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

APPROVED BY
Vice-Rector
for educational work
and youth policy
A.A. Sukhinin
June 27, 2025

Department of Epizootiology named after V. P. Urban

WORKING PROGRAM
for the discipline
«RISKS ASSESSMENT AND MANAGEMENT IN ZOONOSES»
Level of higher education
SPECIALITY
Specialty 36.05.01 Veterinary Medicine
Profile: «General clinical veterinary medicine»
Full-time education
Education starts in 2025

Considered and accepted
at the meeting of the department
June 26, 2025.
Protocol № 12
Head of the Department of Epizootiology
Candidate of veterinary science, docent
L.C. Fogel

Saint Petersburg
2025

1. AIMS AND OBJECTIVES OF THE DISCIPLINE

The purpose of mastering the discipline is to develop students' knowledge about the epizootological patterns of the occurrence, manifestation and spread of infectious animal diseases, zoonoses; means and methods of prevention and control, skills and abilities on the organization of veterinary activities, forms and methods of organizing the work of veterinary specialists in assessing and managing risks for zoonoses, economics of veterinary affairs, methods and techniques of veterinary statistics, organization of state veterinary supervision in livestock farming, at processing industry enterprises, in transport, at state borders.

The objectives of the discipline are:

- in-depth familiarization of students with risk assessment and management of zoonotic diseases; measures to protect the territory of the Russian Federation from the introduction of infectious diseases from foreign countries, to protect the population from diseases common to humans and animals;
- in-depth familiarization of students with the organization and monitoring of the occurrence and spread of infectious diseases; assessing the economic effectiveness of veterinary measures; assessment and forecast of possible damages, costs of veterinary measures in the event of zoonoses; veterinary supplies and logistics for veterinary activities; long-term planning of the work of veterinary departments; organization of work in veterinary institutions and maintenance of veterinary documentation;
- in-depth familiarization of students with zoonoses and measures for the prevention and elimination of zoonoses; readiness to organize and control the implementation of mass diagnostic, treatment and preventive measures aimed at early detection and prevention of the spread of zoonoses.

2. LIST OF PLANNED LEARNING OUTCOMES OF THE DISCIPLINE (MODULE), CORRELATED WITH THE PLANNED LEARNING OUTCOMES OF THE EDUCATIONAL PROGRAM

As a result of mastering the discipline, the student is prepared for the following types of activities, in accordance with the educational standard FGOS VO 36.05.01 «Veterinary Medicine».

Type of professional activity:

13 Agriculture

Competencies of the student, formed as a result of mastering the discipline.

The study of the discipline should form the following **competences:**

A) Universal competencies (UC):

UC-1 To be able to critically analyze problem situations based on a systematic approach and develops an action strategy

UC-1 $_{ID-1}$ To know the methods of critical analysis and evaluation of modern scientific achievements, the basic principles of critical analysis

UC-1 $_{ID-2}$ To be able to obtain new knowledge based on analysis, synthesis, etc.; collect and summarize data on current scientific issues related to the professional field; search for information and solutions based on actions, experiment, experience, information and communication technologies

UC-1 $_{ID-3}$ To be able to study problems of professional activity using analysis, synthesis and other methods of intellectual activity, including the use of information and communication technologies, identifying problems using adequate methods for solving them; demonstrating value judgments in solving problematic professional situations

B) Professional competencies (PC):

Type of professional tasks: medical

PC-11 Anti-epizootic measures annual plan development, a plan for the prevention of non-communicable animal diseases, a plan of veterinary and sanitary measures

PC-11 $_{ID-1}$ To 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-11 $_{ID-2}$ To know methods of collecting and analyzing information for veterinary planning, including using information databases

PC-12 Conducting preventive clinical studies of animals, checking the veterinary and sanitary condition and microclimate of livestock premises in accordance with the plan of anti-epizootic measures, the plan for the prevention of non-communicable animal diseases, the plan of veterinary and sanitary measures

PC-12 $_{ID-2}$ To be able to assess the impact of the conditions of keeping and feeding animals on their health as part of the implementation of action plans for the prevention of non-communicable animal diseases

PC-12 $_{ID-3}$ To be able to carry out veterinary quality control and procurement of animal feed in order to ensure their veterinary and sanitary safety as part of the implementation of action plans for the prevention of non-communicable animal diseases

PC-12 $_{ID-4}$ To know the recommended forms of a plan of anti-epizootic measures, a plan for the prevention of non-communicable animal diseases, a plan of veterinary and sanitary measures

PC-12 $_{ID-5}$ To know the procedure for conducting internal control of the veterinary and sanitary condition of the facility and the microclimate of livestock premises, using digital equipment

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-13 $_{ID-1}$ To 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 prophylactic immunizations (vaccinations), medical 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-14 $_{ID-1}$ To be able to analyze the effectiveness of preventive measures and their implementation, including the use of digital technologies

PC-16 Organization of disinfection and disinsection of livestock premises to ensure veterinary and sanitary well-being in accordance with the plan of veterinary and sanitary measures, analysis of the effectiveness of measures for the prevention of animal diseases in order to improve them

PC-16 $_{ID-1}$ To be able to evaluate the effectiveness of preventive measures taken and methods of their implementation, including using digital technologies

PC-16 $_{ID-2}$ To 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-19 Is able to organize monitoring studies using big data processing systems and artificial intelligence in professional activities.

PC-19$_{ID-1}$ To know the software packages for automatic management of veterinary documentation.

PC-19$_{ID-2}$ To have the skills to work with large amounts of veterinary documentation.

PC-19$_{ID-3}$ To possess knowledge in the field of artificial intelligence and data analysis.

3. PLACE OF THE DISCIPLINE IN THE STRUCTURE OF MPEP

Discipline B1.V.18 “Risks assessment and management in zoonoses” is a part formed by participants in educational relations in the specialty 36.05.01 “Veterinary Medicine” (specialty level).

The discipline is mastered in the 10th semester of full-time study.

When learning the discipline “Risks assessment and management in zoonoses”, the knowledge and skills acquired by students in mastering the disciplines - Biology with basic ecology, Animal Anatomy, Latin, Cytology, histology and embryology, Pathological physiology, Veterinary pharmacology, Clinical diagnostics are used. The discipline “Risks assessment and management for zoonoses” is the basic one on which most subsequent disciplines are built, such as:

1. Pathological anatomy and forensic veterinary examination
2. Epizootology and infectious diseases
3. Parasitology.
4. Veterinary and sanitary examination
5. Organization of veterinary work

4. SCOPE OF THE DISCIPLINE «RISKS ASSESSMENT AND MANAGEMENT IN ZOONOSES»

4.1. Scope of the disipline «Risks assessment and management in zoonoses» for full-time study

Type of study work	**Total hours**	**Semester**
		10
Auditorium classes (total)	**39**	**39**
These include:		
Lectures, including interactive forms	18	18
Practical lessons (PL), including interactive forms	27	27
Practical training (PT)	6	6
Independent work (total)	**63**	**63**
Type of intermediate certification (test, exam)	test	test
Total labor intensity hours / credit units	**108/3**	**108/3**

5. CONTENT OF THE DISCIPLINE «RISKS ASSESSMENT AND MANAGEMENT IN ZOONOSES»

5.1. Content of the discipline «Risks assessment and management in zoonoses» for full-time study

№	Title	Formative competences	Semester	Types of academic work, including independent work of students and labor intensity (in hours)			
				L	PL	PT	IW
1	**Relevance of studying the discipline "Risks assessment and management in zoonoses".** Epizootological aspects of infection and infectious process. Epizootic process and regularities of its development.	**UC-1** To be able to critically analyze problem situations based on a systematic approach and develops an action strategy UC-1 $_{ID-1}$ To know the methods of critical analysis and evaluation of modern scientific achievements, the basic principles of critical analysis UC-1 $_{ID-2}$ To be able to obtain new knowledge based on analysis, synthesis, etc.; collect and summarize data on current scientific issues related to the professional field; search for information and solutions based on actions, experiment, experience, information and communication technologies UC-1 $_{ID-3}$ To be able to study problems of professional activity using analysis, synthesis and other methods of intellectual activity, including the use of information and communication technologies, identifying problems using adequate methods for solving them; demonstrating value judgments in solving problematic professional situations	**10**	**4**	**4**	**1**	**12**
2	**Basic characteristics of zoonotic infections. Causes and risk factors. Forms of disease. Groups of zoonotic infections.** Epizootic focus and natural focus of infectious diseases (rabies, leptospirosis, listeriosis, yersiniosis)	**UC-1** To be able to critically analyze problem situations based on a systematic approach and develops an action strategy UC-1 $_{ID-1}$ To know the methods of critical analysis and evaluation of modern scientific achievements, the basic principles of critical analysis UC-1 $_{ID-2}$ To be able to obtain new knowledge based on analysis, synthesis, etc.; collect and summarize data on current scientific issues related to the professional field; search for information and solutions based on actions, experiment, experience, information and communication technologies UC-1 $_{ID-3}$ To be able to study problems of professional activity using analysis, synthesis and other methods of intellectual activity, including the use of information and communication technologies, identifying problems using adequate methods for solving them; demonstrating value judgments in solving problematic professional situations	**10**	**4**	**4**	**1**	**12**
3	**Risks assessment and management in zoonoses.** Antiepizootic measures (anthrax, tuberculosis, brucellosis, rabies, leptospirosis, listeriosis,	**PC-11** Anti-epizootic measures annual plan development, a plan for the prevention of non-communicable animal diseases, a plan of veterinary and sanitary measures PC-11 $_{ID-1}$ To 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	**10**	**4**	**4**	**1**	**12**

	pasteurellosis, dermatomycoses, salmonellosis, clostridiosis, spongiform encephalopathy). Animal identification and tracing systems.	PC-11 $_{ID-2}$ To know methods of collecting and analyzing information for veterinary planning, including using information databases **PC-12** Conducting preventive clinical studies of animals, checking the veterinary and sanitary condition and microclimate of livestock premises in accordance with the plan of anti-epizootic measures, the plan for the prevention of non-communicable animal diseases, the plan of veterinary and sanitary measures PC-12 $_{ID-2}$ To be able to assess the impact of the conditions of keeping and feeding animals on their health as part of the implementation of action plans for the prevention of non-communicable animal diseases PC-12 $_{ID-3}$ To be able to carry out veterinary quality control and procurement of animal feed in order to ensure their veterinary and sanitary safety as part of the implementation of action plans for the prevention of non-communicable animal diseases PC-12 $_{ID-4}$ To know the recommended forms of a plan of anti-epizootic measures, a plan for the prevention of non-communicable animal diseases, a plan of veterinary and sanitary measures PC-12 $_{ID-5}$ To know the procedure for conducting internal control of the veterinary and sanitary condition of the facility and the microclimate of livestock premises, using digital equipment **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-13 $_{ID-1}$ To 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 prophylactic immunizations (vaccinations), medical 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-14 $_{ID-1}$ To be able to analyze the effectiveness of preventive measures and their implementation, including the use of digital technologies **PC-19** Is able to organize monitoring studies using big data processing systems and artificial intelligence in professional activities. PC-19$_{ID-1}$ To know the software packages for automatic management of veterinary documentation. PC-19$_{ID-2}$ To have the skills to work with large amounts of veterinary					

		documentation. PC-19$_{ID-3}$ To possess knowledge in the field of artificial intelligence and data analysis.					
4	**Symptoms. Diagnosis. Prognosis.** Diagnostic methods for infectious diseases (anthrax, tuberculosis, brucellosis, rabies, leptospirosis, listeriosis, pasteurellosis, dermatomycoses, salmonellosis, clostridiosis, spongiform encephalopathy).	**UC-1** To be able to critically analyze problem situations based on a systematic approach and develops an action strategy UC-1 $_{ID-1}$ To know the methods of critical analysis and evaluation of modern scientific achievements, the basic principles of critical analysis UC-1 $_{ID-2}$ To be able to obtain new knowledge based on analysis, synthesis, etc.; collect and summarize data on current scientific issues related to the professional field; search for information and solutions based on actions, experiment, experience, information and communication technologies UC-1 $_{ID-3}$ To be able to study problems of professional activity using analysis, synthesis and other methods of intellectual activity, including the use of information and communication technologies, identifying problems using adequate methods for solving them; demonstrating value judgments in solving problematic professional situations	**10**	**4**	**4**	**1**	**12**
5	**Measures to prevent and eliminate zoonoses** General and specific prevention of infectious diseases (anthrax, tuberculosis, brucellosis, rabies, leptospirosis, listeriosis, pasteurellosis, dermatomycoses, salmonellosis, clostridiosis, spongiform encephalopathy). Disinfection.	**PC-14** Organization of prophylactic immunizations (vaccinations), medical 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-14 $_{ID-1}$ To be able to analyze the effectiveness of preventive measures and their implementation, including the use of digital technologies **PC-16** Organization of disinfection and disinsection of livestock premises to ensure veterinary and sanitary well-being in accordance with the plan of veterinary and sanitary measures, analysis of the effectiveness of measures for the prevention of animal diseases in order to improve them PC-16 $_{ID-1}$ To be able to evaluate the effectiveness of preventive measures taken and methods of their implementation, including using digital technologies PC-16 $_{ID-2}$ To 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	**10**	**2**	**5**	**2**	**15**
Total fot A semester				**18**	**21**	**6**	**63**

6. LIST OF EDUCATIONAL AND METHODICAL SUPPORT FOR INDEPENDENT WORK OF STUDENTS IN THE DISCIPLINE «RISKS ASSESSMENT AND MANAGEMENT IN ZOONOSES»

6.1. Methodological instructions for independent work

1. Kuzmin, V.A. Methodical recommendations for completing coursework on the subject "Epizootology" / Kuzmin V.A., Danko Yu.Yu., Savenkov K.S., Fogel L.S., Kudryavtseva A.V., Antipina R.V., Polyakova O.R. et al. - St. Petersburg: SPbGAVM, 2014. - 17 p.

2. Danko, Yu. Yu. Epizootological monitoring of infectious diseases of animals. Modern geoinformation technologies in epizootology and epidemiology: methodological recommendations / Danko Yu. Yu., Kudryavtseva A. V., Kuzmin V. A., Fogel L. S., Savenkov K. S., Polyakova O. R. et al. - St. Petersburg: SPbGAVM, 2015. - 30 p.

3. Polyakova, O.R. The basis of active prevention of infectious diseases of animals / Polyakova O.R., Kuzmin V.A., Danko Yu.Yu., Fogel L.S., Kudryavtseva A.V., Savenkov K.S., et al.: Textbook-St. Petersburg: SPbGAVM. - 2014.-31 p.

4. Polyakova, O.R., Kozyrenko O.V., Kuzmin V.A., Dzhavadov E.D., Danko Yu.Yu., Fogel L.S., Kisil A.S., Ivanov Yu.V., Yeshchenko I.D. Sanitary cleaning of the area during anti-epizootic measures: a teaching aid. - St. Petersburg: Publishing house of the Federal State Budgetary Educational Institution of Higher Education St. Petersburg State University of Medical Sciences, -2019.-28 p.

5.Polyakova O.R., Kuzmin V.A., Danko Yu.Yu., Fogel L.S., Kisil A.S., Mishchenko N.V. Disinfection in the system of anti-epizootic measures: a teaching aid. - St. Petersburg: Publishing house of the Federal State Budgetary Educational Institution of Higher Education St. Petersburg State University of Medicine, 2020. - 67 p.

6. Polyakova O.R., Kuzmin V.A., Danko Yu.Yu., Fogel L.S., Kisil A.S., Mishchenko N.V. Disinsection in the system of anti-epizootic measures: a teaching aid. - St. Petersburg: Publishing house of the Federal State Budgetary Educational Institution of Higher Education St. Petersburg State University of Medicine, 2020.-14 p.

7. Polyakova O.R., Kuzmin V.A., Danko Yu.Yu., Fogel L.S., Kisil A.S., Mishchenko N.V. Deratization in the system of anti-epizootic measures: a teaching aid. - St. Petersburg: Publishing house of the Federal State Budgetary Educational Institution of Higher Education St. Petersburg State University of Medicine, -2020. -15 p.

6.2. Literature for independent work

1. Cattle: maintenance. Feeding, diseases: diagnostics and treatment / edited by A.F. Kuznetsov: Textbook. - 2nd ed., suppl. - St. Petersburg: Lan, 2016. - 752 p.

2. Epizootology with microbiology: Textbook / Edited by V.A. Kuzmin, A.V. Svyatkovsky. - St. Petersburg: Lan, 2016. - 432 p.

3. Handbook of Veterinary Medicine: a textbook / Edited by A.A. Stekolnikov and A.F. Kuznetsov. - St. Petersburg: Prospect Nauki, 2011. - 544 p. (Chapter 9. Infectious diseases).

4. OIE List and transboundary animal infections: monograph / V. V. Makarov et al. - Vladimir: VIT-print, 2012. - 160 p.

5. Makarov, V.V.Essays on the History of the Fight against Infectious Diseases: textbook; supplement. Ministry of Agriculture of the Russian Federation. Part 1: From the Ancient World to the Present / Makarov V.V., Gruby V.A. - Vladimir: VIT-print, 2013. - 230 p.

6. Rabies: etiology, epizootology, diagnostics: teaching and methodological manual / A. V. Ivanov et al. - M .: Kolos, 2010. - 54 p.

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

A) main literature:

1. Epizootology and infectious diseases: textbook / A. A. Konopatkin, B. T. Artemov, I. A. Bakulov, et al.; Ed. by A. A. Konopatkin. - 2nd ed., revised and enlarged. - Moscow: Kolos, 1993. - 688 p.

2. Workshop on epizootology and infectious diseases with veterinary sanitation / Urban Valery Petrovich [et al.]. - M .: KolosS, 2004. - 216 p.

3. Fundamentals of planning and control of veterinary measures / Kalishin Nikolay Mikhailovich [et al.]; SPbGAVM. - SPb.: Publishing house of SPbGAVM, 2008. - 67 p. (date of access: June 26, 2025)

4.Sidorchuk, A.A. General Epizootology: Textbook for Higher Education Institutions / A.A. Sidorchuk, V.A. Kuzmin. S.V. Alekseeva. - St. Petersburg: Lan, 2020. - 248 p. (Accessed: June 26, 2025)

5. Epizootology and microbiology: Textbook / Edited by V. A. Kuzmin, A. V. Svyatkovsky. - 2nd ed., reprinted - St. Petersburg: Lan Publishing House, 2017 - 432 p.: ill. (+ insert, 8 p.). - (Textbooks for universities). Access mode:https://www.rulit.me/data/programs/resources/pdf/Aliev_Epizootologiya-s-mikrobiologiey_RuLit_Me_525823.pdf (Accessed: June 26, 2025)

B) additional literature:

1. Smirnov Anatoly Mikhailovich. Veterinary and sanitary measures for African swine fever: monograph. / Smirnov Anatoly Mikhailovich, Butko Mikhail Pavlovich. - M.: NIPCC VoskhodA, 2013. - 452 p.

2. Epizootological monitoring of infectious animal diseases. Modern geoinformation technologies in epizootology and epidemiology [Electronic resource]: methodological recommendations / compiled by: Yu. Yu. Danko [et al.]; SPbGAVM. - St. Petersburg: SPbGAVM, 2015. - 48 p. Access mode:https://ebs.spbgavm.ru/MarcWeb2/ ShowMarc.asp?docid=13349(Accessed: June 26, 2025)

3. Vogel L.S., Kisil A.S., Veretennikov V.V., Laishev K.A., Yuzhakov A.A., Prokudin A.V. Methodological recommendations for the improvement of reindeer herding farms from brucellosis in reindeer. - St. Petersburg: Federal State Budgetary Educational Institution of Higher Education St. Petersburg State University of Medicine, 2021.- 46 p. Access mode: https://www.elibrary.ru/item.asp?id=44815859 (Accessed: June 26, 2025)

4. Dzhavadov E.D., Khokhlachev O.F., Novikova O.B. Methodological recommendations for the disinfection of veterinary supervision facilities in a poultry farm. St. Petersburg: Federal State Budgetary Educational Institution of Higher Education St. Petersburg State University of Medical Sciences, 2021. - 25 p.

5. Polyakova, O.R., Kozyrenko O.V., Kuzmin V.A., Dzhavadov E.D., Danko Yu.Yu., Fogel L.S., Kisil A.S., Ivanov Yu.V., Yeshchenko I.D. Sanitary cleaning of the area during anti-epidemic measures: a teaching aid. - St. Petersburg: Publishing house of the Federal State Budgetary Educational Institution of Higher Education St. Petersburg State University of Medicine, -2019.-28c. Access mode: https://www.elibrary.ru/item.asp?id=44811148 (Accessed: June 26, 2025)

8. Resources list from information and telecommunication network "Internet" necessary for mastering the discipline

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

1. www.mgavm.ru - K.I. Skryabin MGAVMiB information site
2. http://www.fsvps.ru/ - official website of Rosselkhoznadzor
3. http://www.oie.int/ - official website of the World Organization for Animal Health
4. https://meduniver.com/ - medical information website.

Электронно-библиотечные системы:

1. EBS «SPbGUVM»
2. "ConsultantPlus" legal reference system
3. Scientific electronic library ELIBRARY.RU
4. Russian Science Network
5. E-books by Prospect Nauki Publishing House http://prospektnauki.ru/ebooks/
6. EBS of «Kvadro» Publishing House "Elibrika" https://elibrica.com/

7. 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 the discipline.

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

- Tips for planning and organizing the time needed to study the discipline. A description of the student's sequence of activities, or "learning scenario".

Morning time is the most fruitful time for study work (from 8-14 hours), followed by afternoon (from 16-19 hours) and evening (from 20-24 hours). The most difficult material is recommended to be studied at the beginning of each time interval after rest. After 1.5 hours of work a break is 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 university, 4 hours at home).

- Recommendations for working on the lecture material

In preparing for the lecture, the student is advised to:

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

2) review upcoming material for a future lecture(it is also useful);

3) if you have been assigned to independently study some fragments of the topic of the previous lecture, you should do it without delay;

4) psych yourself up for the lecture.

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

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

The method of work in outlining oral speeches differs significantly from the method of work in outlining written sources.

When taking notes from written sources, the student has the opportunity to repeatedly read the necessary passage of text, reflect on it, highlight the main thoughts of the author, briefly formulate them and then write them down. If necessary, he/she can note his/her attitude to this point of view. When listening to a lecture, the student should postpone most of the complex of the above-mentioned works for another time, trying to use every minute to record the lecture, not to comprehend it - there is no time left for that. Therefore, when taking notes on the lecture, it is recommended to separate fields for subsequent notes in addition to the lecture notes on each page.

