvae.

Answer: 1 – B, 2 – F, 3 – D, 4 – C, 5 – A.

Task 5: Fill in the table, establishing a correspondence between the characteristics of trichinosis and the answer options.

Characteristics of trichinosis	Response option
1. The causative agent of the disease	A Not to feed animals with raw meat, mandatory heat treatment
2. The main hosts of nematode	B Fever, diarrhea, refusal of food, and muscle pain
3. The location of the larvae	C The consumption of raw meat infected with larvae
4. Symptoms in animals	D Dogs, cats, pigs, wolves, foxes
5. Animal infection pathway	E Striated musculature
6. Prevention of diseases	F *Trichinella spiralis* and *T. pseudospiralis*

Answer: 1 - F, 2 - D, 3 - E, 4 - B, 5 - C, 6 – A.

CLOSED-TYPE TASKS FOR ESTABLISHING THE SEQUENCE

Task 1. Establish the correct sequence of development of trichinosis in animals by filling out the table below. In each cell, specify the appropriate stage of the disease development.

Stage of development	Description
1. The intestinal phase:	
2. Migration phase: 3. The muscle phase:	

Variants:

1. Trichinella larvae enter the small intestine, where they mature and reproduce. The females produce new larvae.
2. The larvae settle in striated muscles, where they grow and curl into spirals, forming capsules.
3. The larvae enter the circulatory system and lymphatic vessels, spreading throughout the body.

The correct sequence:

1. Larvae enter the circulatory system and lymphatic vessels, spreading throughout the body.
2. The larvae settle in striated muscles, where they grow and curl into spirals, forming capsules.
3. Trichinella larvae enter the small intestine, where they mature and reproduce. The females produce new larvae.

Task 2. Fill in the table, setting the correct sequence of stages of the echinococcal life cycle. In each cell of the table, specify the number of the corresponding stage.

Life Cycle stage	Stage number
1. Larval stages are formed in the organs of intermediate hosts.	
2. Eggs enter the body of intermediate hosts (sheep, goats, cattle, humans).	
3. Adult worms lay eggs, which are excreted in faeces.	
4. Dogs become infected by eating organs with the larval stage.	
5. Mature individuals live in the intestines of dogs and other canids.	

6. Oncospheres penetrate the intestinal walls and spread to organs.	

Answer: the correct sequence
5 - 1,
3 - 2,
2 - 3,
6 - 4,
1 - 5,
4 - 6

Task 3. Your task is to arrange the stages of the opisthorchiasis life cycle in the correct sequence.

Life Cycle Stage	Description	Correct order
1. Development in the final hosts	Metacercariae are released in the intestine and migrate to the bile ducts, where they reach sexual maturity and begin to lay eggs.	
2. Development in shellfish	Eggs enter freshwater reservoirs, where they infect shellfish. In mollusks, eggs turn into miracidia, sporocysts, redia, and cercariae	
3. Infection of final hosts	Definitive hosts (animals and humans) become infected by eating infected fish.	
4. Infestation of fish	Cercoria leave the mollusks and attach to the fish, where they turn into metacercariae	
5. Egg excretion	Opisthorchis eggs are released into the environment with the feces of the final hosts.	

Answer: 5 - 1, 2 - 2, 3 - 4, 4 - 3, 5 – 1

Task 4. Fill in the table, establishing the correct sequence of development of diphyllobothriasis in animals. In each cell, specify the appropriate stage of the parasite's life cycle.

Life Cycle stage	Description
1	**A** The transformation of coracidia into procercoids in the body of crustaceans
2	**B** Infection of the final host (human or animal) by eating infected fish
3	**C** The excretion of eggs with feces

4	**D** Transformation of procercoids into plerocercoids in the body of fish
5	**E** The development of coracidia in the water

Answer: C, E, A, D, B

Task 5. To establish a sequence of actions in the diagnosis of pig cysticercosis at a meat processing plant.

Diagnostic Stage	Procedure Description
1. Development of a control plan	Development of a plan for the control and prevention of cysticercosis at the enterprise.
2. Laboratory tests	Conducting serological tests (for example, ELISA) to detect antibodies to cysticercosis
3. Interpretation of the results	Analysis and interpretation of all the data obtained to confirm the diagnosis.
4. Pathoanatomic analysis	Performing an autopsy and pathoanatomic analysis to detect cysticerci
5. Visual inspection	Conducting a visual inspection of pigs for external signs of infection.
6. Collection of information	Collection of data on the history of the animal, clinical symptoms and conditions of detention, study of veterinary reports

Answer: 6, 5, 2, 4, 3, 1.

TASKS OF A COMBINED TYPE WITH THE CHOICE OF ONE OR MORE CORRECT ANSWERS OUT OF FOUR SUGGESTED AND THE JUSTIFICATION OF THE CHOICE

Task 1: The main host of toxoplasmosis.
Question: Who is the main host of the *Toxoplasma gondii* parasite?
Response options:
1. Dogs;
2. Mice;
3. Cats;
4. Birds.
Answer: 3.
Justification of the choice:

Cats and other representatives of the felidae family are the main hosts of the Toxoplasma gondii parasite, and the sexual stage of the parasite's development occurs in their bodies.

Task 2: Ways of infection with toxoplasmosis

Question: What are the main ways of infection with toxoplasmosis in animals and humans?

Possible answers:

1. Only through the bite of an infected cat.
2. Through ingestion of oocysts or infected meat, as well as vertically (from mother to fetus).
3. By airborne droplets.
4. Through skin contact with infected animals.

Answer: 2

Justification of the choice:

The main routes of infection with toxoplasmosis include ingestion of oocysts contained in cat feces or infected meat containing pseudo- or true parasite cysts. In addition, the vertical transmission path (from mother to fetus) is also significant for humans.

Task 3: Etiology and ways of infection with toxocariasis

Choose some correct answers:

Which of the following options are the causes of infection with toxocariasis in dogs and cats?

1. Eating faeces or soil containing eggs of Toxocara spp.
2. Direct contact with an infected animal.
3. Intrauterine infection through the placenta.
4. Transmammary infection through mother's milk.

The rationale for the choice:

1, 3, 4 are correct, since toxocariasis spreads through contaminated soil, intrauterine and transmammary infection.

2 is incorrect, since direct contact with an infected animal is not a path of infection.

Task 4: Prevention of toxoplasmosis

Question: How can animals be prevented from becoming infected with toxoplasmosis?

Possible answers:

1. Regular use of antibiotics
2. Do not feed animals with raw meat and limit their hunting
3. Use the toxoplasmosis vaccine
4. Additionally give vitamin supplements

Answer: 2.

Justification:

To prevent infection with toxoplasmosis in animals, you should not feed them raw meat and limit their hunting of birds and rodents. Currently, there is no vaccine against toxoplasmosis.

Task 5: Symptoms of toxocariasis

Choose some correct answers:

What symptoms can be observed in animals infected with toxocariasis?

1. Bloating.
2. Vomiting and diarrhea.
3. Bronchopneumonia.
4. Temperature rise.

Justification of the choice:

• 1, 2, 3 are correct because toxocariasis can cause bloating, digestive disorders, and bronchopneumonia.

• 4 may be a symptom, but not specific to toxocariasis, so it can be considered a less likely option.

OPEN-TYPE TASKS WITH DETAILED ANSWERS

Task 1. Develop a detailed algorithm for diagnosing fascioliasis in animals, including clinical signs, laboratory methods (for example, coprological studies). Describe the role of each stage in the diagnostic process.

Answer: Development of an algorithm for diagnosing fascioliasis

The algorithm for diagnosing fascioliasis:

1. Clinical examination: identification of symptoms such as weight loss, decreased appetite, anemia and jaundice.
2. Laboratory tests:

• Coprological studies: microscopic detection of *Fasciola hepatica* eggs in animal feces.

• Serological tests: determination of antibodies to *F. hepatica* in the blood.

3. Pathoanatomic examinations: if necessary, to confirm the diagnosis.

Task 2. Describe the main factors contributing to the spread of swine cysticercosis and develop a set of measures to prevent and control this disease on pig farms.

Answer:

Epidemiology and epizootology: Describe the ways in which pigs are infected with cysticercosis, including the role of humans as the final host and source of the parasite's eggs.

Spread factors: List the factors contributing to the spread of cysticercosis among pigs, such as coprophagia, violation of zoohygienic and sanitary requirements of keeping and uncontrolled slaughter of animals.

Preventive measures: Propose a set of veterinary and sanitary measures to prevent infection of pigs with cysticercosis, including mandatory veterinary and

sanitary examination of meat, improvement of animal husbandry conditions and measures to prevent livestock vagrancy.

Task 3. After reading the text, make a diagnosis and draw up a plan of preventive measures.

On a pig farm, young animals were found to have a total form of the disease, characterized primarily by allergic inflammation of the skin of the entire body surface, including the auricles. Papules, vesicles, and crusts appeared on the skin of such pigs. The crusts later became massive, the skin thickened and folded. When taking a deep scrape on the border between the affected and healthy skin, microscopy revealed rounded mites with short cone-shaped legs, at the end of which there were bell-shaped suckers on long, non-segmented rods.

Answer: Pig sarcoptosis (ear and total forms). The basis of sarcoptosis prevention consists of therapeutic and preventive treatments. Activities should be carried out in both the public and private sectors, twice in spring and autumn, with the constant fulfillment of general veterinary, sanitary and zoohygienic requirements, namely: a balanced feeding diet, systematic clinical examination of the entire livestock, prevention of contact of pigs with sarcoptosis with healthy animals.

Task 4. Read the text and write down a detailed reasoned answer.

Dogs are the owners of a number of helminths that are dangerous to humans. In this regard, special attention should be paid to the disease, which is manifested in humans by prolonged (for 10 years) migration of larvae, severe allergic manifestations, including pulmonary pathology and bronchial asthma, damage to the organs of vision (chorioretinitis), as well as other serious disorders. Prevention is based on effective measures to effectively protect the soil from parasitic infection. As shown by studies of dust from vacuum cleaners and flushing from dogs' paws in apartments where dogs are kept, contamination with eggs of these helminths is revealed.

Answer: Toxocariasis caused by the nematode *Toxocara canis*. The number of registered patients with toxocariasis in Russia has increased more than 100 times over the past 15 years. When ingested, the larvae migrate through the enterohemato-hepato-pulmo-enteric pathway before reaching puberty. Each gram of feces from a dog infected with toxocars contains up to 40,000 toxocar eggs.

Task 5. Read the text and write down a detailed, reasoned answer.

The presence of cats (especially neglected ones) is associated with the risk of human infection with this disease. In cats, it usually manifests itself in the form of intestinal invasion, which is often asymptomatic. Infected representatives of the family. Felidae distinguish immature dispersal stages with faeces. Outside the animal's body, these stages reach the invasive stage within 3-5 days.

During pregnancy, an acute course can lead to congenital malformations or fetal death. Therefore, contact with cats during pregnancy should be excluded.

Answer: Toxoplasmosis. Representatives of the Felidae family are definitive hosts that secrete oocysts that sporulate in the external environment and, when ingested, cause various pathologies in intermediate hosts (more than 450 animal species, including humans), including abortions, birth of non-viable fetuses or deformities.

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

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

PC-5ID-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-5ID-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.

A CLOSED TYPE ASSIGNMENT TO ESTABLISH COMPLIANCE

Task 1. In what diseases is neosidine used to treat animals? Check the box.

Disease	Neosidine
1. Cryptosporidiosis	
2. Nuttalliosis	
3. Aimeriosis	
4. Babesiosis	
5. Balantidiosis	

Answer: 2, 4.

Task 2. To establish a correspondence between the disease and the drug for the treatment of animals.
What drug is commonly used to treat fascioliasis in cattle?

Fasciolosis	A Ivermectin
	B Albendazole
	C Metronidazole
	D Tetracycline

Answer: B.

Task 3. To establish a correspondence between the disease and the drug for the treatment of animals.
What drugs are commonly used to treat cattle with dictyoculosis?