Having written down the lecture or made its outline, one should not leave the work on the lecture material until the beginning of preparation for the credit. It is necessary to do as early as possible the work that accompanies the outlining of written sources and that could not be done during the recording of the lecture - to read their notes, deciphering certain abbreviations, to analyze the text, to establish logical links between its elements, in some cases to show them graphically, to highlight the main ideas, to note the issues that require additional processing, in particular, consultation with the teacher.

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

For each lecture, practical training and laboratory work, the number, topic, list of issues covered, volume in hours and references to the recommended literature should be given. For classes conducted in interactive forms, their organizational form should be indicated: computer simulation, business or role-playing game, case study, etc.

- Recommendations for preparation for practical training

Practical (seminar) classes form an important part of students' professional training. The main purpose of practical (seminar) classes is to form students' analytical, creative thinking by acquiring practical skills. Also practical classes are held in order to deepen and consolidate knowledge gained in lectures and in the process of independent work on normative documents, educational and scientific literature. In preparation for a practical lesson for students should study or repeat the theoretical material on a given topic.

When preparing for the practical training, students are recommended to follow the algorithm;

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

2) Work through the literature sources that have been recommended and familiarize yourself with the introductory notes to the relevant sections.

Methodical instructions for practical (seminar) classes in the discipline along with the working program and the schedule of the educational process are among the methodical documents that determine the level of organization and quality of the educational process.

The content of practical (seminar) classes is fixed in the working training programs of disciplines in the sections "List of topics of 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, skills, which determines the content of students' activities - problem solving, laboratory work, clarification of categories and concepts of science, which are a prerequisite for proper thinking and speech.

Practical (seminar) classes fulfill the following tasks:

- stimulate regular study of recommended literature as well as attentiveness to the lecture course;
- consolidate the knowledge gained in the course of lecture training and independent work on literature;
- expand the scope of professionally relevant knowledge, skills and abilities;
- allow to check the correctness of previously acquired knowledge;
- instill independent thinking skills, oral presentation skills;
- promote fluency in terminology;
- provide the instructor with an opportunity to systematically monitor the level of students' independent work.

Methodical instructions for practical (seminar) classes in the discipline should be oriented on modern conditions of economic management, current regulatory documents, advanced technologies, on the latest achievements of science, technology and practice, on modern ideas about those or other phenomena of the studied reality.

• Recommendations for working with the literature.

Work with literature is an important stage of independent work of the student to master the subject, contributing not only to the consolidation of knowledge, but also to the expansion of horizons, mental abilities, memory, the ability to think, state and confirm their hypotheses and ideas. In addition, the skills of research work necessary for further professional activity are developed.

When starting to study the literature on the topic, it is necessary to make outlines, extracts, notes. It is obligatory to take notes on the works of theorists, which allow you to comprehend the theoretical basis of the study. Otherwise, you can limit yourself to extracts from the studied sources. All extracts, quotations must necessarily have an accurate "return address" (author, title of the work, year of publication, page, etc.). It is desirable to write the abbreviated name of the question to which the extract or quotation refers. In addition, it is necessary to learn to immediately make a card index of special literature and publications of sources, both proposed by the teacher and identified independently, as well as to refer to bibliographic directories, annals of journal articles, book annals, abstract journals. In this case, publications of sources (articles, book titles, etc.) to write on separate cards, which should be filled out according to the rules of bibliographic description (surname, initials of the author, title of the work. Place of publication, publishing house, 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 idea of the author of the book or a fact from this book only on one specific issue. If the work, even in the same paragraph or phrase, contains more judgments or facts on another issue, they should be written out on a separate card. The statement 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, what sources it was written on, etc.

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

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

• Recommendations for control work (if it is assumed by the curriculum), determining students' knowledge of the passed material by means of independent work, including theoretical tasks and several practical assignments.

• Recommendations for the implementation of coursework (if it is assumed by the curriculum), determining their thematic focus, goals and objectives of implementation, requirements for the content, scope, design and organization of the management of their preparation by departments and teachers, are carried out according to the methodological guidelines presented in the list of methodological guidelines.

10. EDUCATIONAL WORK

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

11. List of information technologies used in the implementation of the educational process

11.1. The use of information technology is envisaged in the educational process of the discipline:

- ✓ lecturing and conducting practical classes using multimedia;
- ✓ interactive technologies (dialog lectures, collective discussion of different approaches to solving a particular educational and professional task);
- ✓ interaction with students via e-mail;
- ✓ collaborative work in the Electronic Information and Education Environment of SPbSUVM: https://spbguvm.ru/academy/eios/

11.2. Software

List of licensed and freely distributed software, including domestically produced software

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

12. MATERIAL-TECHNICAL BASE NECESSARY FOR REALIZATION OF EDUCATIONAL PROCESS ON DISCIPLINE

Name of discipline (module), practices in accordance with the curriculum	**Name of special rooms and rooms for independent work**	**Equipment of special rooms and rooms for independent work**
Risks assessment and management in zoonoses	014 (196084, St. Petersburg, 99 Moskovsky Prospekt St.) Classroom for seminars, group and individual consultations, current control and interim certification (capacity - 48 people)	*Specialized furniture:* desks, chairs, stools, blackboard. *Visual aids and teaching materials:* computer programs and multimedia presentations on epizootology and infectious diseases, educational films. Tables, posters, slides, photos. Moulages, microdrugs, biopreparations (vaccines, diagnostics, sera, etc.) Digitized computer tables for educational purposes.
	113 (196084, St. Petersburg, 99 Moskovsky Prospekt St.) Classroom for seminars, group and individual consultations, current control and interim certification (capacity - 48 people)	*Specialized furniture:* desks, chairs, stools, blackboard. *Technical means of training:* projector, screen, computer. *Visual aids and teaching materials:* computer programs and multimedia presentations on epizootology and infectious diseases, educational films. Tables, posters, slides, photos. Moulages, microdrugs, biopreparations (vaccines, diagnostics, sera, etc.) Digitized computer tables for educational purposes.

	114 (196084, St. Petersburg, 99 Moskovsky Prospekt St.) Classroom for seminars, group and individual consultations, current control and interim certification (capacity - 26 persons)	*Specialized furniture:* desks, chairs, stools, blackboard. *Technical means of training:* projector, screen, computer. *Visual aids and teaching materials:* computer programs and multimedia presentations on epizootology and infectious diseases, educational films. Tables, posters, slides, photos. Moulages, microdrugs, biopreparations (vaccines, diagnostics, sera, etc.) Digitized computer tables for educational purposes.
	206 Large Reading Room (196084, St. Petersburg, 5 Chernigovskaya St.) Room for independent work	*Specialized furniture:* tables, chairs *Technical means of education:* computers with Internet connection and access to the electronic information and educational environment.
	214 Small reading room (196084, St. Petersburg, 5 Chernigovskaya St.) Room for independent work	*Specialized furniture:* tables, chairs *Technical means of education:* computers with Internet connection and access to the electronic information and educational environment.

Developers:

Head of the Department of Epizootiology named after V. P. Urban, candidate of veterinary science, docent _____ L.C. Fogel

professor, doctor of veterinary science _____ V.A. Kuzmin

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 Epizootiology named after V. P. Urban

Level of higher education
SPECIALIST COURSE

FUND OF ASSESMENT TOOLS
«RISKS ASSESSMENT AND MANAGEMENT IN ZOONOSES»
Profile: «General clinical veterinary medicine»
Level of higher education
SPECIALITY
Specialty 36.05.01 Veterinary Medicine
Full-time education

Education starts in 2025

Saint Petersburg
2025

1. PASSPORT OF THE ASSESSMENT FUND

Table

№	Molded competencies	Controlled sections (topics) of the discipline	Table Estimated means
1.	UC-1 Able to carry out a critical analysis of problem situations based on a systematic approach, develop an action strategy UC-1 ID-1 Know the methods of critical analysis and evaluation of modern scientific achievements, the basic principles of critical analysis UC-1 ID-2 Be able to obtain new knowledge based on analysis, synthesis, etc.; collect and summarize data on current scientific issues related to the professional field; search for information and solutions based on actions, experiment, experience, information and communication technologies UC-1 ID-3 Be able to study problems of professional activity using analysis, synthesis and other methods of intellectual activity, including the use of information and communication technologies, identifying problems with using adequate methods to solve them; demonstrating value judgments in solving problematic professional situations	Section 1. Relevance of the study discipline "Risk Assessment and Management" for zoonoses." Epizootological aspects infections and infectious process. Epizootic process and patterns of its development.	colloquium, tests
2	Able to carry out a critical analysis of problem situations based on a systematic approach, develop action strategy UC-1 ID-1 Know the methods of critical analysis and evaluation of modern scientific achievements, basic principles critical analysis UC-1 ID-2 Be able to obtain new knowledge based on analysis, synthesis, etc.; collect and summarize data on current scientific issues related to the professional field; search for information and solutions based on actions, experiment, experience, information and communication technologies UC-1 ID-3 Be able to study problems of professional activity using analysis, synthesis and other methods of intellectual activity, including the use of information and communication technologies, identifying problems with using adequate methods to solve them; demonstrating value judgments in solving problematic professional situations	Section 2. Main characteristics of zoonotic infections. Causes and risk factors. Forms of the disease. Groups of zoonotic infections. Epizootic focus and natural focality of infectious diseases (rabies, leptospirosis, listeriosis, yersiniosis).	colloquium, tests

3	PC-11 Development of an annual plan of anti-epizootic measures, plan prevention of non-contagious animal diseases, plan of veterinary and sanitary measures including ID-1 Be able to collect and analyze information, in PC-11 volume of veterinary statistics data necessary for planning preventive anti-epizootic measures, prevention of non-contagious animal diseases, veterinary and sanitary measures PC-11 ID-2 Know methods of collecting and analyzing information for veterinary planning, including using information databases PC-12 Conducting preventive clinical trials animals, checking veterinary and sanitary conditions and microclimate livestock premises in accordance with the plan of anti-epizootic measures, the plan for the prevention of non-communicable animal diseases, the plan of veterinary and sanitary measures PC-12 ID-2 Be able to assess the impact of conditions of detention and feeding animals on their health status as part of the implementation of action plans for the prevention of non-communicable animal diseases PC-12 ID-3 Be able to carry out veterinary control quality and procurement of animal feed in order to ensure their veterinary and sanitary safety as part of the implementation of action plans for the prevention of non-communicable animal diseases. PC -12 ID - 4 Know the recommended forms of the anti-epizootic plan activities, a plan for the prevention of non-communicable animal diseases, a veterinary plan sanitary measures PC -12 Know the procedure for carrying out internal ID control - 5 veterinary- sanitary condition of the facility and microclimate of livestock premises, with using digital equipment PC -13 Organization of measures to protect enterprises from the introduction of infectious and invasive diseases in accordance with the plan of anti-epizootic measures PC -13 ID - 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	Section 3 Zoonotic risk assessment and management . Anti-epizootic measures (anthrax, tuberculosis, brucellosis, rabies, leptospirosis, listeriosis, dermatomycosis, salmonellosis, clostridiosis, spongiform encephalopathy). Identification systems and animal tracing.	colloquium, tests

	PC -14 Organization of preventive immunizations (vaccinations) of treatment and prophylactic treatments of animals in accordance with the plan of anti-epizootic measures, analysis of the effectiveness of measures for the prevention of animal diseases in order to improve them PC -14 ID - 1 Be able to evaluate the effectiveness of preventive measures taken and methods of their implementation, in including using digital technologies PC-19 Is able to organize monitoring studies using big data processing systems and artificial intelligence in professional activities. PC-19$_{ID-1}$ To know the software packages for automatic management of veterinary documentation. PC-19$_{ID-2}$ To have the skills to work with large amounts of veterinary documentation. PC-19$_{ID-3}$ To possess knowledge in the field of artificial intelligence and data analysis.		

4	UC-1 Able to carry out a critical analysis of problem situations on based on a systematic approach, develop an action strategy. UC-1 ID-1 Know the methods of critical analysis and evaluation of modern scientific achievements, the basic principles of critical analysis UC-1 ID-2 Be able to obtain new knowledge based on analysis, synthesis, etc.; collect and summarize data on current scientific issues related to the professional field; search for information and solutions based on actions, experiment, experience, information and communication technologies UC-1 ID-3 Be able to study problems of professional activity using analysis, synthesis and other methods of intellectual activity, including the use of information and communication technologies, identifying problems with using adequate methods to solve them; demonstrating value judgments in solving problematic professional situations	Section 4 Symptoms Diagnostics. Forecast. Events for prevention and elimination of zoonoses. Methods for diagnosing infectious diseases (anthrax, tuberculosis, brucellosis, rabies, leptospirosis, listeriosis, dermatomycosis, salmonellosis, clostridiosis, spongiform encephalopathy).	colloquium, tests
5	PC-14 Organization of preventive immunizations (vaccinations) medical and prophylactic treatments of animals in accordance with the plan of anti-epizootic measures, analysis of the effectiveness of measures to prevent improvement of PC-14 ID-1 Be able to evaluate the effectiveness of carried out preventive measures and methods of their implementation, including using digital technologies PC-16 Organization of disinfection and disinsection of livestock premises to ensure veterinary and sanitary well-being in accordance with the plan of veterinary and sanitary measures, analysis of the effectiveness of disease prevention measures animals for the purpose of their improvement PC-16 ID-1 Be able to assess the effectiveness of preventive measures taken and methods of their implementation, including using digital technologies PC-16 ID-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	Section 4 Symptoms Diagnostics. Forecast. Prevention and elimination of zoonoses. General and specific prevention of infectious diseases (anthrax, tuberculosis, brucellosis, rabies, leptospirosis, listeriosis, dermatomycosis, salmonellosis, clostridiosis, spongiform encephalopathy). Disinfection.	colloquium, tests

List of assessment tools

№	**Designation evaluative means**	**Brief description of the assesment tool**	**Presentation of the assessment tool in the fund**
1.	Colloquium	A means of monitoring the assimilation of educational material of a topic, section or sections of the discipline, organized as a training session in the form of an interview between a teacher and students	Questions by topic/section disciplines
2.	Tests	System of standardized tasks, allowing automation procedure for measuring the level of knowledge and skills of a student	Test Fund tasks

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

Planned results of competency acquaired	**The level of development**				**Assesment tool**
	Unsatisfactory	**Satisfactory**	**Good**	**Exellent**	
UC-1 Able to critically analyze problem situations based on a systematic approach and develop an action strategy					
UC-1 ID-1 Know the methods of critical analysis and evaluation of modern scientific achievements, the basic principles of critical analysis	Knowledge level below minimum requirements, had the place is rude errors	Minimum acceptable knowledge level, a lot was allowed minor mistakes	Level of knowledge in volume, appropriate program preparation, admitted a few rough ones errors	Level of knowledge in volume, appropriate program preparation, without errors.	Colloquium, tests
UC-1 ID-2 Be able to obtain new knowledge based on analysis, synthesis, etc.; collect and summarize data on current scientific issues related to the professional field; search for information and solutions based on actions, experiment, experience, information and communication technologies	When deciding standard tasks Not demonstrated basic skills there were rough errors	All the main ones are demonstrated skills, all solved main tasks with separate insignificant shortcomings, all completed assignments in full volume	Basic skills demonstrated when deciding standard tasks with some shortcomings	Demonstrated skills in decision non-standard tasks without errors and shortcomings	Colloquium, tests
UC-1 ID-3 Be able to study problems of professional activity using analysis, synthesis and other methods of intellectual activity, including the use of information and communication technologies,	Knowledge level below minimum requirements, had the place is rude errors	Minimum acceptable knowledge level, a lot was allowed minor mistakes	Basic skills demonstrated when deciding standard tasks with some shortcomings	Level of knowledge in volume, appropriate program training for professional activities,	Colloquium, tests

identifying problems using adequate methods for solving them; demonstrating value judgments in solving problematic professional situations				without errors.	
PC-11 Development of an annual plan of anti-epizootic measures, a plan for the prevention of non-communicable animal diseases, a plan of veterinary and sanitary measures					
PC-11 ID-1 Be able to collect and analyze information, including veterinary statistics data, necessary for planning preventive anti-epizootic measures, prevention of non-communicable animal diseases, veterinary and sanitary measures	When deciding standard tasks Not demonstrated basic skills there were rough errors	All the main ones are demonstrated skills, all solved main tasks with separate insignificant shortcomings, all completed assignments in full volume	Basic skills demonstrated when deciding standard tasks with some shortcomings	Demonstrated skills in decision non-standard tasks without errors and shortcomings	Colloquium, tests
PC-11 ID-2 Know methods of collecting and analyzing information for veterinary planning, including using information databases	Knowledge level below minimum requirements, had the place is rude errors	Minimum acceptable knowledge level, a lot was allowed minor mistakes	Level of knowledge in volume, appropriate program preparation, admitted a few rough ones errors	Level of knowledge in volume, appropriate program training for professional activities, without errors.	Colloquium, tests
PC-12 Conducting preventive clinical studies of animals, checking the veterinary and sanitary condition and microclimate of livestock premises in accordance with the plan of anti-epizootic measures, the plan for the prevention of non-communicable animal diseases, the plan of veterinary and sanitary measures					
PC-12 ID-2 Be able to assess the impact of living conditions and	When deciding standard tasks	All the main ones are demonstrated	Basic skills demonstrated	Demonstrated skills in decision	Colloquium, tests

feeding of animals on their health as part of the implementation of action plans for the prevention of non-communicable animal diseases	Not demonstrated basic skills there were rough errors	skills, all solved main tasks with separate insignificant shortcomings, all completed assignments in full volume	when deciding standard tasks with some shortcomings	non-standard tasks without errors and shortcomings	
PC-12 ID-3 Be able to carry out veterinary quality control and procurement of animal feed in order to ensure their veterinary and sanitary safety as part of the implementation of action plans for the prevention of non-communicable animal diseases	When deciding standard tasks Not demonstrated basic skills there were rough errors	All the main ones are demonstrated skills, all solved main tasks with separate insignificant shortcomings, all completed assignments in full volume	Basic skills demonstrated when deciding standard tasks with some shortcomings	Demonstrated skills in decision non-standard tasks without errors and shortcomings	Colloquium, tests
PC-12 ID-4 Know the recommended forms of a plan of anti-epizootic measures, a plan for the prevention of non-communicable animal diseases, a plan of veterinary and sanitary measures	Knowledge level below minimum requirements, had the place is rude errors	Minimum acceptable knowledge level, a lot was allowed minor mistakes	Basic skills demonstrated when deciding standard tasks with some shortcomings	Level of knowledge in volume, appropriate program training for professional activities, without errors.	Colloquium, tests
PC-12 ID-5 Know the procedure for conducting internal control of the veterinary and sanitary condition of the facility and the microclimate of livestock premises, using digital	Knowledge level below minimum requirements, had the place is rude errors	Minimum acceptable knowledge level, a lot was allowed minor mistakes	Basic skills demonstrated when deciding standard tasks with some	Level of knowledge in volume, appropriate program training for	Colloquium, tests

equipment			shortcomings	professional activities, without errors.	
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-13 ID-1 Know the types of measures to ensure veterinary and sanitary safety and requirements for their implementation in accordance with the legislation of the Russian Federation in the field of veterinary medicine;	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	Colloquium, tests
PC-14 Organize prophylactic immunizations (vaccinations), therapeutic and preventive treatments of animals in accordance with the plan of anti-epizootic measures, analyze the effectiveness of measures to prevent animal diseases in order to improve them:					
PC-14 ID-1 Know how to evaluate the effectiveness of preventive measures and methods of their implementation, including the use of digital technologies;	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	Colloquium, tests
PC-14 ID-2 Know the procedure of clinical examination of animals when planning preventive 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	All the basic skills have been demonstrated, all the main tasks have been solved with minor errors, all the	All basic skills have been demonstrated, all main tasks have been solved with some minor flaws, all tasks have been completed	

		in full	tasks have been completed in full, but some with flaws	in full	
PC-14 ID-3 Know the types of anti-epizootic measures and requirements for their implementation in accordance with guidelines, instructions, instructions, rules of diagnostics, prevention and treatment of animals.	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	
PC-16 Organize disinfection and disinsection of livestock premises to ensure veterinary and sanitary well-being in accordance with the plan of veterinary and sanitary measures, analyze the effectiveness of measures to prevent animal diseases in order to improve them					
PC-16 ID-1 Be able to evaluate the effectiveness of preventive measures and methods of their implementation, including with the help of end-to-end digital technologies	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	Colloquium, tests
PC-16 ID-2 Know the types of measures to ensure veterinary and sanitary safety and requirements for their implementation in accordance with the legislation of the Russian Federation in the field of veterinary medicine Section	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	Colloquium, tests
PC-19 Is able to organize monitoring studies using big data processing systems and artificial intelligence in professional activities.					

PC-19$_{ID-1}$ To know the software packages for automatic management of veterinary documentation	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	Colloquium, tests
PC-19$_{ID-2}$ To have the skills to work with large amounts of veterinary documentation.	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	Colloquium, tests
PC-19$_{ID-3}$ To possess knowledge in the field of artificial intelligence and data analysis.	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	Colloquium, tests

3. MATERIALS NECESSARY FOR THE ASSESSMENT OF KNOWLEDGE, SKILLS, ABILITIES, SKILLS AND WORK EXPERIENCE

3.1 Typical tasks for current progress control

3.1.1.Questions for the colloquium Competency Assessment Questions

UC-1 Able to critically analyze problem situations based on a systematic approach and develop an action strategy

UC-1 ID-1 Know the methods of critical analysis and evaluation of modern scientific achievements, the basic principles of critical analysis

1. Drawing up an accompanying document for taking and sending pathological material for anthrax to a veterinary laboratory.

2. Algorithm for making an intravital diagnosis of anthrax in pigs using the anthrax allergen (anthraxin).

3. Registration of an act of clinical and epizootological examination of the farm for anthrax.

4. Drawing up an act for a comprehensive laboratory study of animals and environmental objects.

UC-1 ID-2 Be able to obtain new knowledge based on analysis, synthesis, etc.; collect and summarize data on current scientific issues related to the professional field; search for information and solutions based on actions, experiment, experience, information and communication technologies

5. Algorithm for differentiating the causative agent of anthrax from saprophytic microbes closely related to B. anthracis (B. cereus, B. mycoides, B. thuringiensis, etc.), widespread in nature.

6. Algorithm for the differential diagnosis of anthrax in cows (exclude emphysematous carbuncle, malignant edema, pasteurellosis (edematous form) and piroplasmosis, non-contagious tympania, leukemia).

7. Algorithm for the differential diagnosis of anthrax in sheep (exclude bradzot, infectious enterotoxemia and piroplasmosis).

8. Algorithm for the differential diagnosis of anthrax in pigs (exclude swine erysipelas, classical swine fever, pasteurellosis).

9. Algorithm for the differential diagnosis of anthrax in horses (exclude malignant edema, hyperacute infectious anemia, piroplasmosis, petechial fever, feed poisoning).

10. Immunity and specific prevention of anthrax in animals.

11. Conditions and factors determining the stationarity, periodicity and seasonality of anthrax. 12. Pathogenetic basis of the course and forms of manifestation of anthrax in animals of different species

UC-1 ID-3 Be able to study problems of professional activity using analysis, synthesis and other methods of intellectual activity, including the use of information and communication technologies, identifying problems using adequate methods for solving them; demonstrating value judgments in solving problematic professional situations

13. Source of the causative agent of tuberculosis infection in susceptible species of domestic and wild animals. Reasons for maintaining the pathogen in the body in the form of L-forms.

14. Unidentified sources of the causative agent of tuberculosis. Reversion under unfavorable conditions of L-forms of mycobacteria to their original form (to the classical form of mycobacteria), the cause of tuberculosis.

15. Ways of infection of adult cattle with tuberculosis during the stall period and on pastures; pigs; dogs and cats.

16. Pathogenesis of tuberculosis.

17. Clinical manifestation of tuberculosis in various species of domestic and wild animals.

18. Principles and features of clinical-epidemiological, allergic, pathoanatomical, histological, bacteriological and biological methods for studying tuberculosis.

19. Algorithm for assessing epizootic risks (observation and analysis of the epizootic situation for particularly dangerous and socially/economically significant animal diseases in the Russian Federation and abroad; risk assessment; establishing their vectors; forecasting the development of the epizootic situation.

20. Examples and features of zoonotic conventional infections.

21. Examples and features of zoonotic transboundary infections.

22. Examples and features of zoonotic factor infections. Competency Assessment Questions

PC-11 Development of an annual plan, a plan for the prevention of non-communicable animal diseases, a plan for veterinary and sanitary measures

PC-11 ID-1 Be able to collect and analyze information, including veterinary statistics data, necessary for planning preventive anti-epizootic measures, prevention of non-communicable animal diseases, veterinary and sanitary measures

23. Characteristics of the primary pathogenetic categories of non-communicable and infectious diseases.

24. Tasks of urban epizootology and veterinary sanitation.

25. Algorithm of actions during the period of imposition of restrictive measures.

26. Algorithm of treatment and preventive measures for non-contagious and contagious animal diseases.

27. Algorithm for veterinary and sanitary measures for non-communicable and contagious animal diseases.

28. The role of responsible persons and organizations leading the work to localize and eliminate the epizootic outbreak.

29. The tasks of veterinary sanitation in the system of anti-epizootic measures

29. Tasks of veterinary sanitation in the system of anti-epizootic measures.

30. Tasks of veterinary sanitation in the prevention of non-communicable diseases of animals.

31. The main objectives of identification of the whole animal population in large agricultural enterprises and LPH.

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

32. Approaches and measures of risk management in zoonoses and non-communicable diseases

33. Objectives and scope of risk management activities in non-communicable diseases and zoonoses.

34. Functions of the State Veterinary and Phytosanitary Surveillance on development of unified requirements for scientific research and other works on substantiation of technical regulations in the field of veterinary medicine.

35. Functions of the State Veterinary Surveillance on control over the implementation of technical regulations in the field of veterinary medicine, study and generalisation of the practice of their application.

36. Functions of the State Veterinary and Phytosanitary Surveillance for veterinary monitoring.

37. Functions of the State Veterinary and Phytosanitary Surveillance on the development, formation and maintenance of a unified federal database in the field of state veterinary regulation.

38. Functions of the State Veterinary and Phytosanitary Supervision on veterinary and sanitary expertise (assessment) at meat and dairy industry enterprises, markets and other facilities to prevent the sale of poor-quality food products.

39. Functions of the State Veterinary and Phytosanitary Surveillance on verification of documents (veterinary certificates, certificates, certificates, acts of inspection of farms, enterprises, protocols of autopsy of animal carcasses, etc.) to establish the well-being of farms, enterprises, settlements.

40. Functions of the State Veterinary and Phytosanitary Surveillance for checking documents during procurement, transport of animals, products of animal origin, when completing farms, export, import of animals and products.

Questions for competence assessment

PC-12 Carrying out preventive clinical examinations of animals, inspection of veterinary and sanitary condition and microclimate of animal breeding premises in accordance with the plan of anti-epizootic measures, plan of prevention of non-communicable diseases of animals, plan of veterinary and sanitary measures.

PC-12 ID-2 Be able to assess the impact of conditions of animal housing and feeding on the state of animal health within the framework of the implementation of action plans for the prevention of non-communicable animal diseases.

41.Characteristics of transmission factors related to faecal-oral transmission mechanism.

42. Objectives and areas of activity of Rosselkhoznadzor in risk management of zoonotic and non-communicable diseases.

43. Groups and factors of epizootological risks.

44. The main objectives of identification of the entire animal population in industrial agricultural enterprises, farms and LPH.

45. Objectives and areas of Rosselkhoznadzor's activity on risk management of zoonoses and non-communicable diseases in emergency situations (natural and anthropogenic/technogenic disasters).

46. The objectives and areas of Rosselkhoznadzor's activities on risk management in zoonoses and non-communicable diseases for participation in legislative interprofessional activities, in publishing and educational activities, especially in rural areas.

47. The objectives and areas of activity of Rosselkhoznadzor for risk management in zoonoses and non-communicable diseases to advise in the field of animal husbandry and veterinary medicine.

48. Main topics for the training of veterinary specialists in the field of risk management in zoonoses and non-communicable diseases in microbiology, parasitology, immunology.

49. Main topics for the training of veterinary specialists in the field of risk management in zoonoses and non-communicable diseases on zoonoses, surveillance, parasitology, immunology.

50. Main topics for the training of veterinary specialists in the field of risk management in zoonoses and non-communicable diseases on toxicology, environmental protection.

51. Main topics for the training of veterinary professionals in risk management of zoonoses and non-communicable diseases on organisational and legal issues (import/export operations and regulations, licensing in animal production, processing, veterinary medicine, quarantine, statistics and information, conventions and notifications, codes, licensing and regulations for drugs, food, consumers).

PC-12 ID-3 Be able to carry out veterinary control of quality and procurement of animal feed to ensure its veterinary and sanitary safety within the framework of implementation of action plans for prevention of non-communicable diseases of animals

52. Effective methods and schemes of animal feeding; control of safety of food raw materials of animal origin intended for human food.

53. Main topics for training of veterinary specialists in the field of risk management of zoonoses and non-communicable diseases in the conditions of

emergencies and disasters.

54. Key topics for the training of veterinary professionals in risk management of zoonotic and non-communicable diseases and the social role of animals

55. Main topics for the training of veterinary specialists in the field of risk management of zoonoses and non-communicable diseases in laboratory animal husbandry, comparative medicine.

56. Reasons why plastic ear tags are most common in modern animal husbandry for animal identification.

PC-12 ID-4 Know the recommended forms of the plan of anti-epizootic measures, plan of prevention of non-communicable diseases of animals, plan of veterinary and sanitary measures

57. Functions of the State Veterinary and Phytosanitary Surveillance to identify and establish the causes and conditions of occurrence and spread of contagious and mass non-communicable animal diseases.

58. Functions of the State Veterinary and Phytosanitary Supervision to identify measures to suppress violations of the Federal legislation in the field of veterinary medicine and to apply sanctions established by this law.

59. State Veterinary and Phytosanitary Supervision to generalise the practice of application of Federal legislation in the field of veterinary medicine, to prepare proposals for its improvement, to participate in the development of draft regulatory legal acts, Veterinary Legislation of the Russian Federation and to submit them for appropriate consideration.

60. Measures applied to owners of animals (owner of LPH) in case of refusal to identify animals, with regard to refusal of administrations of rural settlements, on the territory of which LPH is located, to issue certificates on the presence of farm animals.

61. Measures applied to owners of animals (owner of LPH) in case of refusal to identify animals, with regard to refusal to issue animal passports.

62. Measures applied to animal owners (owner of LPH) in case of refusal to identify animals, in relation to imposing a ban on the movement of livestock in the districts of the region.

PC-12 ID-5 Know the procedure of internal control of veterinary and sanitary condition of the facility and microclimate of livestock premises, using digital equipment

63. Ways to control the safety of food raw materials of animal origin, intended for human food, using methods of animal disease prevention with the use of medicines.

64. Ways of controlling the safety of food raw materials of animal origin, intended for human food, by means of methods of animal slaughter.

65. Methods of control of safety of food raw materials of animal origin, intended for human food, by means of processing of animal raw materials. 66.

66. Risk management activities of Rosselkhoznadzor for zoonoses and non-communicable diseases in laboratory animal production.

67. Rosselkhoznadzor's risk management activities in zoonoses and non-communicable diseases in preventive measures and control of animal injuries (bites, poisonings).

68. Risk management activities of Rosselkhoznadzor for zoonotic and non-communicable diseases in comparative medicine when studying diseases on animal models. 69.

69. Implementation of the Federal Programme of animal registration and traceability of animal products on the territory of the Russian Federation through the introduction of animal passportisation.

70. Implementation of the Federal Programme of Animal Accounting and Traceability of Products of Animal Origin on the Territory of the Russian Federation through the Improvement of Veterinary and Sanitary Accounting.

71. Implementation of the Federal Programme of Animal Accounting and Traceability of Products of Animal Origin on the Territory of the Russian Federation by means of real-time animal accounting.

72. Implementation of the Federal Programme of Animal Records and Traceability of Products of Animal Origin on the Territory of the Russian Federation by improving information support for breeding.

73. Implementation of the Federal Programme of Animal Records and Traceability of Products of Animal Origin on the Territory of the Russian Federation by ensuring food safety.

74. Implementation of the Federal Programme of Animal Accounting and Traceability of Products of Animal Origin on the Territory of the Russian Federation by ensuring veterinary and sanitary safety.

75. Implementation of the Federal Programme of Animal Accounting and Traceability of Products of Animal Origin on the Territory of the Russian Federation by traceability of animals and products of animal origin.

76. Implementation of the Federal Programme of animal registration and tracing of products of animal origin on the territory of the Russian Federation by tracing animals and products of animal origin

76. Implementation of the Federal Programme of animal registration and traceability of animal products on the territory of the Russian Federation by improving border control of animal movement.

Questions for competence assessment

PC-13 Organisation of measures to protect enterprises

Organisation of measures to protect enterprises from infectious and invasive diseases in accordance with the plan of anti-epizootic measures.

PC-13 ID-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.

77. Leading link in the epizootic chain when carrying out preventive measures against anthrax.

78. Algorithm of actions in case of suspicion of anthrax in animals.

79. The main link in the epizootic chain to which anthrax preventive measures should be primarily directed.

80. Algorithm of actions during recovery measures in farms and private subsidiary farms of citizens in case of brucellosis.

81. Implementation of epizootological control over the well-being of the farm for tuberculosis.

82. Algorithm of actions with animals sick with spongiform encephalopathy.

83. Algorithm of differential diagnosis of tetanus (rabies, acute muscular rheumatism, feed poisoning; exclude infectious encephalomyelitis in horses, grass tetany in dairy cows).

84. Algorithm of differential diagnosis of salmonellosis in calves (escherichiosis, streptococcosis, rotavirus and coronavirus diarrhoea, adenovirus pneumoenteritis, parainfluenza).

85. Algorithm of differential diagnostics of salmonellosis in piglets (escherichiosis, streptococcosis, dysentery, plague, viral gastroenteritis).

86. Algorithm of differential diagnostics of salmonellosis in foals (escherichiosis, streptococcosis).

87. Algorithm of differential diagnostics of salmonellosis in lambs (anaerobic dysentery, eimeriosis).

88.Immunity and specific prophylaxis of anthrax in animals.

89. Pathogenetic bases of course and forms of anthrax manifestation in animals of different species.

90. Algorithm of final diagnosis of pasteurellosis (bioassay on white mice, pathomorphological changes in fallen animals, positive serological tests).

91.The most characteristic clinical signs of listeriosis.

92. Algorithm of staging a simultaneous test in tuberculosis with different allergens.

93. Algorithm for the diagnosis of brucellosis.

94. Pathogenesis of rabies infection.

95. Clinical manifestation of rabies in different species of animals.

96. Algorithm of rabies diagnosis.

97. Specific prophylaxis of rabies. Classification of anti-rabies vaccines.

98. Organisation of rabies control measures.

99. Measures to protect people from rabies infection.

100. Factors of pathogenicity of leptospires.

101. Pathogenesis of leptospirosis.

102. Clinical and epizootological diagnosis of leptospirosis.

103. Algorithm of differential diagnosis of leptospirosis in cattle and small ruminants (exclude brucellosis, piroplasmidosis, malignant catarrhal fever, campylobacteriosis, trichomonosis, salmonellosis, pneumoenteritis of mixed etiology and listeriosis).

104. Algorithm of differential diagnosis of leptospirosis in pigs (exclude brucellosis, salmonellosis, plague, rye, dysentery; diseases arising from protein, vitamin and mineral deficiencies; mycotoxicoses).

105. Algorithm of differential diagnosis of leptospirosis in horses (exclude infectious encephalomyelitis, infectious anaemia).

106. Algorithm of differential diagnostics of leptospirosis in dogs and fur-bearing animals (exclude plague - intestinal form, infectious hepatitis, parvovirus enteritis and salmonellosis, food poisoning).

107. Veterinary and sanitary, organisational and economic measures to eliminate leptospirosis.

108. Measures to protect people from leptospirosis infection.

Questions for competence assessment

PC-14 Organisation of prophylactic immunisations (vaccinations), therapeutic and prophylactic treatments of animals in accordance with the plan of anti-epizootic measures, analysis of the effectiveness of measures for the prevention of animal diseases in order to improve them.

PC-14 ID-1 Be able to assess the effectiveness of preventive measures and methods of their implementation, including the use of digital technologies.

109. Modern types of chemical (molecular) vaccines (vector, genetically engineered, subunit, DNA vaccines).

110. Epizootological significance of residual infectivity of killed vaccines.

111.Specific immunoprophylaxis of leptospirosis depending on the epizootic situation and animal species.

112. Specific immunoprophylaxis of brucellosis depending on the epizootic situation and animal species (live vaccines from B. abortus strain 19 and weakly agglutinogenic B. abortus strain 82 for vaccination of cattle; vaccine from B. melitensis strain Rev-1 for immunisation of sheep and goats).

113. Means of active specific prophylaxis of infectious diseases, the basis of which are protective antigens of a living pathogen.

114. Means of active specific prophylaxis of infectious diseases, the basis of which are protective antigens of killed corpuscular pathogen.

115. Means of active specific prophylaxis of infectious diseases, the basis of which are individual antigenic substances of protective antigens of the pathogen.

116. Features of obtaining live vaccines. Their advantages and disadvantages.

117. Features of obtaining inactivated vaccines. Their advantages and disadvantages.

118. Features of frontal vaccination of animals depending on the epizootic situation.

119. Features of ring vaccination of animals depending on the epizootic situation.

120. Methods of treatment of animals related to specific etiotropic therapy.

121. Means used for etiotropic therapy of sick animals with listeriosis.

122. Harmonisation of requirements for the keeping and use of animals with those in the EU countries for the development of international trade in animals and products of animal origin, for the purpose of registration of animals and traceability of products of animal origin in the territory of the Russian Federation.

123. Creation of an effective control system to trace all movements of the objects under the supervision of the State Veterinary Service in order to account for animals and trace products of animal origin on the territory of the Russian Federation.

Questions for competence assessment

PC-16 Organise disinfection and disinsection of livestock premises to ensure veterinary and sanitary well-being in accordance with the plan of veterinary and sanitary measures, analyse the effectiveness of measures to prevent animal diseases in order to improve them

PC-16 ID-1 Be able to assess the effectiveness of preventive measures and methods of their implementation, including the use of digital technologies.

124. Importance of disinfection and disinsection as components of anti-epizootic measures.

125. Types of disinfections. Their characterisation.

126. Rational methods of manure disinfection in case of non-spore-forming bacterial infections.

127. Optimal options for biothermal disinfection of manure.

128. Characteristics of effective disinfectants for rabies.

129. Characteristics of effective disinfectants for foot-and-mouth disease.

130. Characteristics of effective disinfectants in spongiform encephalopathy.

131. Characteristics of effective disinfectants for anthrax.

132. Characteristics of effective disinfectants for tuberculosis.

133. Characteristics of effective disinfectants for brucellosis.

134. Characteristics of effective disinfectants for leptospirosis.

135. Characteristics of effective disinfectants for listeriosis.

136. Characteristics of effective disinfectants for salmonellosis.

137. Characteristics of effective disinfectants for necrobacteriosis.

138. Characteristics of effective disinfectants in pasteurellosis.

139. Characteristics of effective disinfectants for clostridiosis.

140. Characteristics of effective disinfectants for pseudotuberculosis.

141. Characteristics of effective disinfectants in dermatomycosis.

142. Characteristics of effective disinfectants in yersiniosis.
143. Characteristics of effective disinfectants in escherichiosis.
144. Control measures used for protection in countries unfavourable for bovine spongiform encephalopathy. 145.
145. Algorithm of actions with animal carcasses in spore infections.
146. Rigid methods of sterilisation and disinfection of pathological material, utensils, instruments, overalls used in countries unfavourable for bovine spongiform encephalopathy.
147.Characteristics of disinfectants for disinsection of objects of veterinary supervision.

PC-16 ID-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
legislation of the Russian Federation in the field of veterinary medicine
148. Effective disinfectants in necrobacteriosis for footbaths.
149.Characteristics of effective disinfectants acting on tetanus spores.
150. Characteristics of effective disinfectants acting on anthrax spores.
151. Control measures against sheep and goat bradzootic.
152. Algorithm of actions with manure from anthrax animals. 153.
153. Control measures in case of botulism in animals.
154. Resistance of C. botulinum spores in the external environment (in soil, at low and high temperatures).
155. The most effective disinfectants for vegetative forms of the emacarial pathogen Clostridium chauvoei.
156. Control measures for the occurrence of infectious enterotoxaemia in sheep.
157. Control measures in the occurrence of anaerobic enterotoxaemia in piglets.
158. Toxin spectrum in bradzootic sheep and goats.
159. Regulatory legal framework for surveillance, analysis, risk management of zoonoses according to OIE requirements for tightening food safety in relation to the globalisation of animal and food trade.
160. Organisation of training/retraining of Veterinary Services specialists to acquire knowledge and practical skills on surveillance, analysis, risk management of zoonoses according to OIE requirements for tightening food safety in relation to globalisation of trade in animals and food.

4.1.2.Tests on the discipline 'Risk assessment and management of zoonoses'

UC-1 Capable of carrying out a critical analysis of problematic situations based on a systems approach and developing an action strategy

UC-1 ID-1 Know the methods of critical analysis and evaluation of modern scientific achievements, the basic principles of critical analysis

UC-1 ID-2 Be able to obtain new knowledge based on analysis, synthesis, etc.; collect and summarize data on current scientific issues related to the professional field; search for information and solutions based on actions, experiments, experience, and information and communication technologies

UC-1 ID-3 Be able to research professional issues using analysis, synthesis, and other intellectual methods, including information and communication technologies, identify problems using appropriate methods for their solution; demonstrate value judgments in resolving problematic professional situations.

CLOSED TYPE TASKS

Combined type tasks with a choice of one correct answer from the proposed options

UC-1 ID-1 Know: methods of critical analysis and evaluation of modern scientific achievements, basic principles of critical analysis

Task 1.

Read the passage from the text and choose the correct answer.

Which of the following are considered conventional/quarantine infections?

1. African swine fever,
2. tuberculosis,
3. bovine leukemia,
4. leptospirosis,
5.salmnellosis.

Answer: 1.

Task 2.

Read the text and choose one correct answer.

In which of the listed zoonotic infections is the pathogen most often localized in the blood?

1.intestinal,
2.respiratory tract infections,
3.transmissible infections,
4. infections of the outer skin.

Answer: 3.

Combined type tasks with a choice of several correct answers from the proposed options

UC-1 ID-1 Know the methods of critical analysis and evaluation of modern scientific achievements, the basic principles of critical analysis

Task 3.

Some analytical methods used in modern epizootology research are currently unthinkable without the use of information technology. For example, without a geographic information system (GIS). This is an automated computer system for collecting, storing, analyzing, and disseminating reference information on geography. GIS can be used to study patterns in the spatial distribution of disease-affected areas, track disease dynamics, and generate reports based on specified parameters.

List other methods of analyzing modern scientific achievements in epizootology based on information technology:

1.computer modeling,
2.spatial analysis,
3. comparative-historical method,
4.analytical method,
5. comparative geographical study.

Answer: 1,2,3,5.

Task 4.

Read the text and choose all the correct answers.

The epizootic process, despite its continuity, is uneven in intensity. The seasonality of epizootics (diseases) manifests itself as regular, recurring peaks in the intensity of the epizootic process during certain periods of the year. Seasonality is observed in many infectious diseases. Seasonality is particularly pronounced in vector-borne infections, where arthropods are the

disease vectors. The seasonality of epizootics must be taken into account when planning and implementing anti-epidemic measures.

For which animal transmissible diseases is there a pronounced summer-autumn seasonality?

1.IEM of horses;
2. INAN horses;
3. rabies;
4. African horse sickness;
5. tularemia
Answer: 1,2,4,5

Task 5.

Read the text and choose several correct answers.

Alimentary (foodborne) infectionsThese are diseases in which infectious agents enter the body through the consumption of contaminated feed, food, or water. The mechanism of transmission is fecal-oral. The routes of infection vary when infected through the alimentary route and depend largely on the type of pathogen (bacteria, viruses, fungi).

Which of the following infections are called alimentary/feed-borne based on the main route of transmission and spread of the pathogen?

1. salmonellosis,
2. candidiasis,
3. sheep pox,
4. leptospirosis,
5. campylobacteriosis

Answer: 1,2,5.

Closed-ended tasks to establish compliance

Task 6.

Read the text and match.

Zoonoses are infectious diseases originating from animals. This is a large group of infectious diseases, comprising over 190 nosological entities.

Match the names of zoonoses and their etiology:

Etiology		**Name**	
A	**bacterial**	1	brucellosis, tularemia, campylobacteriosis, leptospirosis, salmonellosis, anthrax, rickettsiosis, chlamydia, borreliosis
B	**viral**	2	scrapie, spongiform encephalopathy
IN	**prion**	3	hemorrhagic fevers, rabies, plague, foot-and-mouth disease, tick-borne viral encephalitis, coronavirus infection

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

A	B	IN

Answer: A1, B3, B2

Task 7.

Zoonoses are infectious diseases originating from animals. This is a large group of infectious diseases, comprising over 190 nosological entities. Epizootic outbreaks of zoonoses are divided into different groups based on the ability of the pathogens to circulate among animals.