Dictyoculosis	A Ivermectin
	B Metronidazole
	C Rikazol
	D Tetracycline

Answer: A, C

Task 4. To establish a correspondence between the disease and the drug for the treatment of animals. What drugs are commonly used to treat monieziosis in small cattle?

Moniesiosis	A Ricazol
	B Metronidazole
	C Alvet
	D Tetracycline

Answer: A, C.

Task 5. To establish a correspondence between the disease and the drug for the treatment of animals. What drug is commonly used to treat carnivores with opisthorchiasis?

Opisthorchiasis	A Praziquantel
	B Albendazole
	C Ivermectin
	D Fenbendazole

Answer: A.

A CLOSED-TYPE ASSIGNMENT TO ESTABLISH A SEQUENCE

Task 1. Establish the correct sequence of actions in the treatment of cattle from babesiosis.

Task	Sequence of actions
1.Administration of the drug Babezan	A
2. Diagnosis of the disease	B
3. Stimulation of hematopoiesis	C
4. Detoxification of the body	D

Answer: 1 - B, 2 - A, 3 - D, 4 - C.

Task 2. Establish the correct sequence of actions for the prevention of teileriosis in cattle.

Task	Sequence of actions
A. Treatment of animals with acaricides	
B. Quarantine of newly admitted animals	
C. Use of cultivated pastures	
D. Introduction of a culture vaccine	

Answer: D, C, B, A.

Task 3. Establish a sequence of actions in the treatment of cattle from eimeriosis.

Task	Sequence of actions
A. Application of anti-inflammatory drugs	
B. Compliance with zoohygienic requirements	
C. Diagnosis of the disease	
D. Preventive treatments	

Answer: C, A, B, D

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Task 4. Establish a sequence of actions in the treatment of birds (Gallus gallus) with dermatosis.

Task	Sequence of actions
A Ventilation of the room after treatment	
B Treatment of birds with Ivermek OR	

C Treatment of premises with insecticides	
D. Sanitary treatment of premises	

Answer: C, B, D, A.

Task 5. Establish a sequence of actions for the prevention of mallophagosis in birds.

Task	Sequence of actions
A. Indoor treatment with 1% thymol solution	
B. Regular inspections of birds for ectoparasites	
C. Spraying with 0.25% Ectomine solution	
D. Ventilation of the room after treatment	

Answer: B, C, A, D.

A COMBINED TYPE OF TASK WITH A CHOICE OF ONE CORRECT ANSWER OUT OF FOUR SUGGESTED AND A JUSTIFICATION FOR THE CHOICE

Task 1. Choosing a drug for the treatment of ungulates with paraskariosis. Which drug is most effective for the treatment of parascaridosis in artiodactyls?

Possible answers:

1. Piperazine
2. Fenbendazole
3. Praziquantel
4. Levamisole

Answer: 2. Fenbendazole

Rationale: Fenbendazole is a benzimidazole anthelmintic drug widely used for the treatment of various types of helminthiasis, including parascaridosis in animals. It is effective against nematodes, including Parascaris equorum, and is often used in veterinary medicine to treat ungulates.

Task 2. Choosing the method of drug administration for horse helminthiasis. Which method of drug administration is the most effective for helminthiasis in horses?

Possible answers:

1. Intramuscular injection

2. Intravenous administration
3. Oral administration
4. Subcutaneous injection

Answer: 3. Oral administration.

Rationale: In the treatment of horses from helminthiasis, oral medication is the most common and effective method. This is due to the fact that many anthelmintic drugs are designed to directly affect parasites in the gastrointestinal tract where they live. Oral administration allows for a high concentration of the drug in the habitat of the parasites, which increases the effectiveness of treatment.

Task 3. Evaluation of the effectiveness of treatment of helminthiasis in horses. Which of the following methods is the most reliable for evaluating the effectiveness of treatment of helminthiasis in horses?

Possible answers:
1. Clinical examination
2. Analysis of faeces for helminth eggs
3. Ultrasound examination
4. Radiography

Answer: 2. Analysis of faeces for helminth eggs

Rationale: Analysis of feces for helminth eggs is the most reliable method for evaluating the effectiveness of treatment of helminthiasis in horses. This method allows you to determine the presence or absence of helminth eggs, which is a direct indicator of the presence or absence of parasites in the animal's body.

Task 4. Prevention of helminthiasis in ungulates. Which of the following methods is the most effective for the prevention of helminthiasis in ungulates?

Possible answers:
1. Regular deworming
2. Sanitary and hygienic measures
3. The use of biological drugs
4. Changing the feeding ration

Answer: 1. Regular deworming

Rationale: Regular deworming is a key element in the prevention of helminthiasis in animals. It helps to maintain a low infection rate and prevents the development of diseases.

Task 5. Select a drug containing ivermectin and praziquantel for the treatment of horses with helminthiasis. Which drug contains ivermectin and praziquantel and is used to treat horses with helminthiasis?

Possible answers:
1. Phenosal
2. Iversan.
3. Alezan.
4. Disalan.

Answer: 3. Alezan

Rationale: Alezan is an oral paste for horses containing ivermectin and praziquantel, used to treat horses with helminthiasis.

AN OPEN-ENDED TASK WITH A DETAILED RESPONSE

Task 1. Read the text and write down a detailed reasoned answer.

There are 5 horses under 1 year old in a private stable. The stable is dysfunctional due to paraskariosis. Helminthoscopic examination revealed Parascaris equorum eggs in three of the 5 samples taken. Carry out deworming with the drug "Alezan" and give recommendations to the owner of the stable.

Answer: The drug "Alezan" is prescribed at a dose of 1 gram per 100 kilograms of animal weight. For horses under 1 year of age, it is necessary to determine their average weight and calculate the total dose of the drug. A syringe dispenser with 6 g of paste is used. The average body weight of 1 foal is about 300 kg, therefore, 1 syringe per 2 heads. Deworming will require 2.5 syringes.

The paste is injected into the horse by squeezing it onto the root of the tongue from a syringe, which is inserted into the interdental space of the oral cavity. Regardless of the results of the helminthoscopic examination, all horses should be treated, as the stable is not well-equipped for paraskariosis. It is recommended to re-treat after 2-3 months to ensure complete removal of helminths.

Task 2. Read the text and write down a detailed reasoned answer.

The dairy farm is dysfunctional due to fascioliasis of cattle. The total number of cows on the farm is 580. The veterinary pharmacy has the drug Albendazole, which is used in a dose of 7.5 mg / kg of body weight orally with food. Calculate the need for the drug for the year, taking into account the need for preventive treatment of all cows at least 2 times a year. The average weight of a cow is 500 kg.

Answer:

Determination of the dose of the drug per cow. The drug "Albendazole" is used at a dose of 7.5 mg / kg of animal weight.

1. Average cow weight: 500 kg.
2. Calculation of the dose per cow:

Dose per cow=7.5 mg/kg×500 kg=3750 mg=3.75

Calculation of the total drug requirement for one treatment

1. Total number of cows: 580 heads.
2. Calculation of the total demand for the preparation for one treatment:

Total demand = 3.75 g/cow×580 cows=2175 g

Calculation of the annual drug requirement

1. Number of treatments per year: at least 2 times.
2. Calculation of the annual demand for the drug:

Annual demand=2175 g/treatment×2 treatments=4350 g.

Task 3. Read the text and write down a detailed reasoned answer.

There are 10 dogs in the animal overexposure center: 5 German Shepherds (average weight 50 kg), 5 Dobermans (average weight 45 kg). Cucumber chain segments were found in the feces of three dogs. The pharmacy of the center has the drug "Drontal plus". Calculate the required amount of the drug for deworming animals. Take the necessary preventive measures for this disease, taking into account the peculiarities of the biological cycle of the parasite.

Answer:

Calculation of the required amount of the drug "Drontal plus" for deworming dogs

Determination of the dose of the drug per dog

1. Average weight of a German Shepherd: 50 kg.
2. Average weight of a Doberman: 45 kg.
3. Dosage of the drug "Drontal plus": 1 tablet per 10 kg of animal weight.

Calculation of the dose for the German Shepherd:

Dose for a shepherd dog =50 kg 10 kg/tablet = 5

Dose calculation for Doberman:

Doberman dose =45 kg 10 kg/tablet=4.5

Since the tablets are not divisible, 5 tablets will be required for each Doberman (rounding to the nearest integer).

Calculation of the total amount of the drug required for deworming of all dogs

1. Total number of dogs: 10 heads.
2. Calculation of the total amount of the drug:

For German Shepherds: 5 shepherds×5 tablets/shepherd=25 tablets.
For Dobermans: 5 Dobermans×5 tablets/Doberman=25 tablets.

Total number of tablets for all dogs: 25 +25 =50 tablets.

Features of the biological cycle of cucumber tapeworm. Cucumber tapeworm (*Dipylidium caninum*) infects dogs through fleas and hair eaters, which are intermediate hosts. Therefore, in addition to deworming, it is necessary to treat fleas and blisters to prevent re-infection.

Task 4. Read the text and write down a detailed reasoned answer.

The fur farm contains 400 arctic foxes and 150 silver-black foxes. The fur farm is dysfunctional due to toxascariasis. During helminthoscopic examination, toxascariid eggs were found in the faeces of arctic foxes and foxes.. The veterinary pharmacy of the animal farm has the anthelmintic drug Alben C in tablets, 1 tablet (100 mg) per 5 kg of live weight, a total of 200 packs of 2 blisters, each containing 10 tablets.

Carry out deworming of all animals, taking into account the following conditions: the average weight of a fox is 12 kg. a fox is 15 kg. Deworming should be carried out twice (one month before rut and after weaning of puppies).

Calculate the dose of anthelmintic drug per animal by species. Determine the total amount of the drug that will be required for double treatment.

Answer:

Calculation of the dose of the drug per animal by species

1. Average weight of Arctic fox: 12 kg.
2. Average fox weight: 15 kg.
3. Dosage of the drug "Alben C": 1 tablet (100 mg) per 5 kg of body weight.

Calculation of the dose for Arctic foxes:

Dose for Arctic fox =12 kg 5 kg/tablet=2.4 tablets

Since the tablets are not divisible, 3 tables will be required for each arctic fox (rounding to the nearest integer).

Calculating the dose for a fox:

Dose for fox =15 kg /5 kg/tablet = 3 tablets.

Calculation of the total amount of the drug required for double treatment

1. Total number of animals:
   Arctic foxes: 400 heads.
   Foxes: 150 heads.
2. Calculation of the total amount of the preparation for double treatment:
   For arctic foxes: 400 arctic foxes×3 tablets/arctic fox×2 treatments=2400 tablets.
   For foxes: 150 foxes×3 tablets/fox×2 treatments=900 tablets.
3. Total number of tablets for all animals: 2400 +900 =3300 tablets.

Checking the availability of the drug

1. Availability of the drug: 200 packs of 2 blisters, each blister contains 10 tablets.
2. Total number of tablets available:

200 packs×2 blisters/pack×10 tablets/blister=4000 tablets.

Since there are 4,000 tablets available, this is enough to treat all animals twice.

Task 5. Read the text and write down a detailed, reasoned answer.

Calculate the required amount of the 5% "Aimeterm" suspension for the prevention of aimeriosis in 30 calves. The calf's weight is 100 kg. Take the necessary preventive measures for this disease, taking into account the peculiarities of the biological cycle of the parasite.

Answer:

Calculation of the required amount of the drug "Eimeterm" for the prevention of eimeriosis in calves.

Determination of the dose of the drug per calf

1. Average calf weight: 100 kg.
2. Dosage of the drug "Aimeterm": 0.3 ml per 1 kg of animal weight.

Calculation of the calf dose:

Calf dose=0.3 ml/kg×100 kg=30 ml

Calculation of the total amount of the drug required for prevention

1. Total number of calves: 30 heads.
2. Calculation of the total amount of the drug:

30 calves×30 ml/calf=900 ml

900 ml of the drug "Aimeterm" will be required for 30 calves.