Match the names of zoonotic disease foci with the ability of their pathogens to circulate among animals:

	Name		**Tank**
A	**natural focal**	1	Wild animals: bank vole, field mouse, gray and black rats, bats
B	**anthropurgic**	2	domestic animals or synanthropic rodents
IN	mixed	3	Cattle, pigs, dogs, cats, mice, rats, hares, hamsters

Write the selected numbers under the corresponding letters:

A	B	IN

Answer: A1, B3, B2.

Task 8.

Read the text and match.

Anti-epizootic measures (AEM) in veterinary medicine are aimed at all three links of the epizootic chain (EC):

Specify the correspondence between the EC link and the measures aimed at breaking a specific EC link:

EC link		**TEM Group**	
A	**against the source of the infectious agent**	1	veterinary and sanitary measures

			(disinfection, disinfestation, deratization, disposal of raw materials and products of animal origin, destruction of corpses, disposal of animal secretions and excrements)
B	**to disrupt the mechanism of pathogen transmission**	2	carrying out vaccinations and emergency prevention (use of immune globulins, antibiotics, serums, etc.).
IN	**to increase the resistance of the susceptible animal organism**	3	diagnostic studies, isolation and treatment of patients.

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

A	B	IN	

Answer: A3, B1, B2.

Task 9.

Read the text and choose the matches

Historically, depending on the source of infection, a certain classification of infectious and parasitic diseases into groups has developed.

Indicate the correspondence between the name and characteristics of each group of infectious diseases

Name		**Characteristic**	
A	zoonoses	1	diseases common to humans and animals, in which the source In most cases, the causative agent of the infection is animals (less often humans)
B	zoonoses	2	a group of diseases whose pathogens affect animals and humans and can be transmitted in natural conditions in various ways and routes from animals to humans
IN	anthropozoonoses	3	diseases in which the source of the infectious agent is predominantly humans
G	sapronoses	4	diseases whose pathogens enter the human body from abiotic objects in the external environment, for example, from water

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

A	B	IN	G

Answer: A2, B1, B3, D4.

Task 10.
Read the text and match.

The epizootic process (EP) is a contradictory phenomenon. Its three driving forces, or links in the epizootic chain—the source of the infectious agent, the transmission mechanism, and the susceptible animal—are, on the one hand, the causes of its occurrence, and, on the other, the causes of its decline and disappearance. Therefore, EP is characterized by dynamics (staging), i.e., a succession of specific stages. The duration and severity of the various stages vary significantly in specific epizootics. Active intervention by veterinarians at various stages of EP using geoinformation technologies, particularly GIS, can halt the progression of EP/disease and stop it.

What are the stages of EP and what are the characteristics of each of them?

Establish a correspondence between the stages of the epizootic process and their characteristics: for each position in the first column, select the corresponding position from the second column.

	Phenomenon		**Description**
A	**interepizootic stage**(calm)	1	The period of time between two waves of an epizootic process. It is characterized by isolated cases of the disease that maintain the epizootic process but do not lead to a sharp increase in morbidity or widespread infection.
B	**pre-epizootic stage**	2	Conditions are created for the emergence of an epizootic due to the loss of animal immunity, the birth of non-immune young, and susceptible animals. This stage is characterized by an increase in the number of infected animals—sources of the pathogen.
IN	**development of an epizootic**	3	Characterized by favorable conditions for the further spread of the disease. Acute and hyperacute disease courses predominate. The activity of individual links in the epizootic chain and the connections between them increases, and the number of newly infected animals increases.
G	**maximum development**	3	This stage is characterized by the highest number of newly infected animals per unit of time. Along with the acute course, cases of subacute disease are also observed.

D	**fading of the epizootic**	5	The disease does not spread because the maximum number of animals with a high level of immune system activity is observed. Isolated cases of the disease occur. Asymptomatic infection and carrier state predominate.
E	**post-epizootic stage**	6	is characterized by a decrease in the number of new cases of the disease in animals, and a significant increase in the number of animals immune to the pathogens of this disease. The mechanism of transmission of pathogens is disrupted.

Write the selected numbers under the corresponding letters:

A	B	IN	G	D

Answer: A1, B2, B3, G4, D6, E5.

Closed-ended tasks to establish a sequence

UC-1 ID-2 Be able to obtain new knowledge based on analysis, synthesis, etc.; collect and summarize data on current scientific issues related to the professional field; search for information and solutions based on actions, experiments, experience, and information and communication technologies

Task 11.

Read the text and establish the sequence.

The risk of infection with many zoonoses has pronounced social and professional specifics; in particular, the incidence of diseases in the rural population is higher than in the urban population.

Establish a sequence of actions in the system of epizootological surveillance, preventive and anti-epidemic measures in relation to zoonoses caused by domestic and synanthropic animals:

1.organization of epizootological and epidemiological surveillance (combining the efforts of veterinary and medical services) based on information and communication technologies;
2. veterinary control of food products of animal origin;
3.monitoring the level and dynamics of zoonotic diseases affecting the population of a certain territory;
4. monitoring the pathogen population with the study of their molecular genetic characteristics;
5.disinsection and deratization;
6. vaccination of risk groups (if there is a specific prevention system);
7. emergency prevention.

Answer: 1,3,2,4,5,6,7

Task 12.

Read the text and establish the sequence.

Epizootological analysis—This is a set of methods and techniques used to determine the nature, level, and dynamics of an epizootic process. It allows for the dynamics of an epizootic process to be determined at all stages of its development (from the moment of onset to its termination) and serves as the methodological basis for establishing an epizootic diagnosis.

Describe the main possibilities of using information technology in epizootological analysis:

1.Definition of the boundaries of risk areas Quantitative or qualitative indicators of the degree of epizootological risk are recorded (distress, prevalence, territorial confinement, seasonality, stationarity, and the specific weight of each disease).

2. Study of the causes of infectious diseases The seasonality of the disease's manifestations and its periodicity are recorded, and the effectiveness of anti-epidemic measures is assessed.

3. Formation of biological safety plans They identify potential routes of disease introduction and spread within a zone or compartment (zoosanita status, which denotes one of four levels of farm protection from infectious animal disease pathogens) and include a description of measures taken or planned to reduce the risks associated with infectious diseases.

Answer: 2,1,3.

Task 13.

Read the text and establish the sequence.

Epizootic process- a complex continuous process of interaction between the source of the infectious agent, the transmission mechanism and susceptible animals, which leads to the emergence, spread and extinction of an infectious disease associated with the chain transmission of the pathogen from infected animals to susceptible ones.

The epizootic process has its own characteristics, describe them in order of importance:

1. Biological parasitism- underlies the epizootic process. Pathogenic bacteria have adapted to parasitizing animals, but they have also adapted to temporary residence in the external environment, thus creating favorable conditions for the transmission of the pathogen from one animal to another.

2. Continuity of the epizootic chain(source of the infectious agent - mechanism of transmission of the pathogen - susceptible animal) is a prerequisite for the emergence and spread of an infectious disease and the preservation of biological species of the pathogen.

Answer: 2.1.

Task 14.

Read the text and establish the sequence.

Epizootological survey of the farm— a set of measures aimed at studying the causes of the emergence, spread and elimination of infectious diseases among animals.

Rank the objectives of the epizootological survey of the farm in order of importance:

1. a comprehensive study of the causes of the emergence of an epizootic outbreak;
2. identification of conditions that favor or hinder the spread of a certain infectious disease on the farm;
3. clarification of the diagnosis;
4. determination of the boundaries of an epizootic focus, a problem area, or a threatened zone;
5. identification of sources and routes of introduction of the infectious agent, the mechanism of its transmission;

6.organization of measures for the fastest possible localization and elimination of the disease;
7. elimination of deficiencies in the system of anti-epidemic measures.

Answer: 1,2,3,5,4,6,7.

Task 15.

Read the text and establish the sequence.

Epizootological survey of the farm using information technologyincludes the collection, storage, analysis and visualization of data on the epizootic situation.

Establish a sequence of actions when performing an epizootological survey:

1. Automated analysis of epizootologically significant information using a spreadsheet editor Excel;

2. creationusing geographic information systems (GIS) databases of epizootologically significant information: registered epizootic outbreaks linked to geographic coordinates or farms; the number of sick animals and other characteristics;

3. creation of epizootological maps using GIS;

4. computer modeling and forecasting of the epizootic situation, taking into account options for conducting anti-epidemic and anti-epidemic work.

5. Formation of biological safety plans using GIS These plans identify potential routes of disease introduction and spread within the zone and include a description of the anti-epidemic measures that have been implemented or planned to reduce the risks associated with the infectious disease. They allow for unlimited collection, processing, modeling, and analysis of information, as well as its visualization (displaying it on a monitor screen or paper).

Answer: 2.1, 3.4.

OPEN-TYPE TASKS

UC-1 ID-2 Be able to obtain new knowledge based on analysis, synthesis, etc.; collect and summarize data on current scientific issues related to the professional field; search for information and solutions based on actions, experiments, experience, and information and communication technologies

UC-1 ID-3 Be able to research professional issues using analysis, synthesis, and other intellectual methods, including information and communication technologies, identify problems using appropriate methods for their solution; demonstrate value judgments in resolving problematic professional situations.

Task 16.

Read the text and write a detailed, reasoned answer.

Epizootological monitoring- Thisa system for collecting data on the spread of pathogens and their statistical processingfor the purpose of analyzing the effectiveness of veterinary and sanitary measures, as well as assessing and forecasting the epizootic state of certain territories using geographic information technologies (GIS).Improving the monitoring of natural foci of infectious disease pathogens of viral and bacterial etiology will make it possible to reduce the incidence rate and, accordingly, the economic costs of their prevention and treatment in the foreseeable future.

What measures, in order of importance, need to be implemented to improve monitoring of natural foci of pathogens of various infectious diseases?

Answer: 1. significantly increase control over the state of populations of the main carriers and transmitters of pathogens of dangerous zoonotic infections;

2. improve, using GIS, methods for assessing the epizootic situation and epidemic danger in areas of epizootic foci of zoonoses;
3. ensure the development of modern forecasting methods using GIS
epizootic and epidemic activity of natural foci of zoonoses.

Task 17.

Read the text and write a detailed, reasoned answer.

The identification of patterns of the epizootic process, the causes and conditions of the emergence and decline of infectious diseases and measures to combat them is greatly facilitated by the use ofinformation and communication technologies in conducting the epizootological research method (ERM).

What principles of EMI will be implemented using computer technology?

Answer 1. Coverage of all types of epizootics (by scale of distribution, by degree of danger, by economic damage)among several or one species of animals over a large area and all stages of development of epizootics (interepizootic, pre-epizootic, development of epizootic, maximum development, fading of epizootic, post-epizootic) taking into account natural and anthropogenic factors using geographic information technology (GIT) techniques and the creation of epizootological maps of specific regions of the Russian Federation;
2. determination of the priority of anti-epizootic measures aimed at the required link in the epizootic chain (A) and**source of the infectious agent, i.e.**an infected animal organism in which a pathogenic microorganism persists, multiplies, and is released into the environment, B) the mechanism of transmission of the infectious agent, i.e. the ability of the pathogen to be transmitted from the source of the pathogen to a susceptible animal, developed in the process of evolution, C)
susceptible animals, i.e.healthy animals susceptible to the pathogen.

Task 18.

Read the text and write a detailed, reasoned answer.

Naturally- focal zoonotic infections are diseases common to humans and animals, the pathogens of which are capable of persisting for a long time in nature under certain climatic conditions, within a limited geographic landscape, forming a natural reservoir of infection in the bodies of animals, birds, and blood-sucking arthropods, which are the sources and carriers of these infections.

Give examples of zoonoses of bacterial, viral, and rickettsial origin.

Answer: 1. Hemorrhagic fever with renal syndrome (HFRS). The source of infection is small rodents (bank voles, field mice, brown and black rats, and various species of gray voles).
2. Tularemia The main source is wild, farm and domestic animals, mouse-like rodents living in the wild and inhabiting residential and commercial buildings.
3. Leptospirosis. The main source is wild, farm, and domestic animals, including mouse-like rodents found in the wild and inhabiting residential and commercial buildings.
4. Plague The main source is wild, farm and domestic animals, mouse-like rodents living in the wild and inhabiting residential and commercial buildings.
5. Q fever and Lassa fever The main source is wild, farm and domestic animals, mouse-like rodents living in the wild and inhabiting residential and commercial buildings.
6. Tick-borne encephalitis The main source is wild, farm and domestic animals, mouse-like rodents living in the wild and inhabiting residential and commercial buildings.
7. Rabies The main source is wild, farm and domestic animals, mouse-like rodents living in the wild and inhabiting residential and commercial buildings.

Task 19.

Read the text and write a detailed, reasoned answer.

Epizootological risk in veterinary medicine for zoonoses- this is the danger of the emergence and spread of diseases common to humans and animalsEpizootological risk is the real threat of disease occurrence in an animal population and other beneficial effects associated with a decline in health. Risk assessment is an important aspect of research due to its high specificity and focus.

Rate itSome factors influencing epizootological risk:

Answer 1. Decreased natural resistance of the animal's body Because of this, epizootological parameters of populations change and the risk of disease increases.

2. Uncontrolled migration of livestock, including from disadvantaged regions. This leads to disruptions in animal registration and vaccination.

3. Changes in the population size of wild animals—Spreaders of disease pathogens. For example, in the Russian Federation, the natural epizootic process remains uncontrolled and progresses due to the changing population size of wild animals that carry the rabies pathogen.

4. Timely detection of the risk of human infection with a particular zoonosis— the basis of prevention. The choice of preventive measures and their combination depends on the epidemiological and epizootological characteristics of the disease.

5. Some zoonoses,For example, fascioliasis is recognized as a global biological threat to livestock production. They cause enormous economic losses, including through reduced animal productivity, forced slaughter, loss of breeding qualities, and deterioration in product quality.

Task 20.

Read the text and write a detailed, reasoned answer.

Epizootological survey of the farm using information technologyincludes the collection, storage, analysis and visualization of data on the epizootic situation.

List the 6 main features of such a survey:

Answer: 1) Creation of databases of epizootologically significant information. These databases contain information on registered animal disease outbreaks, linked to the geographic coordinates or farm where the infection occurred. For each outbreak, the date of onset, the name of the locality, the number of affected animals, and other characteristics are indicated.

2) automated analysis of epizootologically significant information using information technology Data is analyzed to identify patterns in the epizootic process caused by natural and socioeconomic factors in different areas. Some tools used for this analysis include, for example, an Excel spreadsheet program, which facilitates the creation and maintenance of a database on infectious diseases of agricultural and wild animals. It helps organize epizootic and background information in a format convenient for analysis and modeling.

3) use of geographic information systems (GIS) They allow for unlimited collection, processing, modeling, and analysis of information depending on the task at hand, as well as displaying it on a monitor screen (visualization) or on paper.

4) creation of epizootological maps and risk maps using geographic information systems (GIS) Electronic and paper epizootological maps are used to display the epizootic situation in specific regions and globally. Risk maps show the likelihood of the introduction or emergence of a particular disease.

5) forecasting Computer modeling of epizootic scenarios allows for forecasting the development of the epizootic and epidemiological situation, taking into account options for conducting anti-epidemic and anti-epidemic work.

6) formation of biological safety plans Such plans identify potential routes of disease introduction and spread within a specific area and include a description of the measures that have been taken or are planned to reduce the risks associated with the infectious disease.

PC-11 Development of an annual plan for anti-epidemic measures, a plan for the prevention of non-communicable animal diseases, and a plan for veterinary and sanitary measures

PC-11_{ID-1}Be able to collect and analyze information, including veterinary statistics, necessary for planning preventive anti-epidemic measures, prevention of non-communicable animal diseases, and veterinary and sanitary measures

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

CLOSED TYPE TASKS

Combined type tasks with a choice of one correct answer from the proposed options

PC-11 ID-1 Be able to collect and analyze information, including veterinary statistics data, necessary for planning preventive anti-epidemic measures, prevention of non-communicable animal diseases, veterinary and sanitary measures

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

Task 1.

Read the passage from the text and choose the correct answer.

Zoonotic pathogens are various types of microorganisms that cause infectious diseases transmitted to humans from animals.

What type of microorganism is the causative agent of zoonosis of bovine spongiform encephalopathy (mad cow disease):

1.bacteria;
2.viruses;
3.parasites;
4.mushrooms;
5. prions;
6.helminths.

Answer: 5.

Task 2.

Read the text and choose one correct answer.

Planning the activities of veterinary services—One of the essential functions of veterinary management and a crucial element of its organization. Planning veterinary interventions for zoonotic diseases involves several stages: setting goals and objectives, developing an action plan, identifying necessary resources and their sources, identifying implementers, and communicating the plans to them. All work by veterinary authorities and specialists is based on these plans.

There are three scheduling systems accepted in veterinary practice. Select one system that is not included in these:

1.long-term plans;
2.current plans;
3. quarterly plan;
4. operational plans.

Answer: 3

Combined type tasks with a choice of several correct answers from the proposed options

Task 3.

Read the text and choose the correct answers.

Planning the activities of veterinary services—One of the essential functions of veterinary management and a crucial element of its organization. Planning veterinary interventions for zoonotic diseases involves several stages: setting goals and objectives, developing an action plan, identifying necessary resources and their sources, identifying implementers, and communicating the plans to them. All work by veterinary authorities and specialists is based on these plans.

Select some correct planning objects in veterinary medicine from the following:
1. prevention and elimination of infectious and invasive diseases of animals; prevention of non-communicable diseases;
2. logistics and financing;
3. stage-by-stage planning of the volume of activities;
4. development of veterinary science and implementation of its achievements in practice; personnel training;
5. development of a network of veterinary institutions.

Answer: 1,2,4,5

Task 4.

Read the text and choose all the correct answers.

Planning the activities of veterinary services—One of the essential functions of veterinary management and a crucial element of its organization. Planning veterinary interventions for zoonotic diseases involves several stages: setting goals and objectives, developing an action plan, identifying necessary resources and their sources, identifying implementers, and communicating the plans to them. All work by veterinary authorities and specialists is based on these plans.

Certain information is required to develop a veterinary plan. Select the four correct options:
1.number of livestock;
2. estimated number of animals at the beginning of the planning year;
3. the number of livestock in private household plots and private farms;
4. expected number of offspring during the year;
5. information on the epizootic state of farms, settlements, and the region (presence of infectious and invasive animal diseases).

Answer: 1,2,4,5

Task 5.

Read the text and choose all the correct answers.

Planning the activities of veterinary services—One of the essential functions of veterinary management and a crucial element of its organization. Planning veterinary

interventions for zoonotic diseases involves several stages: setting goals and objectives, developing an action plan, identifying necessary resources and their sources, identifying implementers, and communicating the plans to them. All work by veterinary authorities and specialists is based on these plans.

Certain information is required to develop a veterinary plan. Select all correct options:
1. data on diseases requiring diagnostic tests;
2. information on diseases requiring preventive vaccinations;
3. data on diseases requiring medical and diagnostic treatment;
4. data on the availability and required quantity of precursors subject to control in the Russian Federation;
5. data on the availability and required quantity of relevant biological and chemotherapeutic drugs.

Answer: 1,2,3,5.

Closed-ended tasks to establish compliance

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

Task 6.

Read the text and match.

Analysis of information when planning veterinary measures— one of the essential functions of veterinary management and a crucial element of its organization. The work of veterinary authorities and specialists is based on relevant analytical results obtained using information databases, which represent a collection of data systematized according to specific criteria and used to solve various problems, as well as the methods and means of collecting and transmitting information used in this process.

Establish a correspondence between the analysis method and its characteristics:

Method		**Characteristic**	
A	**recording and analysis of veterinary statistics data**	1	Using statistics, a specialist analyzes the veterinary situation, establishes disease patterns in a specific area over a certain period, and identifies factors that influenced a particular process
B	**analysis of the complex's feed supply**	2	Using statistics, a specialist analyzes taking into account a complete diet, animal feeding regimen, laboratory tests of feed and water
IN	**study of the placement of livestock and the conditions of their maintenance**	3	With the help of statistics, a specialist analyzes the schedule of regroupings provided for by the production technology, the conditions and quality

			of feeding, the veterinary and sanitary condition of the premises and the territories around them, the epizootic situation
G	**analysis of climate indicators in animal rooms**	4	Using statistics, a specialist analyzes the schedule of compliance with the standards for placement in machines and the rules for staffing technological groups
D	**analysis of animal care and condition**	5	Using statistics, the specialist analyzes the mortality rate of infectious diseases, as well as forced slaughter and the effectiveness of preventive and therapeutic measures.
E	**determination of the economic efficiency of veterinary measures**	6	Using statistics, specialists use indicators such as the cost of additional products and raw materials of animal origin, labor and material costs for veterinary procedures, and others. Computer technologies are used to analyze the information, allowing them to store and select the necessary data, process it, identify patterns in various processes, find optimal solutions, and obtain more reliable research results.

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

A	B	IN	G	D	E

Answer: A1, B3, B2, G4, D5, E6

Task 7.

Read the text and match.

Planning veterinary activities— one of the essential functions of veterinary management, an important element of its organization.

There are three planning systems accepted in veterinary practice, find the correspondence between the planning system and its characteristics:

	Document		**Validity period**
A	**long-term plans**	1	include the most important events in the field of veterinary medicine, designed for long periods of time - 2-5 years or more

B	**current plans**	2	They are developed for a specific (calendar) period. An example of such a plan would be a plan for the elimination of an epizootic outbreak, such as foot-and-mouth disease.
IN	**operational plans**	3	They are developed for a year, sometimes broken down by months and quarters. These are the main planning documents.

Write the selected numbers under the corresponding letters:

A	B	IN

Answer: A1, B3, B2.

Task 8.

Read the text and match.

Planning veterinary activities— one of the essential functions of veterinary management, a crucial element of its organization. Certain principles are followed when developing plans for veterinary activities.

Find the correspondence between the planning principleveterinary activitiesand its content:

Principle		**Content**	
A	**unity of plans**	1	bottom-up planning of veterinary activities, that is, the development of primary plans, starting with enterprises and organizations and ending with the governing veterinary authorities
B	**complexity**	2	a combination of special preventive and therapeutic measures and organizational and economic activities
IN	**democracy**	3	planning veterinary measures on specific issues in a certain territory, regardless of the departmental affiliation of farms, complexes, and enterprises
G	**selection of the leading link**in the complex of planned activities	4	this is the definition of a priority, or main, event, without which the implementation of other elements of the planned plan is impossible

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

A	B	IN	G

Answer: A3, B2, B1, D4.

Task 9.

Read the text and choose the matches

Planning veterinary activities— one of the essential functions of veterinary management, a crucial element of its organization. When planning veterinary activities, certain methods for collecting veterinary-relevant information are used.

Find the match betweenmethod of collecting veterinary-significant information. and its content:

Method		**Content**	
A	**recording and analysis of veterinary statistics data**	1	They are planned in nature, but can also be unscheduled and forced. Based on the results of each inspection, a report is drawn up, which notes the actual indicators characterizing the veterinary and epizootic situation on livestock farms and complexes.
B	**study of the topographic and soil features of the territory**livestock farms, pastures, watering places	2	helps eliminate potential transmitters of infectious agents
IN	**surveys of farms and estates**	3	Using statistics, a specialist analyzes the veterinary situation, establishes disease patterns in a certain area over a certain period, and identifies factors that influenced a particular process
G	**study of animal welfare conditions**	4	analysis of the placement of livestock, their maintenance conditions, regroupings provided for by the production technology, conditions and quality of feeding, veterinary and sanitary conditions of the premises and the areas around them
D	**study of the epizootic situation**	5	includes the extent of the spread of the disease, the number of sick and suspected infected animals

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

A	B	IN	G	D

Answer: A3, B2, B1, D4, D5

Task 10.

Read the text and match.

Currently, the Federal State Information System "VetIS" has been created(Federal State Veterinary Information System). It enables: monitoring animal health and welfare; controlling the quality and safety of animal products; conducting epizootological/epidemiological analysis; implementing measures to prevent and eliminate infectious diseases; and ensuring effective interaction between government agencies, veterinary services, and other stakeholders.

FGIS "VetIS"In the field of veterinary medicine, Rosselkhoznadzor is an integrated information environment, which includes a number of specialized modules of the VetIS system, for example, Argus, Mercury, and others.

Below are some modules of the VetIS system. Match the module name with its function:

	Module		**Function**
A	**Cerberus**	1	The subsystem handles veterinary control. This is a registry of economic entities and sites that simplifies oversight and helps control a given area.
B	**Mercury**	2	The module is used to conduct laboratory tests of products
IN	**Vesta**	3	an automated electronic document management platform that reflects the supply of controlled products
G	**Argus**	4	A module for automated processing of applications from importers and exporters for import, export, and transit to Russia and the Eurasian Economic Union (EAEU) Customs Union; it issues import refusals.
D	Assol	5	componentfor collectioninformation aboutaccounting and ɒut animal identification; on preventive, diagnostic (except laboratory tests), therapeutic and other measures taken; on the establishment or cancellation of restrictive measures (quarantine)
E	**Horriot**	6	a component for collecting electronic reports from institutions accountable to Rosselkhoznadzor, such as laboratories

Write the selected numbers under the corresponding letters:

A	B	IN	G	D	E

Answer: A1, B2, B3, G4, D6, E5.

Closed-ended tasks to establish a sequence

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

Task 11.

Read the text and establish the sequence.

The complex epizootological method includes: a) epizootological examination of farms and observation of them; b) comparative-historical and comparative-geographical description of the epizootic process; c) epizootological experiment; d) statistical research and epizootological analysis.. The comparative-geographical method allows us to determine the geographical and meteorological dependence of the occurrence of an infectious disease in a specific area and to determine their dependence on certain factors in veterinary planning.

Establish a sequence of events when using the comparative geographical method for veterinary planning.

1. Using geoinformation technologies, construct a spatial model of the epizootic process of a specific disease in the form of an epizootological map of the region (epizootic foci in affected areas); nosogeographic maps for each disease to identify natural, geographical, and economic factors. The basis for the research are standard geographic maps, which show the distribution range of a given infectious disease.
2. Identification of cause-and-effect relationships of the nosographic map and associated cartographic analysis allow:
- to discover coincidences and relationships between natural and economic factors and the epizootic process;
- determine the leading role of factors contributing to the occurrence of the disease and the role of the epizootological factor.
3. Conjugate mapping analysis – comparing disease distributions with natural factors (temperature, precipitation, rodent presence) and economic factors (livestock placement, transportation routes, livestock processing sites, markets, etc.). This allows us to identify the natural and geographic factors that contribute to the emergence and spread of animal diseases.
4. The results of the epizootological study are presented in the form of reports, tables, graphs, and descriptions.

Answer: 1,3,2,4

Task 12.

Read the text and establish the sequence.

Epizootological analysis is a comprehensive study of the epizootic process, aimed at identifying its characteristics and patterns, as well as
determination of the factors and causes underlying the emergence and spread of infectious diseases in a specific area.

Establish a sequence of events when conducting epizootological analysis for veterinary planning:

1. development of a plan for modeling and forecasting the epizootic situation based on epizootological monitoring of infectious diseases, using geographic information technologies, in particular, geographic information systems,
2. development of an action plan aimed at preventing the occurrence of diseases and reducing damage during the elimination of an infectious disease.

Answer: 2.1.

Task 13.

Read the text and establish the sequence.

Complex epizootological method – techniques that allow to study characteristics of the morbidity and epizootic process.provides for:
a) epizootological survey of farms and observation of them; b) comparative-historical and comparative-geographical description of the epizootic process; c) epizootological experiment; d) statistical research and epizootological analysis.

Epizootological examination-OA fundamental method of epizootology aimed at elucidating the diverse conditions and factors characterizing a specific affected area or zone (farm, region), and the characteristics of the emergence, spread, and eradication of a contagious disease within it. This is a complex research method, since an epizootologist, observing epizootological phenomena occurring among animals, such as the emergence of an epizootic outbreak of an infectious disease, is typically unable to reproduce them experimentally.

To achieve this, it is necessary to use a variety of methods from other sciences during epizootological examination for veterinary planning.

Specify the sequence of different methods of epizootological examination of an unfavorable point:
1.bacteriological examination,
2.virological study,
3. hematological examination,
4. immunological study,
5.polymerase chain reaction (PCR),
6. serological studies,
7.allergic,
8. entomological,
9. parasitological.

Answer: 1,2,4,3,6,5,7,9,8

Task 14.

Read the text and establish the sequence.

Epizootological monitoring is a system for assessing the epizootic situation with the aim of preventing or reducing the risk of emergency situations by implementing anti-epizootic measures in veterinary planning.

The subject of epizootological monitoring research is the epizootic process in particularly dangerous, exotic and poorly studied animal diseases.

Name the objects of study of epizootological monitoring and indicate their sequence in order of importance in veterinary planning:
1. information about the etiological agents (pathogens) that cause infectious diseases,
2. information on the mechanisms and factors of transmission of the pathogen, on susceptible animals,
3. information about the sources and reservoirs of the pathogen,
4 information on the secondary driving forces of the epizootic process - social economic and environmental factors.

Answer: 1,3,2,4

Task 15.

Read the text and establish the sequence.

Epizootological monitoring— is an information system for improving the activities of the veterinary service in the prevention, planning of preventive and anti-epidemic measures for especially dangerous animal diseases, including zoonoses.

Geographic Information System (GIS) -an automated computer system for collecting, storing, analyzing and distributing reference information (in this case, veterinary-significant) on geography.

The relationship between epizootological monitoring and GIS is that GIS is used to visualize (display on a computer screen) geospatial information in the context of monitoring natural focal animal diseases, including zoonoses in veterinary planning.

GIS has a number of potential uses in veterinary planning. Please rank these potential uses in order of importance:

1. Monitoring the dynamics of morbidity, its display on geographical maps, preparation of reports based on specified parameters.

2. Establishing cause-and-effect relationshipsthe epizootic phenomena being studied (epizootic focus, unfavorable point).

3. Collection, storage and analysis of epizootological information using methods GIS for studying the distribution patterns of unfavorable points with their territorial reference to specific areas, tracking the dynamics of morbidity.

4. Construction of spatial modelspredicting the spread of diseases.

5. Systematization of spatial data obtained during the research, etc. This simplifies management and work with them.

6.Automatic detectionzones of the highest risk of developing an epizootic process with the determination of the scope and nature of anti-epidemic/anti-epidemic measures.

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

OPEN-TYPE TASKS

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

Task 16.

Read the text and write a detailed, reasoned answer.

In veterinary medicine, there are certain stages of veterinary planning Using information databases, in particular, the Federal State Information System for Veterinary Medicine (FGIS VetIS). This system automates the recording and monitoring of veterinary activities in Russia.

List at least 4 functions of veterinary planning and describe them:

Answer:

1. Setting goals and objectives to optimize the epizootic situation in the district/region/territory.
2. Drawing up an algorithm for carrying out preventive, therapeutic, and anti-epidemic measures on the farm.
3. Taking into account the adjustment of the algorithm when the epizootic situation changes.
4. Identifying the immediate executors and communicating plans to them.
5. Identification of the necessary resources for carrying out a range of veterinary measures and their sources.

6. Recording the results of veterinary planning in tangible form, for example, in the form of a project, model, plan, epizootic map, or the adoption of specific management decisions.

Task 17.

Read the text and write a detailed, reasoned answer.

Planning of preventive anti-epidemic measuresis carried out in order to prevent the emergence and spread of infectious animal diseases, as well as the introduction of new, rare and previously unseen infectious animal diseases in the Russian Federation.

What role in planningpreventive anti-epizootic measures take place**data collection on veterinary statistics?**

Answer:**Collection of data on veterinary statistics**is carried out with using information databases with the help of various systems and programs:

1. Automated system for recording and registering animals It allows you to keep track of animals and farm assets, plan and implement veterinary interventions, and analyze industry performance indicators. Veterinarians use the mobile version of the system, which is installed on a personal computer/tablet or a specialized mobile device—a data collection terminal.

2. Federal State Veterinary Information System (FGIS "VetIS") The system collects, stores, and processes data on animals, veterinary drugs, veterinary institutions, veterinarians, veterinary research results, and other information related to veterinary medicine.

3. Unified Veterinary Information and Analytical System "EVIAS"It is used to track and monitor animal health, analyze treatment effectiveness, identify common diseases, and automate key processes in veterinary medicine.

Task 18.

Read the text and write a detailed, reasoned answer.

Epizootological monitoring— is an information system that forms the basis for improving the state veterinary service's efforts to protect animal health and prevent and combat particularly dangerous, epizootic, and poorly understood diseases. The interaction of epizootic monitoring and geographic information systems (GIS) enables the automation of the collection, storage, processing, and analysis of veterinary-relevant epizootic information on epizootic situations, predicted emergencies, and their potential consequences.

Please tell us what monitoring tasks are solved based on epizootological documentation obtained using information databases stored in the GIS?

Answer:

1. identification of characteristics, causes and conditions of the development of morbidity;
2. determination of epizootological risk factors;
3. assessment of the feasibility and effectiveness of anti-epidemic work;
4.development of an epizootological forecast.

Task 19.

Read the text and write a detailed, reasoned answer.

Planning of preventive and anti-epidemic measuresis carried out in order to prevent the emergence and spread of infectious animal diseases, as well as the introduction of new, rare and previously unseen infectious and parasitic animal diseases in the Russian Federation.

What role in planningpreventive anti-epidemic measures are analyzed**information, in particular on veterinary statistics?**

Answer: Analysis of information, including veterinary statistics, necessary for planning preventive anti-epidemic measures,includes clarification of the specific epizootic situation.
1. For this purpose, data is collected and analyzed on:
- the spread of infectious animal diseases in the relevant territory over a certain period of time;
- seasonality;
- previous contacts of animals with a source of infection;
- the presence of insects and wild animals in the area that carry pathogens;
- similar cases of diseases in previous years;
- mass vaccinations of livestock, their regrouping, etc.

2. Based on veterinary statistics, such indicators as morbidity (the ratio of the number of sick animals to the total number of susceptible animals) and mortality (the ratio of the number of dead and forcibly slaughtered animals to the number of sick animals) are taken into account.
3. To analyze veterinary-significant information, specialized databases, geographic information systems, and software packages are used.

Task 20.

Read the text and write a detailed, reasoned answer.

Planning is one of the essential functions of veterinary management, a crucial element of its organization. All work of veterinary authorities and specialists is based on relevant plans.

What is veterinary planning, what are its objects and types of plans?

Answer.**Veterinary planning**— is the development of a system of veterinary measures for a specific period of time with the aim of ensuring the veterinary welfare of animals and the better organization of veterinary affairs.

1. The objects of planning in veterinary medicine include::
- prevention and elimination of infectious animal diseases; prevention of non-infectious diseases;
- logistical support and financing; development of veterinary science and implementation of its achievements in practice; personnel training;
- development of a network of veterinary institutions.

2. Three planning systems are accepted in veterinary practice:
- ***promising*plans**include the most important events in the field of veterinary medicine, designed for long periods of time - 2-5 years or more;
- ***current*plans**Veterinary measures are developed for the year, sometimes broken down by month and quarter. These are the main planning documents that include measures for the prevention and eradication of infectious and invasive animal diseases, as well as methods for ensuring the veterinary and sanitary well-being of farms, settlements, and localities for the coming year;
- ***operational*plans**Veterinary measures are developed for a specific (calendar) period. An example of such a plan is the plan for the elimination of an epizootic outbreak (for example, foot-and-mouth disease).

PC-12 Conducting preventive clinical studies of animals, checking the veterinary and sanitary conditions and microclimate of livestock premises in accordance with the plan of anti-epidemic

measures, the plan for the prevention of non-communicable animal diseases, the plan of veterinary and sanitary measures

PC-12$_{ID-2}$Be able to assess the impact of animal housing and feeding conditions on their health as part of the implementation of action plans for the prevention of non-communicable animal diseases

PC-12$_{ID-3}$Be able to carry out veterinary control of the quality and procurement of animal feed in order to ensure their veterinary and sanitary safety as part of the implementation of action plans for the prevention of non-communicable animal diseases

PC-12$_{ID-4}$Know the recommended forms of the plan for anti-epidemic measures, the plan for the prevention of non-communicable animal diseases, and the plan for veterinary and sanitary measures

PC-12 ID-5 Know the procedure for conducting internal control of the veterinary and sanitary condition of the facility and the microclimate of livestock premises, using digital equipment

CLOSED TYPE TASKS

Combined type tasks with a choice of one correct answer from the proposed options

PC-12$_{ID-5}$ Know the procedure for conducting internal monitoring of the veterinary and sanitary condition of the facility and the microclimate of livestock premises, using digital equipment

Task 1.

Read the passage from the text and choose the correct answer..

The goal of veterinary control is to prevent animal diseases, ensure the circulation of veterinarily safe products of animal origin, and protect the public from diseases common to humans and animals. This is achieved through the prevention, detection, and suppression of violations of veterinary legislation.

The objects of veterinary control/supervision are listed below.Choose one wrong answer.

1.all kinds of animals;
2. livestock facilities of agricultural enterprises, other organizations, institutions and private farms of citizens;
3.transport and state border (vehicles – wagons, ships, barges, airplanes, cars);
4. enterprises for slaughter, processing and sale of livestock products;
5. enterprises for the procurement and processing of milk and dairy products;
6. enterprises for the procurement and processing of raw materials from wild plants;
7. enterprises for procurement, storage and processing of raw materials of animal origin.

Write down the number under which it is indicated.

Answer: 6

Task 2.

Read the text and choose one correct answer.

To comprehensively assess the facilities used on farms, the microclimate of livestock and poultry buildings is studied. Microclimate is a combination of the physical and chemical parameters of the air and the lighting conditions of the building.

The concept of microclimate for animal housing includes many factors, listed below.

Select one incorrect option from the given ones:

1. air temperature, internal surfaces of enclosing structures;
2. ambient air temperature on the farm territory

3.relative air humidity, humidity of the internal surfaces of enclosing structures;
4. direction and speed of air flows in the area where animals are located, in exhaust and supply ventilation ducts, near windows and doors;
5. intensity of artificial and natural lighting, length of day;
6. content of harmful gases – carbon dioxide and monoxide, ammonia, hydrogen sulfide, phenol formaldehyde, ozone; – content of dust and microorganisms in the air; – level of industrial noise; – ionic composition of the air environment

Write down the number under which it is indicated.

Answer: 2.

Combined type tasks with a choice of several correct answers from the proposed options

Task 3.

Read the text and choose several correct answers.

In order to comprehensively assess the facilities in operation, the microclimate is studied Livestock and poultry buildings. Microclimate is the combination of physical and chemical parameters of the indoor air.

The microclimate of animal housing includes certain factors. Select the three correct options:
1. air temperature, internal surfaces of enclosing structures;
2. air temperature on the farm territory;
3. relative air humidity, humidity of the internal surfaces of the enclosing structures;
4. direction and speed of air flows in the area where animals are located, in exhaust and supply ventilation ducts, near windows and doors;
5. Wind direction and speed on the farm territory.

Answer: 1,3,4.

Task 4.

Read the text and choose several correct answers.

In order to comprehensively assess the facilities in operation, the microclimate is studied Livestock and poultry buildings. Microclimate is a combination of the physical and chemical parameters of the air and the lighting conditions of the building.

The microclimate of animal housing includes certain factors. Select the 5 correct options:
1. intensity of artificial and natural lighting, length of day, ultraviolet and infrared radiation;
2. the content of harmful gases - carbon dioxide and monoxide, ammonia, hydrogen sulfide, phenol, formaldehyde, ozone;
3. content of dust and microorganisms in the air;
4. methane content on the farm territory;
5. level of industrial noise;
6. ionic composition of the air environment.

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

Task 5.

Read the text and choose all the correct answers.

In order to comprehensively assess the facilities in operation, the microclimate is studied Livestock and poultry buildings. Microclimate is a combination of the physical and chemical parameters of the air and the lighting conditions of the building.

Depending on the research objectives, the frequency of measurements of indoor microclimate indicators may vary.

In general tomicroclimate researchIn livestock and poultry buildings, the level of humidity is within certain limits. Select the 6 correct options:
1.the microclimate during stationary studies is studied for 10–12 days during each month;
2. The microclimate during expeditionary research is studied for 10–12 days of each season of the year;
3.air temperaturemeasured three times a day, at the same time, in three vertical zones - 0.3–1.2 m from the floor and 0.6 m from the ceiling;
4. ambient air temperature on the farm territory - three times a day;
5. air mobilityindoors are measured for 4 days of each month depending on meteorological conditions,
6. air mobility during expeditionary research - for 4 days of each season of the year;
7. natural lightindoors, measurements are taken throughout the daylight hours every two hours 1–2 times a week in all periods of the year (at the level where the animals are located).

Answer: 1,2,3,5,6,7.

Closed-ended tasks to establish compliance

PC-12$_{ID-5}$ Know the procedure for conducting internal monitoring of the veterinary and sanitary condition of the facility and the microclimate of livestock premises, using digital equipment

Task 6.

Read the text and match.

PlanningAnti-epidemic and veterinary-sanitary measures are implemented at the farm, veterinary station, district, regional, republic, and national levels. Since the plans are prescriptive in nature, veterinary specialists planning anti-epidemic and veterinary-sanitary measures must have a sufficient understanding of livestock development plans, production technologies, and the specific epizootic situation.

The specific list of anti-epidemic measures is determined by the rules (instructions) developed for each infectious disease and the current epizootic situation.

Select the correspondence between the event included in the anti-epidemic measures plan and its content:

Event		**Content**	
A	**activities in a disadvantaged area**	1	Local authorities, farm managers and veterinary specialists are taking measures to prevent the spread of the disease among animals.
B	**activities in the threat zone**	2	A farm where outbreaks of an infectious disease are observed is declared unhealthy and measures are taken to eliminate the epizootic focus.
IN	**activities during quarantine**	3	Quarantine is a system of temporary measures, the purpose of which is to prevent the spread of an infectious disease beyond the primary focus.

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

A	B	IN

Answer: A2, B1, B3

Task 7.

Read the text and choose the matches

Microclimate is a combination of physical and chemical parameters of the air environment and the lighting conditions of the room.

TOThe main factors included in the concept of "microclimate of animal premises" include physical, chemical, biological and technological factors.

Select the correspondence between the factor and its content:

Factor		Content	
A	**physical factors**	1	housing system, number of animals per unit area, duration of maintenance breaks
B	**chemical factors**	2	elements and compounds that make up air
IN	**biological factors**	3	microbial and bacterial contamination of the surrounding air, as well as various types of viruses, fungi and helminths
G	**technological factors**	4	temperature, humidity, movement and electrical charge of the air environment

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

A	B	IN	G

Answer: A4, B2, B3, G1.

Task 8.

Read the text and match

Monitoring the veterinary and sanitary conditions of livestock facilities using digital equipmentincludes microclimate monitoring, feeding, manure removal, watering and other processes.

For microclimate monitoring They use devices that record parameters on special tapes or using sensors installed at specified points in the room and transmitting these parameters to the monitor screen (computer, TV).

Match the device name with its description:

	device		Description
A	**electrical thermometers**	1	are used to assess the surface temperature of enclosing structures
B	**digital hot-wire anemometers**	2	are used to measure air velocity in the range from 0.2 to 20 m/s.

IN	**thermal imagers**	3	allow you to measure the temperature of the air, walls, ceilings and internal enclosures in livestock buildings
G	video monitoring in direct recording mode	4	used to control feeding
D	video surveillance	5	used to control the filling and frequency of manure removal

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

A	B	IN	G	D

Answer: A3, B2, B1, G4, D5.

Task 9.

Read the text and match.

Veterinary and sanitary control in the Russian Federation is carried out by the Federal Service for Veterinary and Phytosanitary Surveillance (Rosselkhoznadzor). This service is under the jurisdiction of the Ministry of Agriculture of the Russian Federation.

Veterinary and sanitary control—This is a system for monitoring compliance with veterinary and sanitary regulations and the implementation of anti-epidemic measures.

Select the correspondence between the system and its functions.

System		**Functions**	
A	**veterinary and sanitary control**	1	**activities of specialists in the prevention and detection of violations**sanitary rules and rules of veterinary-sanitary examination by legal entities and individual entrepreneurs, citizens of all categories
B	**veterinary and sanitary control**	2	**activities of specialists to prevent violations** sanitary rules and rules of veterinary-sanitary examination in the production of precursors
IN	**veterinary and sanitary control**	3	**activities of specialists and prevention of violations** sanitary rules and rules of veterinary-sanitary examination by legal entities and individual entrepreneurs, citizens of all categories
G	**veterinary and sanitary control**	4	**system of control over the implementation of veterinary and sanitary rules**

D	**veterinary and sanitary control**	5	**system for monitoring the implementation of anti-epidemic measures,**aimed at protecting farm animals from infectious diseases and preventing human infection from them

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

A	B	IN	G	D

Answer: A1, B3, G4, D5.

Task 10.

Read the text and match

Objects of state veterinary control— these are enterprises, institutions, organizations, regardless of their subordination and form of ownership, as well as foreign legal entities, officials and citizens of the Russian Federation, foreign citizens and stateless persons.State veterinary supervision is regulated by the Law of the Russian Federation "On Veterinary Medicine".

The state veterinary supervision system monitors the veterinary and sanitary conditions of which objects of state veterinary supervision?