Preventive measures

1. Sanitary and hygienic measures: To carry out the decontamination of places where calves are kept, including cages, in order to prevent re-infection.

2. Regular monitoring: Conduct regular veterinary examinations and coprological examinations to monitor the effectiveness of treatment and prevent re-infection.

3. Changing the conditions of the calves: Consider improving the conditions of the calves, including ensuring cleanliness and proper care of the animals.

• Infection cycle: Coccidium oocysts are excreted in faeces and can infect other animals through contaminated water or feed.

• Prevention: In addition to the use of the drug "Aimeterm", it is necessary to carry out preventive treatment of animal husbandry sites and ensure cleanliness in grazing and feeding areas.

PC-11 Design of an annual plan of antiepizootic measures, a plan for the prevention of non-contagious animal diseases, a plan of veterinary and sanitary measures

PC-PC-11ID-1 To be able to collect and analyze information, including veterinary statistics data, necessary for planning preventive antiepizootic measures, prevention of non-contagious animal diseases, veterinary and sanitary measures

PC-11ID-2 To know the methods of collecting and analyzing information for veterinary planning, using information databases as well.

A CLOSED TYPE ASSIGNMENT TO ESTABLISH COMPLIANCE

Task 1. Compliance of preparations for deworming dogs

Establish a correspondence between the drugs for deworming dogs with echinococcosis and their main effect:

The drug	The main effect
Alezan	
Azinox	
Dironet	
Febtal	
Praziquantel	

Answer:

Praziquantel: an anthelmintic often used to treat dogs with echinococcosis. All other drugs are also used for deworming, but for other parasitic diseases.

Task 2. Compliance of preventive measures for animals and humans.

Establish a correspondence between preventive measures and the groups for which they are intended:

Preventive measure	Group
1. Regular deworming of dogs	A. Animals. B. Man.
2. Personal hygiene in contact with animals	A. Animals. B. Man.
3.Do not allow free-range dogs	A. Animals. B. People
4. Washing vegetables and fruits before eating	A. Animals. B. Humans.

Answer: 1 – A, 2- B, 3 –A, 4 – B.

Task 3. Matching the ways of infection with echinococcosis and preventive measures.

Establish a correspondence between the ways of infection with echinococcosis and preventive measures:

The way of infection	Preventive measure
1. Contact with faeces of infected dogs	A Do not allow slaughterhouse animal seizures to be fed to dogs
2. Eating unwashed vegetables and fruits	B Maintaining personal hygiene and collecting feces.
3. Feeding raw animal organs to dogs.	C Wash vegetables and fruits before eating

Answer: 1 – B, 2 – C, 3 – A/

Task 4. Selection of preventive measures

Establish a correspondence between the following preventive measures and their appointment for animal anaplasmosis.

Preventive measure	Appointment
1.The use of insecticides	A The detection of disease
2. Medical examination of animals	B Prevention of infection
3. Vaccination	C Vector eradication

Answer: B, A, C

Task 5. Selection of diagnostic methods

Establish a correspondence between diagnostic methods and their characteristics in animal leishmaniasis.

Diagnostic method	Characteristics
1. Serological tests	A Quick results
2.Microscopic examination	B High sensitivity
3. PCR	C High specificity

Answer: B, A, C.

A CLOSED-TYPE ASSIGNMENT TO ESTABLISH A SEQUENCE

Task 1. Sequence of measures for sheep sarcoptosis.

Establish the correct sequence of preventive and curative measures for sheep sarcoptosis.

1. Examination and isolation of sick animals
2. Treatment of the affected areas with a warm creolin solution
3. Bathing in a therapeutic bath
4. Disinfection of premises and inventory
5. Repeat bathing after 6-8 days

Which of the following sequences is correct?

A 1-2-3-4-5
B 1-3-2-4-5
C 1-4-2-3-5
D 4-1-2-3-5
Answer: A

Task 2: Prevention and treatment of arachnosis in cattle

Establish the correct sequence of preventive and curative measures for arachnosis in cattle.

1. Quarantine and isolation of animals
2. Treatment of animals with polychloropene emulsion
3. Disinfection of premises
4. Preventive feeding and maintenance
5. Re-processing after 30-45 days

Which of the following sequences is correct?

A 1-3-2-4-5
B 1-4-3-2-5
C 4-1-3-2-5
D 3-1-2-4-5
Answer: C

Task 3. Therapeutic and preventive treatments

Establish the correct sequence of therapeutic and preventive treatments for arachnosis in pigs:

1. Treatment of premises with acaricides
2. The use of ivermectin with food
3. Softening and removing crusts
4. Re-treatment after 10-15 days

Answer: 3, 2, 1, 4

Task 4: Measures to combat arachnosis

Determine the correct sequence of measures to control arachnosis in animals:

1. Disinfection of premises
2. Treatment of animals with acaricidal drugs
3. Increased animal feeding
4. Quarantine of new animals

Answer: 4, 1, 2, 3

Task 5. Prevention of invasive animal diseases

Establish the correct sequence of preventive measures in case of animal infestations.

1. Diagnostic measures
2. Quarantine measures
3. Therapeutic and preventive treatments
4. General preventive measures

Answer: 1, 2, 3, 4

A COMBINED TYPE OF TASK WITH A CHOICE OF ONE CORRECT ANSWER OUT OF FOUR SUGGESTED AND A JUSTIFICATION FOR THE CHOICE

Task 1. Prevention of gadfly diseases

Which of the following methods is the most effective for the prevention of gadfly diseases in cattle?

Variants:

1. The use of repellents.
2. Regular use of insecticides
3. Vaccination against gadflies.
4. Isolation of animals in rooms.

Answer: 2. Regular use of insecticides.

Rationale: Regular use of insecticides is one of the most effective methods of gadfly prevention, as it allows direct destruction of gadfly larvae and adults, reducing the risk of infection of animals.

Task 2. Gadfly biology

Which of the following factors influences the development of gadfly larvae in the animal's body?

Variants:

1. Ambient temperature.
2. Animal nutrition.
3. The state of the animal's immune system.
4. Air humidity.

Answer: 1. Ambient temperature.

Rationale: The ambient temperature affects the rate of development of gadfly larvae, since the optimal conditions for their growth and development depend on temperature.

Task 3. Epizootology of gadfly diseases

Which of the following factors contributes to the spread of gadfly diseases among animals?

Options:

1. Poor sanitation in livestock farms.
2. Insufficient nutrition of animals.
3. Seasonality and habitat
4. Lack of veterinary supervision.

Answer: 3. Seasonality and habitat

Rationale: The peak of infection mainly occurs in late spring and early summer, the time of activity depends on their range.

Task 4. Diagnostic methods

Which of the following methods is used to diagnose gadfly diseases in animals?

Options:

1. PCR diagnostics.
2. Serological tests.
3. Visual inspection for larvae.
4. Biopsy of the affected tissues.

Answer: 3. Visual inspection for larvae.

Rationale: Visual inspection for the presence of gadfly larvae is a direct and effective method of diagnosing gadfly diseases, which makes it possible to quickly identify the presence of parasites in the animal's body.

Task 5. The main factor of infection.

Which of the following factors is the main source of infection with cryptosporidiosis in calves?

1. Polluted water.
2. Insufficient amount of colostrum.
3. Violations of zoohygienic requirements.
4. All of the above factors.

Answer: 4 Are all of the above factors.

Rationale: Cryptosporidiosis in calves can spread through contaminated water, feed, litter, and faeces from infected animals. Untimely manure harvesting

and lack of colostrum weaken the immunity of calves, making them more susceptible to infection.

AN OPEN-ENDED TASK WITH A DETAILED RESPONSE

Task 1. To use in practical conditions, the theoretical knowledge of the diagnosis of trichinosis in animals.

Imagine a situation where you are a veterinarian at a clinic where an animal with suspected trichinosis is admitted. You need to make a comprehensive diagnosis and develop a treatment plan.

Questions to answer:

1. Epidemiology and etiology of trichinosis:

• Describe the main sources of infection with trichinosis.
• What are the main ways of transmission of the pathogen from animals to humans?

2. Clinical picture and symptoms:

• List the main clinical signs of trichinosis in animals.
• What laboratory methods are used to confirm the diagnosis?

3. Diagnostic methods:

• Describe the algorithm of trichinoscopy. How many slices need to be examined
• What morphological methods (for example, histological examination) can be used for diagnosis?

4. Epizootological measures:

• What epizootological measures should be carried out in the territory where a case of trichinosis has been identified?
• What are the main directions of veterinary and sanitary measures to prevent the spread of the disease?

Task 2. Read the text and write down a detailed reasoned answer.

During the clinical examination of the calves, the following symptoms of the disease were noted: emaciation, fever, refusal of food, anemia of the mucous membranes, the hair in the tail and hind limbs is contaminated with liquid feces. During a coprological examination using the Darling method, oocysts were found to be ovoid in shape, with a single-layered, smooth, colorless shell, with a single number of refractive granules. In the thermostat sporulation field, 4 oblong sporocysts formed inside the oocyst.

What kind of disease would you suspect and what treatment and preventive measures would you prescribe?

Answer: Emeriosis of calves. This disease is characterized by fever, refusal of food, anemia of the mucous membranes, diarrhea with mucus and streaks of blood.

The animal is severely depressed, intestinal motility is enhanced. Faeces have a greenish-brown color, they are watery, with a bright fetid odor. By the end of the second week of illness, diarrhea worsens and becomes involuntary. The diagnosis is established on the basis of epizootology, clinic and confirmed by

examination of feces by flotation methods, which detect oocysts with 4 sporocysts. For the treatment of calves, a 5% suspension of Eimeterm 0.3 ml per 1 kg of animal weight is used. Compliance with zoohygienic requirements – timely manure harvesting.

Task 3. Read the text and write down a detailed reasoned answer.

In early August, during the grazing period in the Tyumen region, cows of the Ayrshire breed showed excessive lacrimation, conjunctival hyperemia and mucopurulent discharge from the eyes during a clinical examination. Overall, decreased appetite, animal restlessness, and photophobia were found. Some cows were found to have ixodic mites attached to them, but there was no pronounced anemia or jaundice of the mucous membranes.

What kind of parasitic disease can be assumed?

Answer: Telangiosis. Based on the clinical symptoms observed in Ayrshire cows in the Tyumen region, telaziosis or infectious keratoconjunctivitis can be assumed. However, given the specific symptoms such as excessive lacrimation, conjunctival hyperemia, mucopurulent discharge from the eyes, decreased appetite, animal restlessness and photophobia, the most likely cause is telangiosis.

Telaziosis is caused by nematodes of the genus Thelazia, which parasitize the conjunctival sac and excretory ducts of the lacrimal glands of cows. It is characterized by conjunctivitis, lacrimation, photophobia, eyelid edema, corneal opacity and ulceration. The intermediate hosts are cow flies, which carry the larvae of telyazia.

Infectious keratoconjunctivitis is caused by various microorganisms such as mycoplasmas, chlamydia, rickettsia. It is clinically manifested by catarrhal conjunctivitis, purulent-ulcerative keratitis.

Although some cows have clinging ixodic mites, pronounced anemia and jaundice of the mucous membranes were not observed. This may indicate that ticks are not the main cause of current symptoms.

Therefore, given the symptoms and the absence of severe anemia or jaundice, the most likely cause is telaziosis caused by Thelazia parasites. It is necessary to conduct a veterinary examination to confirm the diagnosis and prescribe appropriate treatment.

Task 4. Read the text and write down a detailed reasoned answer.

Piglets of 4-5 months of age fell ill in the fattening shop of the pig farm. The animals were diagnosed with diarrhea, feces with an admixture of blood and mucus. After feeding, the piglets worry, often change their resting place, adopt a "sitting dog" pose, and grow poorly despite a good appetite.

On clinical examination, there were noted: a slight rise in body temperature, anemia, tousled stubble, hunched posture, taut stomach (like a beagle dog).

Upon autopsy of forcibly killed piglets, the mucous membrane in the cecum and colon is swollen, reddened. Round helminths were found in significant numbers on it, embedded with their thin, hairy ends in the depth of the shell.

What kind of parasitic disease can be assumed?

Answer: Trichourosis (trichocephalosis). The main clinical signs are diarrhea, feces with an admixture of blood and mucus, and a "sitting dog" pose to reduce pain, especially after feeding. Upon opening, round helminths are embedded with their thin, hairy ends in the depth of the shell.

Task 5. Read the text and write down a detailed, reasoned answer.

In the pig breeding workshop, several piglets fell ill, which were diagnosed with high body temperature, cough, vomiting, diarrhea, seizures and skin rash. The piglets did not grow well, despite their good appetites.

Upon autopsy of two piglets, white liver spotting and hemorrhages in the lung parenchyma were noted. No helminths were found in the bronchi.

What kind of parasitic disease can be assumed?

Answer: ascariasis. Upon pathoanatomic complete autopsy of the liver of dead piglets, the formation of connective tissue is noted in the places of localization (in the liver) during the migration of larvae, and eosinophilic infiltrates in the lungs.

PC-13 Development of the enterprise protection measures from the introduction of infectious and invasive diseases in accordance with the plan of antiepizootic measures:

PC-13ID-1 To know the types of measures to ensure veterinary and sanitary safety and the requirements for its implementation in accordance with the legislation of the Russian Federation in the field of veterinary medicine

CLOSED-TYPE COMPLIANCE ASSIGNMENTS

Task 1. Establishing a correspondence between preventive measures and their goals

Preventive measure	The purpose of the event
1. Quarantine of animals	A Destruction of pathogens
2.Disinfection of premises	B Early detection
3.Vaccination of animals	C To protect staff from infection
4.Animal health monitoring	D Disease prevention
5.The use of protective clothing	E To enhance the immunity of animals

Answer: 1 – D, 2 – A, 3 – E, 4 – B, 5 – C.

Task 2. Establish a correspondence between symptoms and diagnostic methods

Establish a correspondence between the symptoms of bovine tritrichomoniasis and diagnostic methods using the table below.

Symptoms	Diagnostic methods
1. Abortions	A Microscopy
2. Tininess for no apparent reason	B PCR (polymerase chain reaction
3. Vaginal discharge	C Cultural study
4. Decreased fertility	D Serological tests

Answer options:
A) Microscopy: used for direct detection of parasites in vaginal secretions.
B) PCR (polymerase chain reaction): a highly sensitive method for detecting parasite DNA.
C) Cultural research: allows you to grow a parasite in the laboratory.
D) Serological tests: antibodies to trichomoniasis are detected in the blood of animals.

Answer: 1 – B, 2 – B, 3 – A and C, 4 - D

Task 3. Establish a correspondence between the activities and their goals for fascioliasis

Measures for bovine fascioliasis	The purpose of the event
1. Conducting an epizootological examination	A Preventing the spread of the disease and improving the sanitary and hygienic conditions of animal husbandry
2.Diagnostic testing of animals	B Treatment of infected animals and reduction of infection
3. The use of anthelmintic drugs	C To identify infected animals and determine the extent of the spread of the disease
4. Organization of veterinary and sanitary measures	D Evaluation of the results of the measures carried out and adjustment of the strategy for combating fascioliasis
5.Monitoring and control of the effectiveness of measures	E To identify sources of infection and risk factors

Answer: 1 – E, 2 – C, 3 – B, 4 – A, 5 – D.

Task 4. The task of establishing compliance in the diagnosis of dicrocyosis of animals//

Question	Answer Options	Correct answer
1. What is the most common method of diagnosing dicroceliosis?	A Serological B Parasitological C Molecular Genetic	
2. Which animal organ is usually affected by dicroceliosis?	A Lungs B Liver C Spleen	
3. What is the characteristic symptom of dicroceliosis?	A Diarrhea B Cough C Weight Loss	
4. Which drug is often used to treat animals with dicroceliosis?	A Ivermectin B Praziquantel C Fenbendazole	

Answer: 1 – B, 2 – B, 3 – C, 4 – C.

Task 5. Assignment to establish compliance in the diagnosis of demodicosis in cattle.

Description	Possible answers
1. What clinical signs are characteristic of cattle demodicosis?	A Hair loss B Diarrhea, vomiting C Cough, shortness of breath
2. What laboratory diagnostic method is used to confirm demodicosis?	A PCR B Microscopy of skin scrapings C Serological tests
3. What type of tick causes demodicosis in cattle?	A *Sarcoptes scabiei* B *Demodex b*ovis C *Psoroptes ovis*
4. Which drug is often used to treat demodicosis in cattle?	A Ivermectin B Doxycycline C Fenbendazole

Answer: 1 –A, 2 – B, 3 – B, 4 – A.

A CLOSED-TYPE ASSIGNMENT TO ESTABLISH A SEQUENCE

Task 1. Establishing consistency in the diagnosis of sheep cenurosis
Establish the correct sequence of stages for the diagnosis of sheep cenurosis.

Stage	Description	Possible answers
1	Medical history collection and clinical examination	A Clinical examination and medical history collection B Laboratory tests

		C Instrumental methods
2	Identification of clinical symptoms	A Epizootological data B Clinical symptoms (vertigo, seizures) C Allergy tests
3	Application of allergy tests	A Instrumental methods B Postmortem diagnosis C Allergic tests (the method of G.I. Ronzhina)
4	Postmortem diagnosis	A Clinical examination B Postmortem diagnosis (autopsy of the head) C Epizootological data

Answer: 1 – A, 2 – B, 3 –C, 4 – B.

Task 2. Task to establish a sequence in the organization of measures to ensure veterinary and sanitary safety in zoonotic diseases of parasitic etiology

Establish the correct sequence of steps for organizing measures to ensure veterinary and sanitary safety in zoonotic diseases of parasitic etiology.

Stage	Description	Possible answers
1	Event planning	A Veterinary and sanitary examination B Planning and development of action plans C Epizootological observation
2	Epizootological observation	A Therapeutic and preventive measures B Veterinary and sanitary examinations C Forecasting based on veterinary reporting documents
3	Ensuring the safety of food products and raw materials of animal origin	A Sanitary and epidemiological expertise B Veterinary and sanitary examination of meat and slaughter products C Therapeutic and preventive measures
4	Assessment of the effectiveness of measures	A To prevent infectious and invasive food-borne diseases; ensuring consumer safety B Veterinary and sanitary examinations C Epizootological observation

Answer: 1 – B, 2 – C, 3 – B, 4 – A.

Task 3. Establish a sequence of events for the detection of wild boar carcass (suspected trichinosis)

Stage	Description
1	B Disposal of infected wild boar carcass
2	A Conducting a trichinelloscopy of a wild boar carcass
3	C To limit the vagrancy of animals and exclude them from eating the corpses of rodents
4	D Veterinary and sanitary examination of meat and products in farms and private subsidiary farms
5	ESystematic deratization on farms and farms

Answer: 1 – B, 2 – A, 3 – D, 4 – C, 5 – E.

Task 4. Task to establish the sequence of organization of measures for the detection of metastrongylosis in pigs

Stage	Description
1	A Laboratory diagnostics (helminthoscopy of sputum and faeces)
2	B Epizootological observation and forecasting
3	C Clinical examination and medical history collection
4	D Restriction of pig walking after precipitation to prevent infection with earthworms
5	E Therapeutic, preventive and antiepizootic measures (use of anthelmintics)
6	F Efficiency assessment and adjustment of action plans
7	G Improving pig feeding and maintenance

Answer: 1 – C, 2 – B, 3 – A, 4 – E, 5 – D, 6 – G, 7 – F.

Task 5. A task to establish the sequence of laboratory diagnostics of opisthorchiasis of carnivores.

Stage	Description
1	A Clinical and biochemical blood test (to assess liver and pancreatic function)
2	B Helminthoscopy (examination of feces for the presence of fluke eggs)
3	C Collection and preparation of fecal samples for helminthoscopy

Answer: 1 – C, 2 – B, 3 – A.

A COMBINED TYPE OF TASK WITH A CHOICE OF ONE CORRECT ANSWER OUT OF FOUR SUGGESTED AND A JUSTIFICATION FOR THE CHOICE

Task 1. Which of the following measures is the most effective for the prevention of notohedrosis in domestic cats?

A Regular walks on the street without restrictions.

B Isolation of sick animals and treatment of all pets against parasites.

C the use of antipruritic agents only.

D Reducing the number of contacts with stray animals.

Answer: B. Isolation of sick animals and treatment of all pets from parasites.

Justification:

1.Isolation of sick animals prevents the spread of scabies mites to healthy pets, which is a key point in the prevention of notohedrosis.

2. Treatment of all pets from parasites (for example, using drugs based on selamectin) is necessary to eliminate possible pathogens, even if they have no clinical signs.

Task 2. Which of the following measures is the most effective for the prevention of histomoniasis in birds?

A Regular bird walks outside without restrictions.

B Reducing contact with wild birds.

C The use of anti-helminthic agents only.

D Isolation of sick birds, regular disinfection and reduction of the population of *Heterkis gallinarum* helminths in the cecum.

Answer: Isolation of sick birds, regular disinfection and reduction of the helminth population in the cecum.

Justification:

1. Isolation of sick birds prevents the spread to healthy individuals, which is a key point in the prevention of histomoniasis.

2.Regular disinfection of poultry houses and equipment reduces the risk of infection through contaminated surfaces.

3. Reducing the population of helminths in the cecum, which are intermediate carriers of histomonads, is also important to prevent the spread of the disease.

Task 3. Which of the following measures is the most effective for the prevention of chorioptosis in cattle?

A Quarantine for newly admitted animals with mandatory microscopy of skin scrapings and regular acaricide treatment of inventory.

B The use of automatic carding machines.

C The use of acaricidal agents only.

D Weekly year-round maintenance.

Answer: A. Quarantine of newly arriving animals with mandatory microscopy of skin scrapings and regular acaricide treatment of inventory.

Justification:

1. Quarantine of newly admitted animals with mandatory microscopy of skin scrapings makes it possible to identify infected animals and prevent the spread of chorioptosis in the farm.

2.Regular acaricidal treatment of inventory (brushes, scrapers) reduces the risk of tick transmission through contaminated care items.

Task 4. Which of the following measures is the most effective to protect an organization from the introduction of an invasive disease?

A Regular vaccination of the entire animal population.

B Creation of quarantine zones for new animals.

C To carry out daily clinical examinations of all animals.

D The use of only biologically pure feed.

Answer: B. Creation of quarantine zones for new animals.

Rationale: The creation of quarantine zones for new animals is a key measure to prevent the introduction of invasive diseases. This allows you to isolate new animals for a certain period of time, which makes it possible to identify potential invasions before they are introduced into the main herd.

Task 5. Which of the following measures is the most effective in preventing dictyoculosis in cattle?

A Regular treatment of pastures with insecticides.

B Providing animals with continuous access to broad-spectrum antibiotics.

C Timely deworming of disadvantaged groups of animals and protection of pastures from infection by Dictyoculus larvae.

D The use of only concentrated feed during the stall period.

Answer: B. Timely deworming of disadvantaged groups of animals and protection of pastures from infection by Dictyoculus larvae.

Rationale: Timely deworming reduces the infestation of animals and the spread of larvae, as well as prevents infection of pastures to reduce the risk of reinfection.

AN OPEN-ENDED TASK WITH A DETAILED RESPONSE

Task 1. Read the text and write down a detailed reasoned answer.

In June, many horses had patches of clotted blood on their skin during the day in the area of the withers and back, flowing from wounds on the skin. In place of the bleeding wounds, small bumps the size of a pea are visible. Bleeding appeared daily, but each time from a new bump.

What kind of horse parasitic disease can cause such phenomena?