Action		**Object**	
A	veterinary and sanitary control	1	enterprises for the production of meat, milk, and eggs on an industrial basis, fur farms, fish farms, and beekeeping farms and subsidiary farms
B	veterinary and sanitary control	2	peasant (farm) households and personal subsidiary farms of citizens
IN	veterinary and sanitary control	3	meat processing plants, fish processing plants, dairies, cold storage plants and other enterprises for the processing and storage of livestock products
G	veterinary and sanitary control	4	**livestock/poultry farms**
D	veterinary and sanitary control	5	vessels for catching (extracting) fish and seafood, floating bases and other fish processing plants
E	veterinary and sanitary control	6	biological plants and factories for the production, storage and sale of precursors
AND	veterinary and sanitary control	7	biofactories, biological supply enterprises, veterinary pharmacies and other enterprises for the production, storage and sale of drugs and technical means for veterinary purposes.

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

A	B	IN	G	D	E	AND

Answer: A1, B2, B3, G4, D5, G7.

Closed-ended tasks to establish a sequence

PC-12$_{ID-5}$ Know the procedure for conducting internal monitoring of the veterinary and sanitary condition of the facility and the microclimate of livestock premises, using digital equipment

Task 11.

Read the text and establish the sequence.

Veterinary, sanitary and industrial controlat facilities subject to state veterinary supervision, it is aimed at ensuring the release of high-quality meat products for sale or industrial processing.

Veterinary, sanitary and industrial control begins with the arrival of livestock and includes a number of processes.

Set the sequence of processes:

1. checking the correct execution of the veterinary certificate, the presence of tags on animals and their compliance with the accompanying documents;
2. general inspection of livestock and thermometry;
3. establishment of quarantine in the event of discrepancy between the data in the veterinary certificate and the herd register and the presence of animals, death of livestock en route or upon acceptance at the enterprise, or suspicion of the presence of sick livestock;
4. During the processing of by-products, veterinarians monitor compliance with sanitary regulations for meat and poultry processing enterprises.

Answer: 1,2,4,3.

Task 12.

Read the text and establish the sequence.

The specific list of health measures is determined by the rules (instructions) developed for each infectious disease and the current epizootic situation.

Some of the activities included in the anti-epidemic action plan are presented below.

Establish a sequence of health measures included in the anti-epidemic measures plan:

1. Activities in a disadvantaged area.A farm where outbreaks of an infectious disease are observed is declared unhealthy and measures are taken to eliminate the epizootic focus.
2. Activities in the threatened area Local authorities, farm managers, and veterinary specialists are taking measures to prevent the spread of the disease among animals.
3. Activities during quarantine Quarantine is a system of temporary measures aimed at preventing the spread of an infectious disease beyond the primary outbreak.

Answer: 1,3,2.

Task 13.

Read the text and establish the sequence.

There are certain requirements for livestock premises

when organizing the work of veterinary specialists in infectious disease outbreaks agricultural animals, in accordance with the plan of anti-epidemic measures, the plan for the prevention of non-communicable animal diseases, and the plan of veterinary and sanitary measures.

Establish a sequence of requirements for livestock facilities in accordance with the plan for anti-epidemic measures, the plan for the prevention of non-communicable animal diseases, and the plan for veterinary and sanitary measures:

1. Complexes and farms must operate on a closed-type principle, have reliable fencing around the perimeter of the territory and the necessary veterinary facilities.
2. Entry into the production area is permitted only through the sanitary checkpoint, and entry of vehicles is permitted through a permanent disinfection barrier.
3. All newly arrived animals must be subject to preventive quarantine.
4. When keeping animals (especially when raising young animals), it is necessary to comply with the established parameters of the microclimate of the premises, recorded by special digital equipment/devices.
5. It is necessary to systematically clean livestock buildings and farm areas from manure.

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

Task 14.

Read the text and establish the sequence.

Planning anti-epidemic measures is necessary to protect animals, prevent the spread of contagious, including dangerous, diseases, and ensure Russian regions have the necessary supplies of veterinary drugs. A consolidated anti-epidemic plan is approved for an annual period and is based on data from the Federal State Veterinary Information System (VetIS, Rosselkhoznadzor), as well as regional data on animal numbers. This plan includes various activities and studies.

Please list the sequence of events in order of importance:

1. diagnostic studies of animals,
2.preventive vaccinations,
3. entomological research,
4.therapeutic and prophylactic treatments,
5. measures to eliminate outbreaks of infectious diseases,
6. deworming measures.

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

Task 15.

What is included in the list of veterinary and sanitary measures at poultry farms?
Read the text and establish the sequence.

Veterinary and sanitary measures at poultry farms include:

1. Compliance with the closed-type enterprise regime, prohibition of entry into production areas for unauthorized persons and entry of vehicles not related to servicing the enterprise.
2. Equipment for disinfection ditches for disinfecting footwear at the entrance to poultry houses, hatcheries, slaughter and processing plants, and feed storage facilities.
3. Equipping ventilation openings with frames with mesh to prevent wild birds from flying in.
4. A ban on keeping poultry of any kind in private households for workers and employees of the enterprise.
5. Recruitment of livestock from a single source - a breeding poultry farm free from contagious bird diseases.
6. Disinfection of premises and quality control.
7. Feeding birds with complete, factory-made compound feeds that have undergone heat treatment.
8. Culling of sick and suspected birds, which are killed and processed separately from healthy ones.
9. Transportation of poultry and products in clean, pre-disinfected containers.
10. Preventive vaccination of chicken flocks against various infectious diseases.

Answer: 1,2,3,5,6,8,7,9,10,4

OPEN-TYPE TASKS

PC-12$_{ID-5}$ Know the procedure for conducting internal monitoring of the veterinary and sanitary condition of the facility and the microclimate of livestock premises, using digital equipment

Task 16.

Read the text and write a detailed, reasoned answer.

Monitoring the veterinary and sanitary conditions of livestock facilities using digital equipment In addition to monitoring the microclimate, it also includes control of feeding, watering, and other processes.

Give examples of the use of digital equipment**to monitor these systems.**

Answer: 1. Thermal imagers are used to assess the temperature of the surfaces of enclosing structures;
2. creation of control algorithms for the drinking system (temperature and contamination of drinking bowls with feed residues) for cattle and poultry, taking into account the quality of water, the number and capacity of drinking bowls;
3. Animal identification is an element of a digital solution for livestock farming. It consists of information systems and technical tools that enable the efficient allocation of resources and precise monitoring of key production processes on the farm, such as milking, insemination, and sorting.
4. Video monitoring in feeding control technology – used with software packages to monitor and control the distribution of feed mixtures on cattle farms. Information from sensors is transmitted via Wi-Fi to feed dispensers, where a complete ration is created;
5. An intelligent video surveillance system based on artificial intelligence and machine vision allows for monitoring animal behavior and surrounding infrastructure, as well as determining the overall health of the herd. It detects animals on video, tracks their movement, and ensures that each animal is counted only once. It is used to monitor processes in livestock and poultry farming.

Task 17.

Read the text and write a detailed, reasoned answer.

Planning of preventive anti-epidemic measures (PEM) is carried out to prevent the emergence and spread of infectious animal diseases, as well as the introduction of new, rare, and previously unseen diseases into the Russian Federation. PEM consists of diagnostic tests, preventive vaccination, and therapeutic and prophylactic treatment.

What role does the consolidated plan of the EMP play in planning preventive anti-epidemic measures, including those using digital equipment?

Answer: 1. Planning is carried out in accordance with the consolidated plan of the EMP It is approved for the upcoming calendar year by the federal executive body in charge of the agro-industrial complex, including veterinary medicine.

2. The consolidated plan is formed on the basis ofinformation contained in the federal state information system (FSIS) in the field of veterinary medicine.

3. The plan must contain:

-quantitative indicators of the PEM (number of unfavorable points, distribution of epizootic foci/unfavorable points,

- animal morbidity, number of new cases of the disease),
- animal species for which the PEM is planned to be carried out,
- list of infectious animal diseases,
- necessary for conducting preventive PEM: microclimate equipment, including digital; disinfectants; medicines; diagnostic tools.

Task 18.

Read the text and write a detailed, reasoned answer.

Monitoring the veterinary and sanitary conditions of livestock facilitiesincludes a number of measures aimed at protecting animals from infectious diseases; creating optimal conditions for keeping and feeding; protecting the sanitary condition of feed, drinking water, and products and raw materials obtained from animals.

List the main ones**control methods veterinary and sanitary condition of livestock premises:**

Answer:**1.Visual control**Compliance with sanitary regulations is checked, including the cleaning and sanitization of premises, equipment, and inventory.

2Laboratory and instrumental control Laboratory and instrumental research and measurement methods are used to objectively characterize physical, chemical, and biological factors that can have an adverse effect on the animal's body.

3. Development of a detailed process map or work instruction The document describes all technological processes and operations, specifies the time interval, equipment used, detergents and disinfectants, concentrations, and methods for preparing working solutions.

4. Control of consumption of detergents and disinfectants The amount of funds required to carry out sanitary measures is determined empirically.

Task 19.

Microclimate is a combination of physical and chemical parameters of the air environment and the lighting conditions of the room.To monitor the microclimate, devices are used that record parameters on special tapes or using sensors installed at specified points in the room and transmitting these parameters to the monitor screen (computer, TV).

Tell us about the main parametersmicroclimate of livestock buildings, which are studied using digital equipment:
Answer: 1) temperatureair, interior surfaces of walls, ceilings, floors, windows, and doors. Electrical thermometers are used for measurement;
2) humidityair, interior surfaces of walls, floors, ceilings, windows, and doors. Psychrometers are used to measure humidity;
3) direction and speed of air currentsin areas where animals are located, in exhaust and supply ducts, near windows, doors, and other places. Thermoanemometers are used for diagnostics;
4) intensity of artificial and natural lighting Lighting affects the animal's stress level and feed intake, which is reflected in the productivity of farm animals;
5) level of harmful gases— carbon dioxide, ammonia, hydrogen sulfide, and others. Gas analyzers are used for analysis;
6) dust and microorganism contentin the air. Dust sensors are used for measurements;
7) industrial noise level Due to equipment operation. Industrial noise negatively impacts the health and productivity of animals. For farm animals, noise levels should not exceed 65–70 dB. Sound level meters are used to analyze noise levels;
8) aeroion background— the degree of air ionization, that is, the presence of positively and negatively charged particles (aeroions). The level of air ionization depends on the climatic and geological characteristics of the area, the season, and the degree of air pollution. Artificial air ionization in barns can be used to prevent diseases, improve animal productivity, and enhance their natural resistance. Air ion generators are used to study the level of air ionization in livestock buildings, and an air ion counter is used for analysis.

Task 20.

Read the text and write a detailed, reasoned answer.

In terms of its impact on animal productivity, the microclimate of the facility is second only to the breed and feeding. Recommended microclimate parameters in livestock facilities are contained in the relevant Standards for the Technological Design of Livestock Farms and must be maintained regardless of the season, weather conditions, and other significant factors. The key parameters that must be monitored in livestock facilities are the temperature and relative humidity inside the facility, the concentration of harmful gases, and the air velocity.

Tell us about the situation abroad and in the Russian Federation with technical systems for ensuring an optimal microclimate in livestock buildings.

Answer: Currently, a number of technical systems have been developed in Russia and abroad to ensure normal living conditions for animals. These systems necessarily include devices for measuring and monitoring microclimate parameters in real time, including monitoring the gas composition of the air (CO2, CH4, H2S, NH3, CO), as it is the gas composition of the air, particularly elevated carbon dioxide and ammonia levels, that negatively impacts cow productivity.

The old domestic climate control systems installed in our livestock buildings do not have the full range of modern control parameters required.

However, in recent years, the Russian Federation has already developed basic requirements for a domestic system for monitoring the microclimate of livestock buildings (Universal System Designer), which surpasses foreign analogues.

Developed domestic systemThe microclimate monitoring system for livestock buildings has the following technical characteristics, please list them:
1.scalability;
2. implementation on a domestic element base;
3. ease of operation, maintenance and repair;
4. compliance with modern technical requirements;

5. microclimate control for keeping animals in accordance with zootechnical standards;
6. the possibility of using wired and wireless communication lines to record the registered parameters;
7.Possibility of pressure difference up to 50Pa;
8. There are 3 levels of data protection provided for clean rooms;
9. Multi-level SMS, E:mail.

PC-13 Organization of measures to protect enterprises
from the introduction of infectious and invasive diseases in accordance with the plan of anti-epidemic measures

PC-13 ID-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

CLOSED TYPE TASKS

Combined type tasks with a choice of one correct answer from the proposed options

Task 1.

Read the text and choose one correct answer.

Rabies is:
1. anthroponotic infection;
2. airborne infection;
3.zoonotic infection;
4.transmissible infection;
5. sapronosic infection.

Answer: 3

Task 2.

Read the text and choose one correct answer.

The main tasks and principles of anti-epidemic work.

Who determines the need to introduce restrictive measures/quarantine in the event of the emergence and spread of mass infectious diseases, including zoonoses?
1.Government of St. Petersburg;
2. Veterinary Department;
3. Administration of the district of St. Petersburg;
4. head of the farm.

Answer: 1.

Task 3.

Read the text and choose one correct answer.

Which of the following infections are called contact infections based on the method of transmission of the pathogen?
1. flu
2. Newcastle disease;

3. leptospirosis;
4. foot-and-mouth disease;
5. rabies.

Answer: 5.

Combined type tasks with a choice of several correct answers from the proposed options
PC-13 Organization of measures to protect enterprises
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Task 4.

Read the text and choose several correct answers.

Anti-epidemic measures Aimed at preventing the emergence and spread of infectious animal diseases, these programs include diagnostic testing, preventive vaccination, and therapeutic and prophylactic treatments.

Anti-epidemic measures are carried out in accordance with the consolidated plan,which should contain:
1. quantitative indicators of anti-epidemic measures;
2. species of animals for which they are planned to be carried out;
3. a list of infectious animal diseases for which measures are planned;
4. a list of human infectious diseases for which measures are planned;
5.medicines and diagnostic tools necessary for their implementation;
6. final quantitative indicators for the Russian Federation and for each subject of the Russian Federation, indicating the planned source of funding.

Answer: 1,2,3,5,6

Task 5.

Read the text and choose all the correct answers.

General prevention of infectious diseases, including zoonoses, is a system of state measures that ensure the prevention of the emergence and spread of diseases in prosperous farms and throughout the country.

Preventive measures on a national scale include:

1. protection of borders from the introduction of pathogens of infectious animal diseases from abroad into the country;

2. sanitary and epizootological supervision during procurement, movement of animals and transportation of raw materials of animal origin by road, rail, water and air transport;

3. sanitary and epizootological supervision of bazaars, markets, exhibitions, procurement bases and other points of temporary concentration of animals;

4. sanitary and epizootological control over meat-packing plants, slaughterhouses and slaughterhouses, as well as enterprises and organizations engaged in the procurement, storage and processing of raw materials of animal origin;

5. protection of livestock farms from the introduction of infectious disease pathogens from unfavorable areas, as well as the organization of preventive measures in specific farms and settlements;

6. veterinary educational work and animal insurance.

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

Closed-ended tasks to establish compliance

PC-13 ID-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

Task 6.

Read the text and match.

Epizootological experiment— a research method aimed at modeling the natural course of infectious and epizootic processes of a specific disease to evaluate the effectiveness of anti-epidemic measures. The need for an epizootic experiment arises when it is impossible to reliably characterize the epizootic situation on a farm using epizootic surveys and clinical laboratory methods.

Select the correspondence between the variant of the epizootological experiment and its characteristics.

Option		**Characteristic**	
A	biological sample (biological assay)	1	a veterinarian infects healthy susceptible animals with pathological material from an infectious animal, observes and records the onset, severity, and end of the disease
B	controlled cohort experiment	2	comes down to the implementation and evaluation of the effectiveness or results of anti-epidemic measures initiated on the farm, regardless of whether the diagnosis of the disease is known or not
IN	uncontrolled epizootological experiment	3	During the epizootic process on a farm, an epizootologist forms equal groups (cohorts) of animals: sick and healthy. The role of the main or leading factor in the development of the epizootic process is assessed by the increase or decrease in morbidity, mortality, and

			recovery in both groups of animals.
G	natural experiment	4	A targeted analysis of the impact of various factors on a naturally occurring epizootic (infectious) process when assessing enzootic-scale morbidity, natural focal hazards, and man-made and anthropogenic factors. In such an experiment, the veterinarian or epizootologist does not intervene in the process, but merely tracks the degree and extent of the impact of individual factors on a micropopulation of farm animals based on the increase or decrease in morbidity and mortality of sick animals.

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

A	B	IN	G

Answer: A1, B3, B2, D4

Task 7.

Read the text and match.

In epizootology, various forms of infectious disease manifestation are distinguished, which reflect either the general nature of the infectious process (IP) or the predominant localization of the pathogen.

Establish a correspondence between the form of manifestation of an infectious disease and its characteristics:

	Form		**Characteristic**
A	typical(obvious infection)	1	the most pronounced, clinically evident form of infection. The pathological process is characterized by certain clinical and pathological signs.
B	latent (asymptomatic,latent, dormant, unmanifested, inapparent) infection	2	This form has no clinical signs, but antibody production may occur. IP is not externally evident. It is possible to determine the periods of IP, its onset, progression, and decline, as well as the development of immunological reactions.
IN	secondary infection (secondary).	3	occurs when, after complete clinical recovery and the release of the animal's body from the pathogen, it

			becomes ill again as a result of a new infection with the same pathogen
G	reinfection	4	occurs when another disease caused by a new pathogen joins the main primary disease
D	**microbial carriage**	5	The infectious agent is present in the body of a clinically healthy animal. The macroorganism and the microorganism exist in a state of equilibrium. Microbial carriers are hidden sources of the infectious agent and are difficult to detect.

Write the selected numbers under the corresponding letters:

A	B	IN	G	D

Answer: A1, B2, B4, G3, D5.

Task 8

Read the text and match.

There are several forms of manifestation of the course of an infectious disease, depending on the nature and duration of the clinical manifestation,

Select the correspondence between the form of manifestation of an infectious disease and its characteristics:

Form		**Characteristic**	
A	hyperacute (lightning) current	1	characterized by a short-term presence of the pathogen in the patient's body and the formation of immunity to this type of pathogen, expressed to varying degrees
B	spicyflow	2	in which the animal dies within a few hours as a result of rapidly developing sepsis. Typical clinical signs in such cases do not have time to develop.
IN	subacute course	3	the course lasts 2-3 weeks, clinical signs are typical, but not clearly expressed; pathological changes are characteristic
G	chronic course .	4	The disease can last for months or even years. Clinical signs are mild, sometimes absent altogether (in cases of IAI), making diagnosis difficult.

			This course of the disease occurs when the pathogen's virulence decreases and the animal develops a relatively high resistance.
D	benign course	5	a course of disease in which the infectious process quickly ends with the animal's recovery
E	malignant course	6	characterized by high mortality due to the reduced natural resistance of the animal and the presence of a highly virulent pathogen

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

A	B	IN	G	D	E

Answer: A2, B1, B3, G4, D5, E6.

Task 9.
Read the text and choose the matches

Zoonoses(zoonotic infections) -**a group of infectious and parasitic diseases whose pathogens are transmitted to humans from other animals.**

Select the correspondence between the nosological form of the disease and its definition:

Form		**Definition**	
A	anthrax	1	a particularly dangerous, acute septic disease of animals of many species and humans, caused by Bacillus anthracis, characterized by septicemia, lesions of the skin, intestines, lungs, lymph nodes, and death of sick animals
B	tuberculosis	2	a chronic zoonotic disease of animals and humans, manifested in females mainly by abortions and retained placenta, and in males by orchitis and epididymitis
IN	brucellosis (Malta fever)	3	a severe chronic disease of many animal species and humans, characterized by the formation of specific nodules in various organs—tubercles—that undergo caseous necrosis and calcification

G	leptospirosis(Weil's disease, canine typhus)	4	a mainly acute natural focal disease of animals of many species and humans, manifested by short-term fever, hemoglobinuria or hematuria, hemorrhages, icteric discoloration and focal necrosis of the mucous membranes and skin, atony of the gastrointestinal tract, abortions, mastitis, the birth of non-viable offspring, periodic ophthalmia and meningoencephalitis, and decreased animal productivity
D	tularemia	5	a natural focal, transmissible infectious disease of mammals of many species, birds and humans, manifested by septicemia, fever, damage to the mucous membranes of the upper respiratory tract and intestines, enlargement and caseous degeneration of regional lymph nodes (lymphadenitis), the appearance of inflammatory-necrotic foci in the liver, spleen and lungs, emaciation, mastitis, abortions, damage to the nervous system and paralysis
E	tetanus	6	an acute, non-contagious wound toxicoinfectious disease of mammals, birds and humans, characterized by increased reflex excitability, convulsive tonic spasms of the body muscles under the influence of the pathogen's toxin

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

A	B	IN	G	D	E

Answer: A1, B3, B2, G4, D5, E6.

Task 10.

Read the text and match.

Many epizootological features of zoonotic infectionsare associated with the presence of factors influencing the spread of these diseases.

Establish a correspondence between the factors and their characteristics:

	Factor		**Description**
A	**technological progress and**	1	Travel, business trips, and labor migration, which have intensified with the development of transport and

	development of global infrastructure		international trade, lead to the rapid spread of infections over long distances
B	**population density**	2	increase the risk of zoonotic diseases due to increased human contact with wild animals
IN	**lack of medical infrastructure**	3	In some developing regions, such as India and Africa, access to health services is limited, making it difficult to control infectious diseases.
G	**ecosystem transformation**	4	Deforestation, mining, changes in agricultural and food production systems, and wildlife trade increase opportunities for the spread of animal-borne pathogens
D	**urbanization and destruction of natural habitats**	5	In large cities and in developing countries such as India, China and Africa, infections can spread more quickly due to close contact between people

Write the selected numbers under the corresponding letters:

A	B	IN	G	D

Answer: A1, B5, B3, G4, D2.

Closed-ended tasks to establish a sequence

PC-13 Organization of measures to protect enterprises
from the introduction of infectious and invasive diseases in accordance with the plan of anti-epidemic measures

PC-13 ID-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

Task 11.

Read the text and establish the sequence.

Upon receipt of information about a case of a suspected infectious disease, in accordance with current regulatory legal documents, an official of the executive authority of a constituent entity of the Russian Federation must ensure that specialists from the state veterinary service are sent to the location of susceptible animals suspected of having the disease to conduct an epizootological investigation to establish a causal relationship and draw up an epizootological investigation report.

In the event of a suspected outbreak of an infectious disease, a task force of specialists must carry out specific measures in an established sequence.