Answer: Phenomena observed in horses, such as daily bleeding from small bumps on the skin in the withers and back, are characteristic of paraphilariasis, which is caused by nematodes of the genus *Parafilaria*, in particular *Parafilaria multipapillosa.*

The nematodes *Parafilaria multipapillosa* parasitize the intermuscular connective tissue and subcutaneous tissue of horses, while small bumps the size of a pea or bean form on the skin, from which daily bleeding occurs. This is due to the fact that the female paraphiliaria pierces the skin with the head end and lays eggs in the flowing blood, attracting beetle flies, which are intermediate hosts.

Task 2. Read the text and write down a detailed reasoned answer.

The owner of two 4-month-old piglets drew the attention of the veterinarian to the poor growth and development of the animals. Piglets are sedentary, often lying buried in the litter and coughing.

Examination of the animals revealed that body temperatures were slightly elevated, and the mucous membranes were pale and cyanotic. Thick greenish-yellow discharge is released from the nasal openings. Breathing is hoarse and labored. There are wet wheezes in the bronchi. The stubble is tousled. Piglets hunch over when they get up. The piglets are kept in a storage shed, in a cage with a wooden floor (rotten in some places). Piglets walk freely in a specially fenced enclosure.

What kind of parasitic disease can be assumed?

Answer: Based on the information provided, it can be assumed that piglets suffer from ascariasis or other helminthiasis, which can be caused by parasites such as nematodes affecting the respiratory system.

Arguments in favor of ascariasis

1. Poor growth and development: ascariasis often leads to stunted growth and weight loss in piglets.

2. Cough and respiratory symptoms: cough is characteristic of the migration period of ascaris larvae.

Arguments in favor of metastrongylosis

1. Respiratory symptoms: cough, wheezing, and moist wheezing in the bronchi may indicate metastrongylosis caused by nematodes that infect the lungs.

2. Age and condition of animals: piglets at the age of 4 months may be susceptible to metastrongylosis, which often occurs without pronounced symptoms at the onset of the disease, making it difficult to diagnose

Conclusion. Although the symptoms may indicate ascariasis or metastrongylosis, accurate diagnosis requires additional research, including faecal analysis. Piglet conditions (rotten wooden floor) can contribute to the development of both ascariasis and metastrongylosis.

Task 3. Read the text and write down a detailed reasoned answer.

A 2-year-old goat was brought to the veterinary clinic. According to the owner of the animal, in the last 3 weeks, the goat has lost a lot of weight, lies down a lot, eats poorly, and often coughs. The goat is grazed on the edge of the forest, overgrown with bushes. They give you water from the well.Clinical examination of the animal revealed severe exhaustion, pallor of the mucous membranes, heart weakness, wheezing in the bronchi and trachea, and a wet

cough. Body temperature is 39.2 °C. There were no signs of digestive system malfunction.

What kind of parasitic disease can be assumed?

Answer: Mulleriosis.

Based on the information provided, it can be assumed that the goat is suffering from a parasitic disease associated with respiratory symptoms and a general deterioration in health. The main signs, such as severe exhaustion, pallor of the mucous membranes, heart weakness, wheezing in the bronchi and trachea, a wet cough, as well as fever, may indicate infection with nematodes that parasitize the respiratory system.

A possible cause is infection with nematodes such as *Muellerius capillaris* or *Protostrongylus kochi*, which can cause respiratory symptoms in goats. These parasites are usually found in animals grazing on polluted pastures or in places with high humidity, which corresponds to the description of goat grazing on the edge of a forest overgrown with bushes.

For an accurate diagnosis, additional studies must be performed, including faecal analysis and/or bronchoalveolar lavage to identify a specific type of parasite.

Task 4. Read the text and write down a detailed reasoned answer.

During the clinical examination of the horses before the races, the veterinarian drew attention to the tousling and baldness of the tail root in some animals. Horses often rub their backs against poles and feeders in stalls. The general condition of the animals is satisfactory. Horses are kept without leashes. In summer, they are released to fenced walking areas. They give you water from the well. Hay is often fed from the floor.

What kind of parasitic disease can be assumed?

Answer: On clinical examination of horses, tousling and baldness of the tail root, as well as the behavior of horses when they rub their backs against poles and feeders, may indicate the parasitic disease oxyuresis. This disease is caused by the equine pinworm *Oxyuris equi*, which parasitizes the caecum and colon of horses.

Causes and symptoms of oxyuresis:

• Infection occurs when eggs of parasites that may be in the feed or in the environment are ingested.

• Symptoms include tousling and hair loss on the tail, itching in the anus, which causes horses to itch and rub against various surfaces. This behavior is a characteristic feature of oxyuresis, which is often referred to as "tail combing."

• The general condition of horses can be satisfactory, especially in adult animals, which often carry the disease asymptomatically or with minimal symptoms.

The conditions of keeping horses described in the question (keeping without a leash, grazing in fenced areas and feeding hay from the floor) can contribute to the spread of parasites, since eggs can be on the surface of the feed or in the environment.

Thus, based on the symptoms and conditions of detention, it can be assumed that horses suffer from oxyuresis.

Task 5. Read the text and write down a detailed, reasoned answer.

In one of the stables of the Leningrad region, where 20 horses are kept, weaned foals fell ill at the age of 6 months. At first they had diarrhea, then nasal discharge and cough appeared. During the summer, animals graze in levades, and during the stall period they are in stalls, where manure is irregularly removed and fed from the floor.

In addition to the symptomatic treatment, the animals were given Panakur paste. After 2 days, during the act of defecation, round, pinkish-white helminths stood out 15-30 cm in length with 3 powerful lips at the head end.

What kind of parasitic disease can be assumed?

Answer: Paraskariosis.

1. Symptoms: weaned foals at the age of 6 months have diarrhea, nasal discharge and cough. These symptoms correspond to parascariosis, in which foals and young horses often experience diarrhea, cough and nasal discharge, as well as bloating and anemia.

2. Appearance of helminths: the isolated helminths are 15-30 cm long and pink-white in color with three powerful lips at the head end. This corresponds to the description of *Parascaris equorum* (parascariids), which are typical parasites that cause parascariasis in horses.

3. Conditions of detention: animals graze on walking grounds and are kept in stalls with irregular manure harvesting, which can contribute to the spread of parasites. Parascariids are spread through eggs, which can be found in the soil and ingested by horses during grazing or when eating contaminated feed.

4. Treatment: the use of Panakur paste for the treatment of horses from helminthiasis is common because it contains active substances that are effective against various types of helminths, including nematodes, which include parascarids. Thus, all of the above factors suggest that foals suffer from parascariosis.

PC-14 Development of preventive immunization (vaccination), therapeutic and preventive treatments of animals in accordance with the plan of antiepizootic measures, analysis of the effectiveness of the measures for the prevention of animal diseases and its improvement

PC-14ID-1 To be able to evaluate the effectiveness of preventive measures and ways to implement them, using digital technologies as well;

PC-14ID-2 To know the procedure for conducting a clinical study of animals when planning preventive measures

PC-14ID-3 To know the types of antiepizootic measures and the requirements for their implementation in accordance with the guidelines, instructions, manuals, rules of diagnosis, prevention and treatment of animals

A CLOSED TYPE ASSIGNMENT TO ESTABLISH COMPLIANCE

Task 1. To establish the conformity of clinical research in animal toxoplasmosis.

To establish the conformity of a clinical trial for animal toxoplasmosis, the following criteria can be used:

Description	Application for toxoplasmosis
1. Definition of the purpose of the study (diagnosis, treatment, prevention)	A Obtaining the consent of animal owners, ensuring humane treatment of animals
2. Selection of research methods (clinical examination, laboratory tests)	B Statistical data analysis, clinical interpretation of test results
3. Identification of the research object (animals, samples)	C Compliance with safety measures when working with animals and biological samples
4. Development of a research protocol (procedure, safety measures)	D Animals (e.g. cats, sheep), biological samples (blood, tissue)
5. The method of evaluating the results of the study (statistical analysis, clinical interpretation)	E Clinical examination, serological tests (for example, ELISA), PCR
6. Consideration of ethical aspects of research (consent of animal owners, humane treatment)	F Diagnosis and monitoring of toxoplasmosis in animals

Answer: 1 – F, 2 – E, 3 –D, 4 – C, 5 – B, 6 – A.

Task 2. To establish the relevance of conducting a clinical trial for avian histomonosis.

Aspect	Description
1. The purpose of the research	A Lectures, seminars, practical exercises, online courses.
2. Target audience	B Analysis of statistical data, assessment of clinical symptoms, comparison of treatment results.
3. Research methods	C Clinical observations, laboratory analyses (microscopy, PCR), experimental studies
4. Training formats	D Determination of the effectiveness of treatment of birds with histomoniasis, study of the influence of various factors on the disease.
5. Evaluation of the results	E Veterinarians, poultry farmers, researchers in the field of poultry farming.

Answer: 1 – D, 2 – E, 3 – C, 4 – A, 5 – B.

Task 3. To establish a correspondence between conducting a clinical study of toxocariasis of carnivores.

Aspect	Clinical trial for toxocariasis
1. Goal	A Veterinarians, specialists in parasitology
2.Methods	B Analysis of test results, clinical symptoms
3.Audience	C The diagnosis and treatment of toxocariasis in carnivores
4.Assessment	D Serological tests (IgG), hematological studies, instrumental methods (ultrasound, CT)

Answer: 1 – C, 2 – D, 3 – A, 4 – B.

Task 4. To establish the correspondence between the clinical treatment of cryptosporidiosis in calves.

Aspect	Clinical trial for cryptosporidiosis of calves
1.Goal	A Calves aged 6-30 days
2.Object	B Understanding the impact of cryptosporidiosis on calf health
3.Methods	C Analyzing laboratory test results, monitoring calves' health
4.Formats	D Laboratory research, field observations
5.Evaluation	E Microscopy, PCR, serological tests

Answer: 1 – B, 2 – A, 3 – E, 4 – D, 5 – C.

Task 5. To establish the correspondence between the clinical treatment of dogs with dioctophimosis.

Methods	Results
1.Thermometry, analysis of urination (whether it is difficult, frequency, soreness)	A The successful extraction of helminths, the restoration of the kidney
2.Ovoscopy, centrifugation of urine	B Contours of the helminth in the renal pelvis, kidney atrophy
3.Ultrasound examination of kidneys	C Eggs of dioctophimide in urine

4.Surgical removal of helminths, the use of ivomek, praziquantel, levamisole,	D Dysuria, hematuria, kidney pain
5. Prohibition of feeding with raw fish, identification of unfavorable reservoirs,	E Reduction of the risk of infection with dioctophimosis

Answer: 1 – D, 2 – C, 3 – B, 4 – A, 5 – E.

A CLOSED-TYPE ASSIGNMENT TO ESTABLISH A SEQUENCE

Task 1. To establish the following sequence of conducting a clinical trial for avian eimeriosis.

Description	Goal
1. Study of the safety and tolerability of the drug in a small group of birds.	A To confirm the effectiveness and safety of the drug for widespread use.
2. Evaluation of the effectiveness and safety of the drug in a larger group of birds	B Draw conclusions about the effectiveness and safety of eimeriosis treatment methods.
3. A large-scale study of the effectiveness and safety of the drug in a large bird population.	C To determine the safe doses and methods of using the drug.
4. Data processing, interpretation of results, formulation of conclusions.	D Specify the dosage and regimen of the drug.

Answer:1 – C, 2 – D, 3 – A, 4 – B.

Task 2. To establish the following sequence of conducting a clinical trial for porcine metastrongylosis.

Method	Description
1.Visual examination, medical history	A Helmintholarvoscopy, Shcherbovich method, flotation with ammonium nitrate
2.Helmintholarvoscopy, flotation	B Detection of symptoms: cough, emaciation
3.Compressor examination	C Blood analysis, biochemical tests to assess the immune status
4.Autopsy, histological analysis	D Autopsy of pig corpses to detect metastrongillus in the bronchi
5.Hematological and biochemical analyses	E Analyses of earthworms for detection of metastrongillus larvae

Answer: 1 – B, 2 – A, 3 –D, 4 – D, 5 – C.

Task 3. To establish the following sequence of conducting a clinical trial for bovine babesiosis.

Research stage	Description
1. Anamnesis	A The choice of treatment methods based on the results of the study and the clinical picture.
2. Clinical examination	B Collection of blood smears for microscopic examination and other laboratory tests
3. Collection of biomaterial	C The General examination of the animal, including thermometry, assessment of appearance, condition of mucous membranes, skin and lymph nodes.
4. Analysis of the results	D Evaluation of clinical and laboratory data for diagnosis and development of a treatment plan
5. Develop a treatment plan	E Collect information about the animal's medical history, including information about the place of detention, contact with other animals and previous illnesses.
6. Monitoring of treatment	F Regular monitoring of the animal's condition during treatment and adjusting the plan if necessary.

Answer: 1 – E, 2 – C, 3 – B, 4 – D, 5 – A, 6 – F/

Task 4. To establish the following sequence of clinical trials for echinococcosis of small cattle.

Research stage	Methods and actions
1. Collection of anamnesis	A Analysis of feces for echinococcal eggs, serological tests (ELISA, RNGA) to detect antibodies to echinococcus.
2. Clinical examination	B Autopsy with the detection of typical blisters in the affected organs.
3. Laboratory studies	C To collect information about the animal's contacts with potential final owners (dogs), conditions of detention and diet
4. Instrumental diagnostics	D Ultrasound examination (ultrasound) of the liver and lungs, radiography of the lungs.
5. Postmortem diagnosis	E Visual examination of the animal for signs of disease (for example, enlargement of the liver or lungs).

Answer: 1 – C, 2 – E, 3 – A, 4 – D, 5 – B.

Task 5. To establish the following sequence of clinical research in case of opisthorchiasis of carnivores.

Diagnostic methods	The purpose of the stage
1. Identification of risk factors	A Determination of ALT, AST, alkaline phosphatase, bilirubin levels
2. Identification of signs of parasitic invasion	B Detection of parasite eggs in bile
3.Assessment of liver and biliary tract function	C Collecting information about nutrition, geographical location, and contact with infected animals
4.Confirmation of an acute or chronic process	D Visualization of changes in the liver and bile ducts
5. Direct confirmation of opisthorchiasis	E Determination of eosinophilia, hemoglobin and platelet levels
6.Early diagnosis confirmation	F Fecal examination for the presence of opisthorchis eggs
7. Assessment of the degree of organ damage	G Detection of antibodies to opisthorchis antigens

Answer: 1 – C, 2 – E, 3 – A, 4 – G, 5 – B, 6 – F, 7 – D.

A COMBINED TYPE OF TASK WITH A CHOICE OF ONE CORRECT ANSWER OUT OF FOUR SUGGESTED AND A JUSTIFICATION FOR THE CHOICE

Task 1. The effectiveness of preventive measures and methods of their implementation, including the use of digital technologies for bovine babesiosis.

Which of the following methods of prevention of babesiosis in cattle is the most effective, taking into account the use of digital technologies?

Options

1. The use of insecticides to control ticks.
2. Vaccination of animals against babesiosis.
3. Infection monitoring using GPS trackers and mobile apps.
4. Combined approach: vaccination, insecticide use and digital monitoring.

Answer: 4. Combined approach: vaccination, insecticide use and digital monitoring.

Justification:

The combined approach makes it possible to simultaneously reduce the tick population (using insecticides), increase animal immunity (through vaccination) and monitor the spread of the disease in real time (using digital technologies).

The use of GPS trackers and mobile applications allows you to accurately track the movement of animals, identify potential infection areas and respond promptly to disease outbreaks.

Task 2. Prevention of pig cysticercosis using digital technologies.

Which of the following methods of prevention of swine cysticercosis is the most effective, taking into account the use of digital technologies?

Options

1. The use of immunobiological diagnostic methods using digital platforms for data analysis.
2. Regular veterinary monitoring using mobile apps to track animal health.
3. Sanitary and hygienic measures using geoinformation systems for monitoring infected areas.
4. Chemoprophylaxis using electronic databases to track the effectiveness of treatment.

Answer: 2.

Justification: This method makes it possible to detect infected animals in a timely manner and prevent the spread of the disease; automate the collection and analysis of animal health data, which increases the accuracy of diagnosis and the effectiveness of preventive measures.

Task 3. Digital diagnostic methods used in swine cysticercosis.

In pig cysticercosis, digital diagnostic methods **are not the main ones**, but they can be used in combination with traditional methods to increase the effectiveness and accuracy of diagnosis.

Justification:

The main diagnostic methods for cysticercosis include:

1. Visual detection of cysticerci during autopsy of animals. This is the most common method, but it is not digital.
2. Imaging techniques (for example, CT or X-ray) to detect cysticerci in soft tissues. These techniques can be enhanced by digital technologies such as image processing software.

Thus, although there are no direct digital diagnostic methods for cysticercosis, digital technologies can be integrated into existing diagnostic processes to improve their effectiveness.

Task 4. Effectiveness of therapeutic measures for equine gastrophylosis

Which of the following approaches to the treatment of equine gastrophylosis is the most effective?

Options:

1. The use of "Iversan" in combination with symptomatic therapy
2. The use of anthelmintics without additional support
3. Using "Alezan" paste

4. Only symptomatic treatment without anthelmintics

Answer: 1.

Rationale: Gastrophilosis is a parasitic disease caused by gastrophilus larvae. The most effective approach to treatment is complex therapy, which includes not only anthelmintic drugs for the destruction of parasites, but also symptomatic therapy. This allows not only to cure the animal of parasites, but also to improve the quality of life.

Task 5. The effectiveness of therapeutic measures for monieziosis of sheep.

Which of the following methods of treating sheep moniesiosis is the most effective, taking into account current research and practice?

Variants:

1. The use of anthelmintic drugs based on avermectin.
2. The use of herbal remedies based on plant raw materials (for example, St. John's wort, eucalyptus).
3. The use of the drug "Monizen".
4. Combination therapy using silver nanoparticles and traditional antiparasitic agents.

Answer: 3.

Rationale: Drugs such as “Monizen” containing ivermectin and praziquantel have shown 100% efficacy against moniesiosis at a dosage of 1 ml/10 kg of body weight. This makes Monizen a more suitable drug for the treatment of moniesiosis.

AN OPEN-ENDED TASK WITH A DETAILED RESPONSE

Task 1. Read the text and write down a detailed reasoned answer.

A disease of birds (chickens, turkeys) is observed in a privately owned farm in the Krasnodar Territory. Mostly chickens aged 1-2 months get sick. Chickens weaken, become inactive, and sit hunched over with their wings down. Breathing is labored, hoarse, and the beak is open. Chickens shake their heads, open their beaks wide, and often cough ("puff"). The mucous membranes are pale and bluish.

When opening dead chickens, several round helminths of bright red color are found in the upper part of the trachea, on the border with the larynx, attached to the mucous membrane.

What kind of parasitic disease can be assumed?

Answer: Given the bright red color of the worms and their localization in the upper part of the trachea, on the border with the larynx, it may be the nematode *Syngamus trachea*, which causes syngamosis.

Justification:

1. Symptoms: The symptoms described, such as difficulty breathing, wheezing, open beak, head shaking and coughing, correspond to respiratory disorders that can be caused by parasites in the respiratory tract.

2. Type of parasites: the presence of round helminths of bright red color in the trachea indicates a possible infection with syngamosis. *Syngamus trachea* is a strongylate that attaches to the mucous membrane of the trachea of birds, which corresponds to the description.

Task 2. Read the text and write down a detailed reasoned answer.

A resident of Arkhangelsk appealed to the Give a Friend a Life foundation with a request to shelter neglected cats over the age of 1 found in the basement of an apartment building. The foundation's veterinarians conducted a full examination of the animals, including a coprological examination, which revealed nematode-type eggs with a thick, smooth shell, light gray in color. After giving the drug “Milbemax”, nematodes were released from one young cat along with vomit, with narrow semi-lanceolate lateral wings at the head end.

What kind of parasitic disease can be assumed?

Answer:

Based on the information provided, it can be assumed that this is toxascariasis caused by roundworms. In particular, the detection of nematode eggs with a thick smooth shell of light gray color and the isolation of nematodes with narrow semi-lanceolate lateral wings at the head end after treatment with Milbemax indicates infection with taxoascaris.

Task 3. Read the text and write down a detailed reasoned answer.

A comprehensive survey of the farm revealed that 5 cows were aborted in early pregnancy, 3 had dead and ugly fetuses, and 2 calves had paresis of the hind limbs. Pieces of the brain, lymph nodes, placenta and amniotic fluid were sent to the laboratory. As a result of special studies, semilunar endozoites resembling an "orange slice" were found in the stained Romanovsky preparations.

What kind of disease would you suspect, and what medical and preventive measures would you prescribe?

Answer: Toxoplasmosis, confirmed by the description of endozoites, causes abortions and birth defects in calves. Endozoites resembling an "orange slice" are characteristic of toxoplasmosis.

This disease can lead to abortions, the birth of dead or malformed fetuses, as well as neurological symptoms in newborns, including paralysis.

Therapeutic and preventive measures:

Diagnostic tests:

• Perform serological tests (for example, ELISA) to confirm the presence of antibodies to Toxoplasma gondii in cows.

• Examine aborted fetuses and calves for the presence of toxoplasmas.

Treatment:

• Currently, there are no effective treatments for toxoplasmosis in cattle.

The main focus is on prevention.

Herd monitoring and management:

• Regularly check the health status of cows, especially during pregnancy.

• Keep records of abortions and the birth of dead or malformed fetuses to identify problems early.

Task 4. Read the text and write down a detailed reasoned answer.

On the pig farm, the young animals noticed inflammation of the entire skin surface, including the auricles. Papules, vesicles, and crusts were found on thick and folded skin.

As a result of deep scarification of the skin, rounded mites with short cone-shaped legs were found in the material, at the end of which there were bell-shaped suckers on long non-segmented rods.

What kind of parasitic disease can be assumed?

Answer: Based on the information provided, it can be assumed that the parasitic disease affecting young animals on a pig farm is sarcoptosis. The main signs indicating this disease include:

1. Inflammation of the entire skin surface, including the auricles, which corresponds to the spread of scabies in pigs, which often begins in the ear area.

2. Papules, vesicles and crusts on the skin. These symptoms are characteristic of sarcoptosis, in which ticks cause severe itching, which leads to scratching and the formation of wounds, blisters and crusts.

3. Detection of round-shaped ticks with short cone-shaped legs and bell-shaped suckers. This description corresponds to the morphology of mites of the genus *Sarcoptes*, which cause sarcoptosis in pigs.

Task 5. Read the text and write down a detailed, reasoned answer.

The veterinary clinic was contacted with a kitten found in the basement of an apartment building. Upon examination of the animal, it was found that there were dark brown secretions in its external auditory canal. The kitten was scratching his ears, shaking his head. Oval-shaped mites with gnathosomes of the gnawing type and ambulacra located on short rods were found in the scraping.

Name the genus and species of the tick. Your actions in carrying out medical measures.

Answer: Based on the description presented, it can be assumed that the kitten has otodectosis (*Otodectes cynotis*), a disease caused by ticks of the genus *Otodectes*.

Justification:

• Clinical signs:the kitten has dark brown discharge in the external auditory canal, itching (scratching his ears), shaking his head. These are typical signs of otodectosis.

• Mite morphology: oval-shaped mites with gnawing gnathosomes and ambulacrae on short rods were found in the scraping. This corresponds to the morphological description of ticks of the genus Otodectes1.

Therapeutic measures:

1. Diagnosis: Microscopic examination of earwax is necessary to confirm the diagnosis. It is also recommended to exclude other possible causes of itching and discharge from the ears (for example, bacterial or fungal otitis media, allergies).

2. Cleaning the ear canal: Gently clean the external ear canal of secretions and sulfur using a cotton swab soaked in a special ear cleaning lotion.

3. Acaricidal treatment: Apply acaricidal preparations intended for the treatment of otodectosis. These may be ear drops containing amitraz, fipronil, selamectin or other active ingredients. It is important to strictly follow the instructions for use of the drug.