Establish the correct sequence of these steps:

1. assess the clinical picture;
2. assess the epizootological situation;
3. organize the collection of samples and the analysis necessary for the diagnosis of the pathogen;
4. determine the size of the population of animals that may be at risk of infection;

5. Provide a list of actions and measures that must be taken to prevent the spread and eliminate possible sources of infection.

Answer: 1,2,3,4,5

Task 12.

Read the text and establish the sequence.

Complex epizootological research method - Thisa set of methodological techniques and a specific system of analysis epizootological data aimed at revealing the characteristics of the epizootic process, the correct diagnosis of infectious diseases, and determining the effectiveness of preventive and health measures.

The integrated epizootological method provides for a certain set of approaches.

Put them in the correct order:

1. epizootological survey of farms and monitoring of them;
2. comparative-historical description of the epizootic process;
3. comparative geographical description of the epizootic process;
4. epizootological experiment;
5. statistical research and epizootological analysis.

Answer: 1,2,3,4,5

Task 13.

Read the text and establish the sequence.

Laboratory methods for diagnosing rabies have a certain sequence.

Install it:

1. histological (microscopic examination of sections or smears of the brain and salivary glands to detect Babes-Negri bodies);
2. PCR diagnostics;
3. serological (ELISA, RIF);
4. bioassay on mice, rabbits, guinea pigs, hamsters.

Answer: 1,3,2,4

Task 14.

Read the text and establish the sequence

The pathogenesis of tuberculosis infection is presented in the form of certain phases, name them:

1. infiltrative phase (the emergence of a primary focus – infiltrate);
2. decay of the focus;
3. seeding of nearby organs with mycobacteria;
4. resorption of the infiltrate;

5 scarring;

6. compaction;
7. calcification of the infiltrate.

Answer: 1,2,3,4,6,5,7.

Task 15.

Read the text and establish the sequence

The pathogenesis of the zoonotic infection tetanus is presented in the form of certain phases, name them:
1. Tetanus spores, having entered damaged tissue, in the presence of anaerobic conditions, multiply at the site of penetration.
2. They secrete toxins (mainly tetanospasmin).
3.Under the influence of the toxin, acetylcholine is released into the nerve synapses, irritating nerve cells.
4. The toxin penetrates the spinal cord and medulla oblongata via the bloodstream/nerve trunks and is adsorbed at the endings of motor neurons.
5. Overexcitation of nerve cells causes increased reflex excitability and prolonged tetanic convulsions (rigidity).
6. Continuous muscle contractions make it difficult to take in food, the heart and lungs work, and cause exhaustion of the body and a large loss of energy.
7. The death of an animal occurs as a result of exhaustion due to loss of energy by the body, asphyxia and circulatory failure, paralysis of the respiratory center and heart.

Answer: 1,2,4,3,5,6,7

OPEN-TYPE TASKS

PC-13 Organization of measures to protect enterprises from the introduction of infectious and invasive diseases in accordance with the plan of anti-epidemic measures

PC-13 ID-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

Task 16.

Read the text and write a detailed, reasoned answer.

What is the essence of veterinary and sanitary requirements?

Answer**: 1) veterinary and sanitary requirements are requirements aimed at preventing the import and spread of pathogens of contagious animal diseases into the territory,**including zoonoses,goods (products) of animal origin that are dangerous in veterinary and sanitary terms;
2) they are established by veterinary rules and regulations, non-compliance with which creates a threat of the emergence and spread of animal diseases;
3) veterinary and sanitary requirements are also imposed on facilities where activities related to the cultivation (breeding and keeping of animals), production, processing and storage of goods subject to veterinary control (supervision) are carried out.
4) for example, such requirements include providing the facility with drinking water, electricity and convenient access roads, the presence of a system for the removal of atmospheric, melt and waste water, hard surfaces on roads and technological sites, etc.

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Task 17.

Read the text and write a detailed, reasoned answer.

The accumulated experience of international measures to prevent the spread of dangerous infections has shown that without a rapid and centralized system for exchanging epidemiological information between states, it is impossible to promptly take appropriate national and international security measures.

Tell us about conventional (quarantine) and especially dangerous infections, describe their features.

Answer: 1. Conventional(the old name "quarantine" from the Italian carante) disease is a disease whose information system and preventive measures are stipulated by international agreements (conventions), i.e. these are diseases that fall under the International Health Regulations and are subject to international sanitary and epidemiological surveillance.

2. On October 1, 1952, international conventions regarding plague, cholera, yellow fever and smallpox as particularly dangerous infections came into force.

3. The main objective of the Rules is to ensure anti-epidemic protection of states from the introduction of infections.

4. The regulations obligate national health authorities to immediately notify WHO of the emergence of conventional diseases and regularly report on the epidemiological situation in the country. WHO, in turn, is responsible for the rapid dissemination of information received.

5. Currently, conventional diseases include plague, yellow fever, cholera, and a group of highly infectious diseases (HIDs) capable of sudden onset, rapid spread, and widespread population spread. HIDs are characterized by severe illness and high mortality. In addition to the conventional diseases mentioned above, HIDs include typhus and relapsing fever, polio, influenza, anthrax, tularemia, brucellosis, arbovirus infections, botulism, and others.

6. Rapid diagnostic methods are especially important for the timely detection of infectious diseases. All work with microbes that cause infectious diseases is conducted in specialized international laboratories.

Task 18.

Read the text and write a detailed, reasoned answer.

Please tell us what the Anti-Epizootic Measures Plan project is, which is carried out after a laboratory diagnosis of a dangerous infectious disease has been established.

Answer: After a diagnosis of a dangerous infectious disease, including a zoonosis, is confirmed by laboratory testing, taking into account the preliminary epizootic diagnosis, a draft Epizootic Action Plan (EAP) is immediately prepared. These measures are necessary to contain and eliminate the epizootic outbreak and prevent the spread of the pathogen, in accordance with applicable legal regulations. The Plan specifies the responsible persons and the timeframes for implementing the measures.

As new information emerges and laboratory test results are received, the epizootological diagnosis is clarified and measures are adjusted.

The Plan must provide for:

1. interdepartmental interaction during the implementation of primary medical examinations with the executive authorities of the constituent entity of the Russian Federation, municipal authorities, and other structures, assigning to them the implementation of the relevant primary medical examinations depending on the nosology and scale of the outbreak;
2. clarification of the number of animals in the outbreak, problem area, or threatened zone;
3. active identification and isolation of sick animals;
4. a list of measures aimed at breaking three links in the epizootic chain;
5. implementation of measures to remove and destroy all susceptible animals and animal products contaminated with the pathogen, in accordance with current legislation);
6. examination of animals at risk of infection;
7. Establishing observation for a period of three incubation periods for animals exposed to the risk of infection;
8. organization of forced vaccination (if necessary);

9. organization and implementation of disinfection (deratization, disinfestation) works;
10. active explanatory work among the population, preparation of leaflets, bulletins, etc.;
11. conducting monitoring studies in populations of susceptible animals (if necessary);
12. attraction of forces and logistical support with an indication of the source of funding.

Task 19.

Read the text and write a detailed, reasoned answer.

Please describe the work of the working group of specialists after a final diagnosis of a dangerous infectious disease, including a zoonosis, has been established and the Plan for Anti-Epizootic and Preventive Measures has been approved.

Answer: The measures outlined in the Plan depend on the current situation and are developed taking into account current regulatory and methodological documents regarding the identified nosological entity.

Upon arrival at the outbreak site, the working group assesses the clinical picture and analyses epizootological data to conduct an epizootological investigation.

The tasks of the Working Group are:

1) establishing the probable source of the pathogen;
2) establishing the probable date of introduction of the infectious agent into the population;
3) establishing the possible spread of the disease and its scale;
4) recommendations on testing, sampling, laboratory testing procedures, control and other measures, including recommendations on biosecurity measures on farms/herds and on emergency vaccination;
5) conducting and registering epizootological investigations;
6) collection of epizootological data related to geographical, meteorological and other necessary information;
7) analysis of epizootological data and regular risk assessment;
8) assisting in ensuring that animal carcasses and animal waste are handled with minimal harmful impact on the environment;
9) Upon completion of the epizootological investigation at the outbreak, the working group prepares a "Report on the epizootological investigation of the outbreak of an infectious disease with the establishment of a cause-and-effect relationship," which should contain proposals for eliminating the causes that led to the outbreak.

Task 20.

Read the text and write a detailed, reasoned answer.

In the event of a quarantine infection occurring anywhere on the planet, in accordance with the WHO Health Regulations, a special System for processing epidemiologically and epizootologically important data comes into force, with the adoption of appropriate management decisions.

Describe the algorithm of actions of the aforementioned System when a particularly dangerous infection outbreak occurs:

Answer: 1. Any country in the world after a final diagnosis of a quarantine infection (plague, yellow fever and cholera, typhus and relapsing fever, poliomyelitis, influenza, anthrax, tularemia, brucellosis, arbovirus infections, botulism, etc.)
sends information to WHO about emerging cases;
2.WHO processes these materials and sends them to all countries of the world;
3. countries of the world, having received this information about an unfavorable epizootic/epidemic situation, make a decision to carry out special anti-epidemic/anti-epidemic measures and inform the WHO about this;
4.WHO processes the received information and sends it to all countries of the world;

5. All epidemiologically/epizootically significant information from the territory of any country in the world is first sent to the WHO Database, where it is analyzed and processed.using geoinformation technologies, including GIS, to make management decisions to eliminate a particularly dangerous infection;
6.at the level of the Russian Federation, the processing of veterinary-significant information is carried out by Information and analytical center and Information and computing center as part of the All-Russian Research Institute of Animal Husbandry (Vladimir).

PC-14 Organization of preventive immunizations (vaccinations), therapeutic and prophylactic treatments of animals in accordance with the plan of anti-epidemic measures, analysis of the effectiveness of measures to prevent animal diseases with the aim of improving them

PC-14 ID-1 Be able to evaluate the effectiveness of preventive measures taken and methods of their implementation, including the use of digital technologies

CLOSED TYPE TASKS

Combined type tasks with a choice of one correct answer from the proposed options

PC-14 ID-1 Be able to evaluate the effectiveness of preventive measures taken and methods of their implementation, including the use of digital technologies

Task 1.

Read the passage from the text and choose the correct answer.

What zoonotic pathogens are spread by airborne droplets?

1. tetanus;
2. pseudotuberculosis;
3. flu;
4. listeriosis;
5. leptospirosis.

Answer: 3

Task 2.

Read the passage from the text and choose the correct answer.

What is the route of infection outside the epizootic zoonotic focus of brucellosis?:

1.water;
2.alimentary;
3. contact;
4.sexual;
5. airborne.

Answer: 2

Task 3.

Read the text and choose one correct answer.

The main source of brucellosis, as a zoonotic disease, is:

1. small rodents, gophers

2. ticks, mosquitoes
3. wild animals
4. cattle, deer, pigs
5. sheep, goats

Answer: 5.

Combined type tasks with a choice of several correct answers from the proposed options

Task 4.

Read the text and choose several correct answers.

The arsenal of means for specific prevention of infectious diseases, including zoonoses, includes biological drugs.

Which of these drugs create active immunity?

1. vaccines;
2. blood serum;
3. immunoglobulins;
4. anatoxins;
5. phages.

Answer: 1.4

Task 5.

Read the text and choose several correct answers.

Biopreparations are biological products used for the diagnosis and prevention of infectious diseases, treatment of animals and increasing their productivity.

Which of these drugs are diagnostic?

1. allergens;
2. antigens;
3. diagnostic serums;
4. immunoglobulins;
5. bacteriophages;
6. Anatoxins.

Answer: 1,2,3,5

Closed-ended tasks to establish compliance

PC-14 ID-1 Be able to evaluate the effectiveness of preventive measures taken and methods of their implementation, including the use of digital technologies

Task 6.

Read the text and match.

Immunization plays an important role in the system of anti-epidemic measures.It is one of the methods of prevention and control of infectious diseases of animals.

Match the types of vaccinations with their characteristics:

Vaccination can be:

2.

Vaccination		Characteristic	
A	safety	1	

			immunize animals from a healthy herd to prevent the occurrence of the disease
B	forced	2	ready-made protective substances are introduced into the body: serums of immunized or hyperimmunized animals, serums of convalescents or animals that have recovered from the disease, immunolactones, as well as active components (globulins) isolated from serums
IN	active	3	Vaccines and toxoids are used to create active immunity
G	passive	4	carried out in a disadvantaged farm in the presence of cases of disease

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

A	B	IN	G

Answer: A1, B4, B3, G2.

Task 7.

Read the text and match.

Controlled and uncontrolled infections— veterinary concepts that are related to the development of measures to combat animal diseases.

Match infection manageability to infection characteristics.

	Ability		**Characteristic**
A	**controllable infections**	1	These are diseases for which scientifically proven measures have been developed and their effectiveness proven. There are two types: infections controlled by immunoprophylaxis (anthrax, clostridiosis, sheep pox, trichophytosis, and calf respiratory viral diseases) and infections controlled by veterinary and sanitary measures, including a combination of disinfection, disinfestation, and deratization (anthrax, tuberculosis, sheep and goat pox, CSF, swine erysipelas, Aujeszky's disease, ND, IBD, and Marek's disease).
B	**uncontrollable infections**	2	These are diseases for which effective measures have not been developed. Examples: listeriosis, edema disease and other factor infections, PPR, bluetongue, bovine spongiform encephalopathy, listeriosis, and urticaria.

Write the selected numbers under the corresponding letters:

A	B

Answer: A1, B2.

Task 8.

Read the text and match

The effectiveness of veterinary measures, including preventive and anti-epidemic ones, can be increased through the use of digital technologies.

Match digital technologies with their capabilities.

Technology		**Opportunity**	
A	veterinary control sensors, video cameras and other digital equipment	1	To provide high-quality veterinary care, reduce the number of practice hours; the possibility of remote work
B	software: Microsoft Excel, SQL Server and Oracle systems, SPSS and SAS, etc.	2	**For**Analyzing large amounts of data and identifying patterns in animal illness before irreversible problems arise; predicting diseases; and making informed decisions based on data
IN	televeterinary science	3	**to improve monitoring of the condition of animals and diagnosis of pathologies in them**
G	blockchain technology	4	**for efficient resource management:**supply chain control for animal feed, veterinary drugs, diagnostic kits, vaccines, etc.

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

A	B	IN	G

Answer: A3, B2, B1, D4.

Task 9.

Read the text and choose the matches

Animal vaccination plays a vital role in anti-epidemic measures, creating a state of specific resistance (immunity) to a specific infectious disease pathogen. Vaccination helps prevent the emergence of diseases and halt their further spread. Vaccinations are only effective when combined with veterinary, sanitary, restrictive, and zoohygienic measures.

Select the correspondence between the stages of organizing preventive vaccinations of animals and their content:

Stage		**Content**	
A	**preparation of the veterinary specialist's workplace**	1	Taking into account the clinical condition of animals: vaccination of animals with elevated body temperature and clinical signs of damage to the

			respiratory, gastrointestinal tract, cardiovascular and nervous systems, as well as weakened animals is not permitted
B	**quality control of biopreparations**	2	determination of the vaccine's validity (integrity of packaging and closure, absence of impurities, solubility, compliance with the expiration date)
IN	**individual approach to animals**	3	creating conditions for the fixation of animals (split, pens) and ensure the required number of workers
G	**preparation of necessary tools, special clothing and disinfectants**	4	if necessary, organizing the marking of vaccinated animals
D	**drawing up a report**	5	it indicates the name of the farm or locality where the vaccination was carried out, the type of animals vaccinated, the disease against which the livestock was vaccinated, the name of the vaccine with the dose, date and place of its production
E	**monitoring of vaccinated animals**	6	For 10–12 days, observation is conducted to identify possible post-vaccination complications in individual animals. If such animals are detected, they are separated from the general herd and treated. Vaccinations are carried out in accordance with anti-epidemic work plans, which are drawn up and carried out by veterinary specialists of the production service of farms of all organizational and legal forms and the state veterinary service.

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

A	B	IN	G	D	E

Answer: A3, B2, B1, G4, D5, E6.

Task 10.

Read the text and match.

Digital technologies in veterinary medicine— is a series of measures, systems, tools and laboratory equipment aimed at optimizing the work of veterinary specialists, increasing the efficiency of diagnostics and treatment of animals, and timely management decisions when the epizootic situation worsens.

Establish a correspondence between some areas of digitalization in veterinary medicine and the results of their implementation:

	Direction		Result
A	**telemedicine**	1	the possibility of using digital X-ray machines, tomographs, and various analyzers
B	**implementation of digital diagnostic equipment**	2	providing medical care remotely using information technology
IN	**electronic document management and electronic veterinary certification**	3	use of state information systems "Vesta", "Argus", "Mercury", "Assol", "Cerberus", "Cyrano", "Vetmonitoring"
G	**digital animal health monitoring systems**	4	the ability to present basic physiological data of animals in real time, in a convenient format, anywhere and at any time
D	**herd management systems**	5	automation of basic operations of accounting, planning, control, and analysis on a farm based on operational data on the condition of the herd
E	**electronic sensors; tags,containing a unique identification number (chips)and collars**	6	Smart collars for pets help owners constantly monitor their pet's health and activity; they can be used to optimize feeding and care.

Write the selected numbers under the corresponding letters:

A	B	IN	G	D	E

Answer: A2, B1, B3, G4, D5, E6.

Closed-ended tasks to establish a sequence

PC-14 ID-1 Be able to evaluate the effectiveness of preventive measures taken and methods of their implementation, including the use of digital technologies

Task 11.

Read the text and establish the sequence.

Specific prevention - eThis is a special system of measures aimed at preventing the emergence of a specific infectious disease. The nature of specific preventive measures is determined by the characteristics of the infectious disease, the epizootic situation of the farm, and the surrounding area (region).

Establish a sequence of stages of specific prevention:

1) conducting special diagnostic studies (tuberculinization, serological diagnostics of brucellosis, etc.);

2) preventive isolation, forced quarantine and observation to clarify the diagnosis;

3) the use of special-purpose therapeutic and prophylactic agents (for example, premixes and aerosols for the prevention of alimentary and respiratory infections);

4) preventive implementation of immunoprophylaxis by introducing various specific agents (vaccines, serums, immunoglobulins, etc.) in accordance with anti-epidemic work plans in prosperous farms;

5) forced introduction of biological preparations in a problematic herd in the presence of sick animals.

Answer: 2,1,4,3,5

Task 12.

Read the text and establish the sequence.

Specify the sequence of pathogenetic processes in the zoonotic infection - listeriosis.

Once Listeria enters the body, it multiplies and spreads throughout the body through neurogenic, lymphogenous and hematogenous routes.

1) Listeria multiply at the site of initial entry, are captured by phagocytic cells, enter the bloodstream and spread throughout the body;
2) incomplete phagocytosis promotes the survival of the pathogen inside phagocytes and intracellular reproduction;
3) the pathogen enters various organs, including the brain;
4) toxins produced by listeria have an adverse effect on the microorganism;
5) in adult animals, listeriosis sepsis occurs rarely; more often, the central nervous system is affected, and during pregnancy, the reproductive system;
6) sepsis develops in young animals, followed by generalized granulomatosis.

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

Task 13.

Read the text and establish the sequence.

The main links of the epizootic chain1) the source of the infectious agent—the infected animal, where the pathogen can survive, multiply, accumulate, and be released into the environment; 2) the mechanism of transmission—infectious disease pathogens can move from one organism to another; 3) susceptible animals. Only the three links in the epizootic chain, working together, ensure the continuous continuation of the epizootic process, while the elimination of any one of them leads to its suspension and the cessation of the emergence of new cases of the disease. Anti-epidemic measures in veterinary medicine are aimed at these three links in the epizootic chain.

Describe the sequence of panti-epizootic measures against the first link of the epizootic chain - the source of the infectious agent.

1) diagnostic studies;

2) insulation;
3) treatment of sick animals.

Answer: 1,2,3.

Task 14.

Read the text and establish the sequence.

The main links of the epizootic chain1) the source of the infectious agent—the infected animal, where the pathogen can survive, multiply, accumulate, and be released into the environment; 2) the mechanism of transmission—infectious disease pathogens can move from one organism to another; 3) susceptible animals. Only the three links in the epizootic chain, working together, ensure the continuous continuation of the epizootic process, while the elimination of any one of them leads to its suspension and the cessation of the emergence of new cases of the disease. Anti-epidemic measures in veterinary medicine are aimed at these three links in the epizootic chain.

Describe the sequence of panti-epizootic measures to break the 2nd link of the epizootic chain - the mechanism of transmission of the infectious agent.

1) veterinary and sanitary measures - disinfection;
2) veterinary and sanitary measures – disinsection;
3) veterinary and sanitary measures – deratization
4)veterinary and sanitary measures – disposal of raw materials and products of animal origin
5)veterinary and sanitary measures – destruction of corpses
6)Veterinary and sanitary measures – disposal of animal secretions and excreta.

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

Task 15.

Read the text and establish the sequence.

The main links of the epizootic chain1) the source of the infectious agent—the infected animal, where the pathogen can survive, multiply, accumulate, and be released into the environment; 2) the mechanism of transmission—infectious disease pathogens can move from one organism to another; 3) susceptible animals. Only the three links in the epizootic chain, working together, ensure the continuous continuation of the epizootic process, while the elimination of any one of them leads to its suspension and the cessation of the emergence of new cases of the disease. Anti-epidemic measures in veterinary medicine are aimed at these three links in the epizootic chain.

Describe the sequence of panti-epizootic measures against the 3rd link of the epizootic chain - susceptible animals, to increase the resistance of the susceptible animal organism.

1) vaccinations;
2) emergency prevention - use of immune globulins;
3) emergency prevention - use of antibiotics;
4) emergency prevention - use of serums.

Answer: 1,2,3,4.

OPEN-TYPE TASKS

PC-14 ID-1 Be able to evaluate the effectiveness of preventive measures taken and methods of their implementation, including the use of digital technologies.

Task 16.

Read the text and write a detailed, reasoned answer.

Effectiveness of veterinary measurescan be improved through the use of digital technologies.

Answer: 1) to improve monitoring of the condition of animals and diagnosis of infectious and non-infectious pathologies, veterinary control sensors, video cameras and other digital equipment are used;

2) Veterinary expert systems—computer programs that contain databases of veterinary-relevant information, standard protocols, and knowledge about animal diseases—are used to predict animal diseases. These systems analyze the data received about the animal's condition, its symptoms, and laboratory tests. They then compare this data with the existing knowledge base and offer the veterinarian possible diagnoses and treatment recommendations. Examples of veterinary expert systems include: "Coral," "Expert System for Diagnosing Equine Diseases," and "Expert System for Diagnosing Pig Diseases."