4. Flea and tick treatment: Treat the entire animal from fleas and ticks, as *Otodectes cynotis* can temporarily parasitize other parts of the body.

5. Supportive therapy: if necessary, prescribe anti-inflammatory and antihistamines to relieve itching and inflammation.

6. Treatment of contact animals: all animals kept with a sick kitten must be treated for ticks, even if they have no clinical signs of the disease.

7. Monitoring: after the treatment is completed, a control microscopic examination of the earwax should be performed to ensure that there are no mites.

3.1.4 APPROXIMATE TOPICS OF COURSE PROJECTS (WORKS)

Topics of course projects (works) for assessing competencies:

GPC -6

Student is able to analyze, identify and assess the danger of the risk of the occurrence and spread of diseases

GPC-6 ID-1

Student knows the existing programs for the prevention and control of zoonoses, contagious diseases, emergent or newly emerging infections, use of animal identification systems, trace and control by the relevant veterinary services.

GPC-6 ID-2

Student is able to assess the risk of animal diseases, including the import of animals and animal products and other measures of veterinary services, the control of prohibited substances in the body of animals, animal products and feed..

GPC-6 ID-3

Student has the skills to carry out identification procedures, select and implement measures that can be used to reduce the level of risk

PC-5

Developing a treatment plan for animals based on the established diagnosis and individual characteristics of the animals, selecting the necessary chemical and biological drugs for treating animals, taking into account their combined pharmacological effect on the body:

PC-5ID-1

Be able to use specialized information databases when choosing methods for treating animals;

PC-5ID-2

Be able to calculate the amount of medications for treating animals and preventing diseases by drawing up prescriptions for a certain period;

PC-5ID-3

Be able to calculate the amount of medications for treating animals and preventing diseases by drawing up prescriptions for a certain period, including using digital technologies;

PC-5ID-4

Be able to administer drugs into the body of animals in various ways;

PC-5ID-5

Know the methods of drug treatment of sick animals and indications for their use in accordance with guidelines, instructions, manuals, rules for diagnosing, preventing and treating animals;

PC-5ID-8

Know the technique of administering medicinal substances into the animal's body by enteral (oral, sublingual and rectal administration) and parenteral (injections, inhalations and cutaneous applications) methods.

PC-11

Developing an annual plan of anti-epizootic measures, a plan for the prevention of non-communicable animal diseases, a plan for veterinary and sanitary measures

PC-11ID-1

Be able to collect and analyze information, including veterinary statistics, necessary for planning preventive anti-epizootic measures, prevention of non-communicable animal diseases, veterinary and sanitary measures

PC-11ID-2

Know the methods of collecting and analyzing information in veterinary planning, including the use of information databases.

PC-13

Organization of measures to protect the organization from the introduction of infectious and invasive diseases in accordance with the plan of anti-epizootic measures:

PC-13ID-1

Know the types of measures to ensure veterinary and sanitary safety and the requirements for their implementation in accordance with the legislation of the Russian Federation in the field of veterinary medicine; PC-14 Organization of preventive immunizations (vaccinations), therapeutic and prophylactic treatments of animals in accordance with the plan of anti-epizootic measures, analysis of the effectiveness of measures to prevent animal diseases in order to improve them:

PC-14ID-1

Be able to evaluate the effectiveness of preventive measures and methods for their implementation, including using digital technologies;

PC-14ID-2

Know the procedure for conducting a clinical study of animals when planning preventive measures;

PC-14ID-3

Know the types of anti-epizootic measures and the requirements for their implementation in accordance with guidelines, instructions, manuals, rules for diagnosis, prevention and treatment of animals

1. Diagnostics and organization of treatment and preventive measures for dicrocoeliosis of small cattle.
2. Diagnostics and organization of treatment and preventive measures for opisthorchiasis and clonarchiasis of carnivores.
3. Prosthogonimosis of birds (diagnosis, control measures).
4. Echinostomatosis of birds (diagnosis, control measures).
5. Diagnostics and treatment and preventive measures for diphyllobothriasis of carnivores.
6. Diagnostics and treatment and preventive measures for dipylidiosis of carnivores.
7. Sparganosis of animals (diagnosis, control measures).
8. Diagnostics and control measures for anoplocephalidoses of monoungulates.
9. Diagnostics and organization of treatment and preventive measures for imaginal cestodiasis of ruminants. 10. Diagnostics and organization of preventive measures for cysticercosis tenuicolus.
11. Diagnostics and treatment and preventive measures for echinococcosis in animals.
12. Diagnostics and treatment and preventive measures for alveococcosis in animals.
13. Diagnostics and treatment and preventive measures for avitellinosis in small cattle.
14. Cestodoses of waterfowl (diagnosis, control measures).
15. Strobilocercosis of rodents (diagnosis, control measures).
16. Diagnostics and organization of treatment and preventive measures for oxyuriasis of solitary-ungulates.
17. Trichonematoses of solitary-ungulates (diagnosis, control measures).
18. Chabertiosis of ruminants.
19. Oesophagostomiasis of pigs: diagnostics, organization of treatment and preventive measures.
20. Ancylostomiasis and uncinariosis of carnivores (diagnosis, control measures).
21. Diagnosis and organization of treatment and preventive measures for amidostomosis of geese.
22. Diagnosis and organization of treatment and preventive measures for metastrongylosis of pigs.
23. Mulleriosis of small cattle (diagnosis, control and prevention measures).
24. Trichuriasis of pigs (diagnosis, control and prevention measures).
25. Diagnosis and control measures for thelaziosis of cattle.
26. Dirofilariasis of carnivores (diagnosis, control and prevention measures).

27. Diagnosis and organization of treatment and preventive measures for macrocanthorhynchosis of pigs.
28. Diagnosis and organization of treatment and preventive measures for babesiosis of carnivores.
29. Diagnostics and organization of treatment and preventive measures for babesiosis in cattle.
30. Diagnostics and organization of treatment and preventive measures for babesiosis in solitary animals.
31. Diagnostics and organization of treatment and preventive measures for anaplasmosis in cattle.
32. Diagnostics and organization of treatment and preventive measures for theileriosis in cattle.
33. Diagnostics and organization of treatment and preventive measures for cryptosporidiosis in calves.
34. Diagnostics and organization of treatment and preventive measures for sarcocystosis in pigs.
35. Diagnostics and organization of treatment and preventive measures for sarcocystosis in small cattle.
36. Diagnostics and organization of treatment and preventive measures for eimeriosis in cattle.
37. Toxoplasmosis in animals (diagnosis and organization of treatment and preventive measures).
38. Neosporosis in animals (diagnosis and organization of treatment and preventive measures).
39. Equine leishmaniasis (diagnosis and organization of treatment and preventive measures).
40. Leishmaniasis in animals (diagnosis and organization of treatment and preventive measures).
41. Amebiasis in animals (diagnosis and organization of treatment and preventive measures).
42. Spirochetosis (borreliosis) in birds (diagnosis and organization of treatment and preventive measures).
43. Tick-borne borreliosis (Lyme disease) in carnivores: diagnosis, organization of treatment and preventive measures.
44. Diagnosis and organization of treatment and preventive measures for dermanisiosis in chickens.
45. Diagnosis and organization of treatment and preventive measures for psoroptosis in cattle.
46. Diagnostics and organization of treatment and preventive measures for psoroptosis in rabbits.
47. Diagnostics and organization of treatment and preventive measures for chorioptosis in cattle.
48. Diagnostics and organization of treatment and preventive measures for otodectosis in carnivores.

49. Diagnostics and organization of treatment and preventive measures for sarcoptosis in pigs.
50. Diagnostics and organization of treatment and preventive measures for cheyletiellosis in carnivores.
51. Edemagenosis in reindeer (diagnosis and organization of treatment and preventive measures).
52. Organization of treatment and preventive measures for hypodermatosis in cattle.
53. Oestrosis in sheep (diagnosis and organization of treatment and preventive measures).
54. Rhinestrosis in horses (diagnosis and organization of treatment and preventive measures).
55. Bovicolosis of cattle (diagnosis and organization of treatment and preventive measures).
56. Diagnosis and organization of treatment and preventive measures for trichodectosis of carnivores.
57. Malophagosis of birds (diagnosis and organization of treatment and preventive measures).
58. Simuliidotoxicosis of animals (control and prevention measures).
59. Hematopinosis of pigs (control and prevention measures).
60. Ctenocephalidosis of carnivores (diagnosis and organization of treatment and prevention measures).

3.2. Standard tasks for intermediate certification

3.2.1. Questions for the test

The competence achieved:

GPC-6

Student is able to analyze, identify and assess the danger of the risk of the occurrence and spread of diseases

GPC-6 ID-1

Student knows the existing programs for the prevention and control of zoonoses, contagious diseases, emergent or newly emerging infections, the use of animal identification systems, tracing and control by the relevant veterinary services.

1. Morphology, biological cycle of babesiids.
2. Diagnostics of babesiosis.
3. Treatment of animals with babesiosis.
4. Morphology, biological cycle of theileriids.
5. Diagnostics of theileriosis.

GPC-6ID-2

Student is able to assess the risk of animal diseases, including the import of animals and animal products and other measures of veterinary services, the control of prohibited substances in the body of animals, animal products and feed.

6. Treatment regimens for animals with theileriosis of animals.
7. Organization of preventive measures for piroplasmosis of animals.
8. Morphology and biological cycle of eimeriids.
9. Diagnostics of eimeriosis.
10. Therapeutic and preventive measures for eimeriosis of animals and birds.

GPC-6ID-3

Student has the skills to carry out identification procedures, select and implement measures that can be used to reduce the level of risk

11. Morphology, biological cycle of toxoplasmas.
12. Routes of infection of animals with toxoplasmas.
13. Diagnostics of toxoplasmosis.
14. Treatment and preventive measures for toxoplasmosis in animals.

PC-5

Developing a treatment plan for animals based on the established diagnosis and individual characteristics of the animals, selecting the necessary chemical and biological drugs for treating animals, taking into account their combined pharmacological effects on the body:

PC-5ID-1

Be able to use specialized information databases when choosing treatment methods for animals;

15. Morphology, biological cycle, and diagnostics for besnoitiosis.
16. Features of the biological cycle of sarcocysts in the body of intermediate hosts.
17. Sarcosporidiosis in cats and dogs.

PC-5ID-2 Be able to calculate the amount of medication for treating animals and preventing diseases with the preparation of prescriptions for a certain period;

18. Etiology and diagnostics of cryptosporidiosis in calves.
19. Morphology and biological cycle of trichomonads.
20. Diagnostics and measures for control and prevention of tritrichomoniasis in cattle.

PC-5ID-3

Be able to calculate the amount of medications for the treatment of animals and disease prevention with the preparation of prescriptions for a certain period, including using digital technologies;

21. Morphology and biological cycle of histomonads and their role in infecting birds with heterokiasis.

22. Therapeutic and preventive measures for histomoniasis.

PC-5ID-4

Be able to administer drugs to the body of animals in various ways;

23. Which trypanosomes belong to the Stercoraria section?
24. Which trypanosomes belong to the Salivaria section?
25. Etiology and clinical signs of mating disease of single-toed animals.
26. Measures to combat mating disease of single-toed animals.

PC-5ID-5

Know the methods of drug treatment of sick animals and indications for their use in accordance with guidelines, instructions, manuals, rules for diagnosis, prevention and treatment of animals;

27. Features of differential diagnostics in trypanosomiasis of solitary ungulates.
28. Natural focality of transmissible diseases using leishmaniasis as an example.

PC-5ID-8

Know the technique of administering drugs into the animal's body by enteral (oral, sublingual and rectal administration) and parenteral (injections, inhalations and skin applications).

29. Morphology and biological cycle of balantidia.
30. Diagnostics and treatment and preventive measures for balantidiasis in piglets.

PC-11

Development of an annual plan of anti-epizootic measures, a plan for the prevention of non-communicable animal diseases, a plan for veterinary and sanitary measures

PC-11ID-1

Be able to collect and analyze information, including veterinary statistics, necessary for planning preventive anti-epizootic measures, prevention of non-communicable animal diseases, veterinary and sanitary measures.

31. Rickettsiosis of animals: etiology, pathogenesis and diagnostics.
32. Therapeutic and preventive measures for anaplasmosis in cattle.
33. Spirochetosis (borreliosis) of birds.

PC-11ID-2

Know the methods of collecting and analyzing information in veterinary planning, including the use of information databases.

34. Fundamentals of taxonomy and biology of parasitic arachnids.
35. Ixodid ticks, their role in animal pathology and measures to combat them.

36. Argasid ticks, their role in animal and bird pathology and measures to combat them.
37. Gamasid ticks, their role in bird pathology and measures to combat them.

PC-13

Organization of measures to protect the organization from the introduction of infectious and invasive diseases in accordance with the plan of anti-epizootic measures:

PC-13ID-1

Know the types of measures to ensure veterinary and sanitary safety and the requirements for their implementation in accordance with the legislation of the Russian Federation in the field of veterinary medicine;

38. Psoroptosis of cattle.
39. Psoroptosis of sheep and goats.
40. Psoroptosis of rabbits.
41. Chorioptosis of cattle.
42. Sarcoptic mange of pigs.
43. Notoedrosis of carnivores.
44. Demodicosis of cattle.
45. Demodicosis of dogs.

PC-14

Organization of preventive immunizations (vaccinations), therapeutic and prophylactic treatments of animals in accordance with the plan of anti-epizootic measures, analysis of the effectiveness of measures to prevent animal diseases in order to improve them:

PC-14ID-1

Be able to evaluate the effectiveness of the preventive measures taken and the methods of their implementation, including the use of digital technologies;

46. Knemidokoptosis of birds.
47. Syringophilosis of birds.
48. Oribatid mites and their role in animal pathology.

PC-14ID-2

Know the procedure for conducting a clinical study of animals when planning preventive measures;

49. Structure, fundamentals of taxonomy and biology of parasitic insects.
50. Hypodermatosis of cattle.
51. Gastrophilosis of horses.
52. Oestrosis of sheep.
53. Rhinestrosis of horses.
54. Midges and measures to combat them.

PC-14ID-3

Know the types of anti-epizootic measures and requirements for their implementation in accordance with guidelines, instructions, manuals, rules for diagnosis, prevention and treatment of animals

55. Zoophilic flies and measures to combat them.
56. Siphunculatoses of animals.
57. Mallophagosis of animals and birds.
58. Melophagosis of sheep.
59. Wohlfartiosis of animals.
60. Fleas, bedbugs, their role in animal pathology and measures to combat them.

3.2.2. EXAM QUESTIONS

For the 5th year (full-time) and 6th year
(full-time, part-time and part-time forms of study)

The competence achieved:

GPC-6

Student is able to analyze, identify and assess the danger of the risk of the occurrence and spread of diseases

GPC-6 ID-1

Student knows the existing programs for the prevention and control of zoonoses, contagious diseases, emergent or newly emerging infections, the use of animal identification systems, tracing and control by the relevant veterinary services.

1. Parasitology and its components.
2. Brief history of parasitology and the role of domestic scientists in its development.
3. The doctrine of Academician E.N. Pavlovsky on the natural focality of transmissible diseases.
4. The role of Academician K.I. Skryabin in the development of parasitology.
5. The importance of the works of Professor V.L. Yakimov in the development of veterinary protozoology.
6. Prevention of invasive diseases on large farms and complexes.

GPC-6 ID-2

Student is able to assess the risk of animal diseases, including the import of animals and animal products and other measures of veterinary services, the control of prohibited substances in the body of animals, animal products and feed.

1. Definition and content of veterinary protozoology.
2. Methods for diagnosing piroplasmosis.
3. Piroplasmosis of small cattle.
4. Babesiosis of horses.

5. Babesiosis of dogs.
6. Babesiosis of cattle.
7. Differential diagnostics of babesiosis.

GPC-6 ID-3

Student has the skills to carry out identification procedures, select and implement measures that can be used to reduce the level of risk

8. Development of theileria in the body of vertebrate animals.
9. Theileriosis of cattle.
10. Nuttallosis of horses.
11. Biological cycle of eimeria development.
12. Eimeriosis of cattle.
13. Eimeriosis of rabbits.
14. Eimeriosis of birds.

PC-5

Development of a treatment plan for animals based on the established diagnosis and individual characteristics of animals, selection of necessary chemical and biological drugs for the treatment of animals, taking into account their combined pharmacological effect on the body:

PC-5ID-1

Be able to use specialized information databases when choosing treatment methods for animals;

15. Toxoplasmosis of animals.
16. Besnoitiosis of animals.
17. Sarcocystosis of farm animals.
18. Cryptosporidiosis of calves.
19. Conjugated disease of horses.
20. Su-auru of horses and camels.

PC-5ID-2

Be able to calculate the amount of medication for the treatment of animals and disease prevention with the preparation of prescriptions for a certain period;

21. Leishmaniasis of animals.
22. Trichomoniasis of cattle.
23. Histomoniasis of birds.
24. Balantidiosis of pigs.
25. Anaplasmosis of cattle.
26. Borreliosis (treponemosis, spirochetosis) of chickens.

PC-5ID-3

Be able to calculate the amount of medication for the treatment of animals and disease prevention with the preparation of prescriptions for a certain period, including with the help of digital technologies;

1. Ixodid ticks and their biology.
2. Argasid ticks and their biological characteristics.
3. Gamasid ticks and measures to combat them.
4. Methods of combating ixodid ticks.
5. Methods of diagnosing scabies diseases.
6. Psoroptosis of sheep.
7. Dermatophytosis (chorioptosis) of animals.
8. Otodectosis of carnivores.

PC-5ID-4

Be able to administer drugs to animals in various ways;

9. Sarcoptic mange of pigs.
10. Scabies of carnivores.
11. Methods of combating scabies in animals.
12. Demodicosis of cattle.
13. Hypodermatosis of cattle.
14. Organization of therapeutic and preventive measures for hypodermatosis of cattle.
15. Edemagenosis and cephenomyosis of reindeer.
16. Estrosis of sheep.
17. Rhinestrosis of horses and cephalopinosis of camels.
18. Gastrophilosis of horses.

PC-5ID-5

Know the methods of drug treatment of sick animals and indications for their use in accordance with guidelines, instructions, manuals, rules for diagnostics, prevention and treatment of animals;

19. Horseflies and their veterinary significance.
20. Blood-sucking and non-blood-sucking flies and measures to combat them.
21. Wolfhartiosis of animals.
22. Melophagosis of sheep.
23. Midges and measures to combat them.
24. Mosquitoes, biting midges, mosquitoes and their veterinary significance.

PC-5ID-8

Know the technique of administering medicinal substances into an animal's body by enteral (oral, sublingual and rectal administration) and parenteral (injections, inhalations and skin applications) methods.

25. Midges and methods of combating them.
26. Fleas and measures of combating them.
27. Hematopinosis of pigs.
28. Lice and measures of combating them.
29. Trichodectosis of animals.
30. Bedbugs and measures of combating them.
31. Methods of combating wingless ectoparasites.
32. Characteristics of modern acarine insecticides, methods of application, their impact on the ecology of the environment.

PC-11

Development of an annual plan of anti-epizootic measures, a plan for the prevention of non-communicable animal diseases, a plan for veterinary and sanitary measures

PC-11ID-1

Be able to collect and analyze information, including veterinary statistics, necessary for planning preventive anti-epizootic measures, prevention of non-communicable animal diseases, and veterinary and sanitary measures;

1. Methods for diagnosing helminthiasis.
2. Fascioliasis of ruminants.
3. Paramphistomatosis of cattle.
4. Dicrocoeliosis of ruminants.
5. Opisthorchiasis of carnivores.
6. Prostogonymosis and echinostomatosis of birds

PC-11ID-2

Know the methods of collecting and analyzing information in veterinary planning, including the use of information databases.

7. Cestode orders and their characteristics.
8. The main types of structure of cestode larvae.
9. Diphyllobothriasis of carnivores.
10. Dipylidiosis of carnivores.
11. Monieziasis, thysanieziasis and avittelinosis of ruminants.
12. Anoplocephalidoses of solitary ungulates.
13. Drepanidotaeniasis of geese.

PC-13

Organization of measures to protect the organization from the introduction of infectious and invasive diseases in accordance with the plan of anti-epizootic measures:

PC-13ID-1

Know the types of measures to ensure veterinary and sanitary safety and the requirements for their implementation in accordance with the legislation of the Russian Federation in the field of veterinary medicine;

14. Cattle cysticercosis (bovine) and its medical and veterinary significance.
15. Swine cysticercosis (cellulosic) and its medical and veterinary significance.
16. Coenurosis of small cattle.
17. Echinococcosis and its medical, veterinary and sanitary significance.
18. Ascariasis in pigs.
19. Parascariosis in horses.
20. Toxocariasis, toxascariosis in carnivores.

PC-14

Organization of preventive immunizations (vaccinations), therapeutic and prophylactic treatments of animals in accordance with the plan of anti-epizootic measures, analysis of the effectiveness of measures to prevent animal diseases in order to improve them:

PC-14ID-1

Be able to evaluate the effectiveness of preventive measures and methods of their implementation, including the use of digital technologies;

21. Ascariasis and heterakiasis in chickens.
22. Oxyuriasis in horses.
23. Passaluriasis in rabbits.
24. Strongylosis in horses (strongylosis, delafondiosis, alfortiosis).
25. Chabertiosis in sheep.

PC-14ID-2

Know the procedure for conducting clinical studies of animals when planning preventive measures;

26. Swine oesophagostomiasis.
27. Ruminant bunostomosis.
28. Sheep haemonchosis.
29. Small ruminant dictyocaulosis.
30. Bovine dictyocaulosis.
31. Small ruminant protostrongylosis (protostrongylosis and mulleriosis).

PC-14ID-3

Know the types of anti-epizootic measures and requirements for their implementation in accordance with guidelines, instructions, manuals, rules for diagnostics, prevention and treatment of animals

32. Swine metastrongylosis.
33. Swine trichuriasis.

34. Animal and human trichinosis.
35. Bovine thelaziasis.
36. Swine macrocanthorhynchosis.

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 (written 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 for evaluating students' knowledge in the preparation of reports

The mark "**excellent**" - the problem is identified and its relevance is justified; an analysis of various points of view on the problem under consideration is made and one's own position is logically stated; conclusions are formulated, the topic is fully disclosed, the volume is maintained; the requirements for external design are met, the basic requirements for the report are fulfilled.

The mark "**good**" - mistakes have been made. In particular, there are inaccuracies in the presentation of the material; there is no logical consistency in judgments; the volume of the report is not maintained; there are omissions in the design, there are significant deviations from the requirements for the presentation of materials.

The mark “**satisfactory**" - the topic is only partially covered; factual errors were made in the content of the report; there are no conclusions, the topic of the report is not disclosed.

The mark "**unsatisfactory**" - there is a significant misunderstanding of the problem or the report is not submitted.

1.4. Criteria for evaluating students' knowledge when checking control papers

1.5.

The mark "**excellent**" - the problem is identified and its relevance is justified; an analysis of various points of view on the problem under consideration is made and one's own position is logically stated; conclusions are formulated, the topic is fully disclosed, the volume is maintained; the requirements for external design are met, the basic requirements for the abstract are fulfilled

The mark is "**good**" - mistakes have been made. In particular, there are inaccuracies in the presentation of the material; there is no logical consistency in judgments; the volume of the abstract is not maintained; there are omissions in the design, there are significant deviations from the requirements for abstracting.

The mark "**satisfactory**" - the topic is only partially covered; factual errors were made in the content of the abstract; there are no conclusions, the topic of the abstract is not disclosed

The mark "**unsatisfactory**" - there is a significant misunderstanding of the problem or the abstract is not presented at all.

4.5. 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

4.6. 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.