3) Machine learning algorithms are used to predict animal diseases. They assist in diagnosis, mortality and morbidity risk assessment, disease prevention, and epidemiological surveillance. For example, in Iran, a machine learning model was tested in 2025 to predict the clinical outcome and recovery time of dogs with parvovirus enteritis.

Task 17.

Read the text and write a detailed, reasoned answer.

The ultimate goal of epizootiology in the fight against infections, including zoonoses, is their elimination or sharp reduction on a global scale. Infections in In accordance with the effectiveness of the anti-epidemic measures taken, they can be divided into two groups: - controlled, in which there are effective measures to influence one or several links in the epidemic process (for example, vaccination), - uncontrolled, in which there are no effective measures. **Controlled and uncontrolled infections**— concepts from veterinary science that are related to the development of measures to combat animal diseases.

List the characteristics of vaccine-preventable diseases.

Answer: Preventable diseases are infectious diseases for which scientifically proven measures have been developed and their effectiveness has been proven. Rare preventable diseases include anthrax, clostridiosis, sheep pox (INAN), and trichophytosis.

There are two main groups of controllable infections:

A) Infections controlled by immunoprophylaxis.

Some animal infections controlled by immunoprophylaxis:respiratory diseases of calves caused by viruses of infectious rhinotracheitis, parainfluenza-3, viral diarrhea, respiratory syncytial virus, rotavirus and coronavirus infections;mass viral diseases of calves.

Examples of drugs for immunoprophylaxis: "Multican-8" (ina vaccine for dogs that contains live attenuated strains of canine distemper virus, adenovirus type 2, canine parvo- and coronavirus, as well as inactivated industrial strains of rabies virus and leptospirosis); "Vitafelvac K" (a drug against calicivirus; "Vitafelvac R" (a vaccine against rhinotracheitis); "Vitafelvac X" (a drug against chlamydia).

B) Infections controlled by veterinary and sanitary measures,a complex of disinfection, disinfestation, and deratization works. Veterinary and sanitary measures are aimed

at preventing and eliminating infectious animal diseases, as well as creating favorable conditions for epizootological well-being in general.

Someanimal infections controlled by drugsveterinary and sanitary measures: anthrax, tuberculosis, sheep and goat pox, CSF, swine erysipelas, Aujeszky's disease, Newcastle disease, infectious bursal disease, Marek's disease.

Task 18.

Read the text and write a detailed, reasoned answer.

The ultimate goal of epizootiology in the fight against infections, including zoonoses, is their elimination or sharp reduction on a global scale. Infections in In accordance with the effectiveness of the anti-epidemic measures taken, they can be divided into two groups: - controlled, in which there are effective measures to influence one or several links in the epidemic process (for example, vaccination), - uncontrolled, in which there are no effective measures. **Controlled and uncontrolled infections**— concepts from veterinary science that are related to the development of measures to combat animal diseases.

List the characteristics of uncontrollable infections.

Answer: Uncontrollable infections— is a group of infectious diseases for which effective measures have not yet been developed to combat them.

These include, for example, peste des petits ruminants, bluetongue, bovine spongiform encephalopathy, listeriosis, itch, edema disease and other factor infections.

Factorial diseases develop due to various unfavorable conditions and factors that lead to a disruption of physiological regulatory mechanisms and a decrease in the body's resistance, for example, edema disease of piglets, mass postpartum infectious and inflammatory diseases of cows (endometritis and mastitis) and pigs (metritis-mastitis-agalactia syndrome), acute bacterial and viral respiratory and intestinal diseases of calves and piglets, including transmissible gastroenteritis of pigs, colibacillosis (escherichiosis) in newborn calves, rota- and coronavirus infections, viral diarrhea among young cattle, porcine reproductive and respiratory syndrome, porcine parvovirus disease, and other viral infections in pigs.

Task 19.

Read the text and write a detailed, reasoned answer.

In the event of a quarantine infection occurring anywhere on the planet, in accordance with the WHO Health Regulations, a special System for processing epidemiologically and epizootologically important data comes into force, with the adoption of appropriate management decisions.

Describe the algorithm of actions of the aforementioned System when a particularly dangerous infection outbreak occurs:

Answer:

1. Any country in the world after a final diagnosis of a quarantine infection (plague, yellow fever and cholera, typhus and relapsing fever, poliomyelitis, influenza, anthrax, tularemia, brucellosis, arbovirus infections, botulism, etc.)
sends information to WHO about emerging cases;
2.WHO processes these materials and sends them to all countries of the world;
3. countries of the world, having received this information about an unfavorable epizootic/epidemic situation, make a decision to carry out special anti-epidemic/anti-epidemic measures and inform the WHO about this;
4.WHO processes the received information and sends it to all countries of the world;
5. All epidemiologically/epizootically significant information from the territory of any country in the world is first sent to the WHO Database, where it is analyzed and processed.using

geoinformation technologies, including GIS, to make management decisions to eliminate a particularly dangerous infection;
6.at the level of the Russian Federation, the processing of veterinary-significant information is carried out by Information and analytical center and Information and computing center as part of the All-Russian Research Institute of Animal Husbandry (Vladimir).

Task 20.

Read the text and write a detailed, reasoned answer.

To analyze the effectiveness of veterinary-significant information on the implementation of preventive and anti-epidemic measures, specialized databases, geographic information systems (GIS) and software packages are used.

What is the specific role of databases and geographic information systems in assessing the results of preventive and anti-epidemic measures?

Answer: 1. Information databases Allow for current and retrospective monitoring of epizootic and epidemic situations based on final reports from veterinary organizations (the Veterinary Administration) and regulatory authorities (Rosselkhoznadzor). For example, databases on farm and wild animal populations, the location of large livestock farms, border veterinary inspection posts, the presence of problem areas, vaccination rates, etc.
2. GIS Provide storage, modeling, analysis, and visualization (display on a computer/tablet screen) of large amounts of veterinary-relevant data (on animal populations, epizootic situations, the presence of problem areas, vaccinations, etc.), georeferenced to a specific area. The use of GIS in veterinary medicine allows, for example:

- centrally collect and store information on the spatial distribution of registered outbreaks of animal diseases;
- automate the analysis of these data in order to identify patterns caused by the similarity of natural and socio-economic factors in different territories;
- create electronic and paper maps to display the epizootic situation both in individual regions and in the world as a whole;
- create risk maps that show the likelihood of introducing or developing a particular disease.

3. As an example, we can cite some GIS (QGIS, ArcGIS, GRASS, PostgreSQL), which are used to analyze veterinary-significant information and visualize (display on a computer screen) the results of epizootological monitoring, preventive and anti-epidemic measures.

PC-16 Organization of disinfection and disinsection of livestock premises to ensure veterinary and sanitary well-being in accordance with the plan of veterinary and sanitary measures, analysis of the effectiveness of measures to prevent animal diseases in order to improve them

PC-16 ID-1 Be able to evaluate the effectiveness of preventive measures taken and methods of their implementation, including the use of digital technologies

PC-16 ID-2 Know the types of measures to ensure veterinary and sanitary safety and the requirements for their implementation in accordance with the legislation
Russian Federation in the field of veterinary medicine

CLOSED TYPE TASKS

Combined type tasks with a choice of one correct answer from the proposed options

PC-16 ID-1 Be able to evaluate the effectiveness of preventive measures taken and methods of their implementation, including the use of digital technologies

PC-16 ID-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

Task 1.

Read the passage from the text and choose one correct answer.

The effectiveness of veterinary interventions cannot be demonstrated by one of the following indicators. Select it:

1. reduction in the incidence of animal diseases;
2.reducing the duration of their illness;
3. reduction in mortality rates and emergency slaughter;
4. development of a risk assessment scale for the analysis of external and internal biological threats;
5.increasing the level of animal safety and their productivity indicators;
6.improving the quality and safety of livestock products.

Answer: 4

Task 2.

Read the text and choose one correct answer.

This -a set of measures aimed at destroying pathogenic and opportunistic microorganisms, including pathogens of infectious diseases, and the destruction of toxins in environmental objects.

Select from the following terms the one that matches the definition above:

1.disinsection;
2.disinvia;
3. disinfection
4. decarization.

Answer: 3.

Combined type tasks with a choice of several correct answers from the proposed options

Task 3.

Read the text and choose several correct answers.

The quality of preventive and forced disinfection in infectious diseases is usually judged by the presence or absence of sanitary indicator microorganisms on the surface of the objects of study after their disinfection.

What methods for assessing the quality of disinfection exist in veterinary medicine?

1. control of preparation of objects for disinfection;
2. control of compliance with established disinfection regimes;
3.analytical control;
4. bacteriological control.

Answer: 1,2,4.

Task 4.

Read the text and choose several correct answers.

Disinfection is a set of measures aimed at destroying pathogenic and opportunistic microorganisms., including pathogens of infectious diseases, and the destruction of toxins in environmental objects.

Bacteriological quality control includes several methods, select all correct answers:

1. **Method of bacteriological examination of washings:**
2. **Method of imprinting on a thin layer of dense nutrient medium;**
3. **Method of quality control of preventive aerosol disinfection carried out with formalin;**
4. **Visual quality control of preventive aerosol disinfection.**

Answer: 1,2,3.

Task 5.

Read the text and choose all the correct answers.

Deratization in veterinary medicine is a set of measures aimed at the destruction of rodents, such asbrown rats, black rats and house mice.

This is an important event, as rodents can transmit infections and cause harm to both animals and people.

List the objects that are subject to deratization in veterinary medicine:

1.livestock buildings and farms;
2. poultry farms;
3. animal farms;
4. places for storing feed;
5. Cold storage rooms, slaughterhouses, incubators, meat and poultry processing plants, sausage factories and milk processing plants;
6.adjacent territory in the sanitary protection zone around the farm.

Answer: 1,2,3,4.5,6.

Closed-ended tasks to establish compliance

PC-16 ID-1 Be able to evaluate the effectiveness of preventive measures taken and methods of their implementation, including the use of digital technologies

Task 6.

Read the text and match.

In epizootology, various forms of infectious disease manifestation are distinguished, which reflect either the general nature of the infectious process (IP) or the predominant localization of the pathogen.

Establish a correspondence between the form of manifestation of an infectious disease and its characteristics:

	Form		**Characteristic**
A	typical(obvious	1	the most pronounced, clinically evident form of infection. The pathological process is characterized by certain clinical

	infection)		and pathological signs.
B	latent (asymptomatic,latent, dormant, unmanifested, inapparent) infection	2	This form has no clinical signs, but antibody production may occur. IP is not externally evident. It is possible to determine the periods of IP, its onset, progression, and decline, as well as the development of immunological reactions.
IN	secondary infection (secondary).	3	occurs when, after complete clinical recovery and the release of the animal's body from the pathogen, it becomes ill again as a result of a new infection with the same pathogen
G	reinfection	4	occurs when another disease caused by a new pathogen joins the main primary disease
D	**microbial carriage**	5	The infectious agent is present in the body of a clinically healthy animal. The macroorganism and the microorganism exist in a state of equilibrium. Microbial carriers are hidden sources of the infectious agent and are difficult to detect.

Write the selected numbers under the corresponding letters:

A	B	IN	G	D

Answer: A1, B2, B4, G3, D5.

Task 7

Read the text and match.

There are several forms of manifestation of the course of an infectious disease, depending on the nature and duration of the clinical manifestation.

Select the correspondence between the form of manifestation of an infectious disease and its characteristics:

Form		**Characteristic**	
A	hyperacute (lightning) current	1	characterized by a short-term presence of the pathogen in the patient's body and the formation of immunity to this

			type of pathogen, expressed to varying degrees
B	spicyflow	2	in which the animal dies within a few hours as a result of rapidly developing sepsis. Typical clinical signs in such cases do not have time to develop.
IN	chronic course .	3	The disease can drag on for months or even years. Clinical signs are mild, and sometimes absent altogether (in equine infectious anemia), making diagnosis difficult. This course of the disease can occur when the pathogen's virulence decreases and the animal develops sufficient resistance.
G	benign course	4	a course of the disease in which the infectious process quickly ends with the animal's recovery
D	malignant course	5	characterized by high mortality due to the reduced natural resistance of the animal and the presence of a highly virulent pathogen

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

A	B	IN	G	D

Answer: A2, B1, B3, G4, D5.

Task 7.

Read the text and match.

Evaluation of the effectiveness of preventive measures and methods of their implementation in veterinary medicine includes analysis of results and identification of deficiencies using digital technologies in order to improve animal disease prevention measures.

Match the digital technology systems with their purpose:

	Digital technologies		**Purpose**
A	**automated systems**	1	to assess the effectiveness and safety of the prescribed treatment and, if necessary, adjust the treatment plan
B	**specialized information databases**	2	for diagnosing animal diseases. They are used to collect and analyze anamnestic data and conduct laboratory and functional studies.
IN	instrumental studies	3	To accurately calculate the need for veterinary specialists and the cost of veterinary work, computer databases are

			created with standard time standards and rates for veterinary work.

Write the selected numbers under the corresponding letters:

A	B	IN

Answer: A3, B2, B1.

Task 8.

Read the text and match.

Disinfection occupies an important place in the system of anti-epidemic measures at state veterinary supervision facilities. The purpose of disinfection— to break the epizootic chain by influencing its most important link — the factors of transmission of the pathogen from the source of infection to the susceptible organism.

Match the type of disinfection with the mode of its implementation:

View		**Mode**	
A	preventive	1	is carried out constantly, regardless of the presence or absence of infection, in order to prevent its occurrence
B	focal	2	is carried out systematically at the site of infection in order to prevent the spread of infection
IN	current	3	is carried out in cases where the occurrence of an infection becomes known
G	final	4	carried out in an epizootic focus once after the removal of the source of infection

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

A	B	IN	G

Answer: A1, B3, B2, D4.

Task 9.

Read the text and choose the matches

Methods for assessing the quality of disinfection in veterinary medicine make it possible to determine the presence and extent of spread of various microorganisms on the surfaces of disinfected objects of state veterinary supervision.

Establish a correspondence between the method of assessing the quality of disinfection and its characteristics:

Event		Characteristic	
A	**control of the preparation of objects for disinfection**	1	They check the choice of the preparation and method of disinfection, the concentration, temperature of the solution, the uniformity of wetting of surfaces with a disinfectant solution, compliance with the performance parameters of the machines and devices used, and the quality of spraying the solution
B	**monitoring compliance with established disinfection regimes**	2	They check the degree of cleaning of surfaces, their moisture content, the protection of electrical equipment and devices, and the sealing of premises
IN	**bacteriological control**	3	carried out by specialists of veterinary laboratories, for the presence of coliform bacteria, staphylococci, mycobacteria or spore-forming aerobes of the genus Bacillus, periodically or at times established taking into account the epizootic situation, production technology, disinfection goals and other specific features

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

A	B	IN

Answer: A2, B1, B3.

PC-16 ID-1 Be able to evaluate the effectiveness of preventive measures taken and methods of their implementation, including the use of digital technologies

Task 10.
Read the text and match.

Digital technologies in veterinary medicine help quickly respond to changing epizootic situations by retrieving all necessary veterinary information from unified databases, including animal identification, disease status, laboratory test results, and anti-epidemic measures, including vaccinations.

Establish a correspondence between**quantitative indicator of anti-epidemic measures and its characteristics:**

	Indicator		Characteristic

A	**trouble**	1	An indicator that determines the proportion of disadvantaged areas (UA). This is the ratio of UA registered during the analyzed period to the number of populated areas in the district (region), expressed as a percentage.
B	**prevalence**	2	an indicator that determines the percentage of registered annual outbreaks or epizootic foci of the disease being studied to the total number of populated areas in a district or region.
IN	**focality coefficient**	3	The number of sick animals per NP. Determined by dividing the number of sick animals by the number of NP for each year separately (by animal species) for a district (region, territory, republic).
G	**morbidity**	4	shows how much the incidence rate has decreased after certain measures have been taken
D	**incidence**	5	the number of newly identified cases of disease over a given period of time in a specific age group of birds, in a specific production zone (facility), or at a particular enterprise in comparison with other enterprises, zones, or facilities
E	**incidence rate reduction rate**	6	the ratio of the number of sick animals to the average annual population of susceptible animals (an indicator of the intensity of the epizootic process)

Write the selected numbers under the corresponding letters:

A	B	IN	G	D	E

Answer: A1, B2, B3, G6, D5, E4.

Closed-ended tasks to establish a sequence

PC-16 ID-1 Be able to evaluate the effectiveness of preventive measures taken and methods of their implementation, including the use of digital technologies

Task 11.

Read the text and establish the sequence.

Disinfection at state veterinary supervision facilities is carried out forelimination of the factor of transmission of the pathogen from sources of infection to the animal, destruction of pathogenic and opportunistic microorganisms in environmental objects or removal from them.

Establish a sequence of actions for monitoring the preparation of objects for disinfection;

1. check the degree of cleaning of surfaces;
2. check the moisture content of the surfaces;
3. check the protection of electrical equipment and devices;
4. check the tightness of the premises.

Answer: 1,2,3,4.

Task 12.

Read the text and establish the sequence.

In veterinary medicine, there are certain methods for assessing the quality of disinfection.

Establish a sequence of actions when assessing the quality of disinfection:

1. control of the preparation of objects for disinfection. They check the degree of cleaning of surfaces, their moisture content, the protection of electrical equipment and devices, and the sealing of premises;

2. monitoring compliance with established disinfection regimes. They check the choice of the preparation and method of disinfection, the concentration, temperature of the solution, the uniformity of wetting of surfaces with the disinfectant solution, compliance with the performance parameters of the machines and devices used, and the quality of the solution spraying;

3. bacteriological control. It is carried out by veterinary laboratory specialists periodically or at intervals established based on the epizootic situation, production technology, disinfection goals, and other specific factors. The criterion for the quality of disinfection is the absence of indicator microorganisms (Staphylococcus aureus and coliform bacteria) in swabs from the surfaces and channels of the products;

4. OA general conclusion on the quality of disinfection is given based on the results of a whole range of tests carried out: mechanical cleaning, sanitary repairs, the disinfectant used, and a conclusion from a veterinary laboratory on the quality of the disinfection carried out.

Answer: 1,2,3,4.

Task 13.

Read the text and establish the sequence.

Preparation of working disinfectant solutions with chlorine in veterinary medicine It must be carried out in a room with supply and exhaust ventilation, special equipment and facilities, in the absence of strangers.

One method for preparing a 1% chloramine solution is given below. Set the sequence of actions:

1. put on special clothing;
2. prepare equipment, check markings;
3. Pour a small amount of water into the container to prevent the powder from spraying;
4. place a sample of dry chloramine powder (10 g) into the container;
5. Add water up to 10 l;
6. close the lid;
7. Stir the solution with a wooden spatula;
8. Check the container markings and tags;
9. Put the date of solution preparation and signature.

Answer: 1,2,3,4,5,7,6,8,9.

Task 14.

Read the text and establish the sequence.

Preparation of working disinfectant solutions with chlorine in veterinary medicine It must be carried out in a room with adequate ventilation, special equipment, and no bystanders.

When working with disinfectant solutions, it is important to observe safety precautions, as they contain toxic substances.

One of the methods for preparing a working solution from the tablets of the product "DEO-CHLOR®" VET is given below.

Establish a sequence of actions:

1. Pour warm water into the container to fill 2/3 of the total volume of the required solution; 2. Add the preparation in parts, constantly stirring the solution until the tablets are completely dissolved;
3. Add water to the required volume and mix well.

Answer: 1,2,3.

Task 15.

Read the text and establish the sequence.

Preparation of working disinfectant solutions with formaldehyde Formaldehyde must be handled with caution, as formalin is a hazardous material. Protective equipment must be used when working with formalin. Formaldehyde working solutions in veterinary medicine are prepared from formalin containing 35–40% formaldehyde, or from paraformaldehyde (95% formaldehyde).

The process for preparing a working formaldehyde solution is shown below. Set the sequence of actions:

1. Dilute formalin with water to the required percentage of formaldehyde content.
2. First, check the available formalin for the percentage of formaldehyde in it.
3. Example The formalin I have contains 40% formaldehyde, but I need to prepare a 4% solution. To do this, take 10 ml of 40% formalin and 90 ml of water.
4. If formalin is polymerized (contains a white precipitate), it should first be restored (clarified) by heating to boiling.
5. To prepare a solution from powdered formalin, use water heated to 50–60°, since the drug dissolves poorly in cold water.

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

OPEN-TYPE TASKS

PC-16 ID-1 Be able to evaluate the effectiveness of preventive measures taken and methods of their implementation, including the use of digital technologies

Task 16.

Read the text and write a detailed, reasoned answer.

Digitalization in veterinary medicine helps maintain a favorable epizootic situation. Regional Veterinary Departments are developing programs for these purposes based on artificial intelligence, eliminating inaccuracies in the creation of a unified animal database. Digitalization in the veterinary industry facilitates rapid response and prompt access to all necessary information, including diseases, animal identification, vaccinations, and laboratory test results.

Which **indicators of anti-epidemic measures are necessary for inclusion in a single database**in order to assess the effectiveness of preventive measures?

Answer: among the quantitative indicators of anti-epidemic measures for The following can be indicated for assessing the effectiveness of preventive measures:

- **trouble - n**An indicator that determines the proportion of disadvantaged areas. This is the ratio, expressed as a percentage, of the number of disadvantaged areas registered during the analyzed period to the number of populated areas in the district (region);
- **prevalence - p**an indicator that determines the percentage of unfavorable areas or epizootic foci of the disease being studied registered during the year to the total number of populated areas in a district or region;
- **focality coefficient - h**The number of sick animals per affected area. This is determined by dividing the number of sick animals by the number of affected areas for each year separately (by animal species) for a district (region, territory, republic);
- **morbidity - p**an indicator of the intensity of the epizootic process, which is the ratio of the number of sick animals to the average annual population of susceptible animals;
- **incidence - h**the number of newly identified cases of disease over a certain period of time in a specific age group of animals, in a specific production zone (facility), enterprise in comparison with other enterprises, zones, facilities;
- **incidence rate reduction rate -**calculated as a percentage of the subsequent level to the previous one.

Task 17.

Read the text and write a detailed, reasoned answer.

Evaluation of the effectiveness of preventive measures and methods of their implementation in veterinary medicineincludes analysis of results and identification of deficiencies in order to improve measures for the prevention of animal diseases.

To evaluate the effectiveness**preventive measures**You can use digital technologies, for example:

Answer: 1. Automated systems To accurately calculate the need for veterinary specialists and the cost of veterinary work, computer databases are created with standard time standards and rates for veterinary work.

2. Specialized information databasesfor diagnosing animal diseases. They can be used to collect and analyze anamnestic data and conduct laboratory and functional studies. For example:

- veterinary expert systems- these are computer programs that assist veterinary specialists in the process of diagnosing and making decisions on treating animals ("Coral", "Expert system for diagnosing horse diseases", "Expert system for diagnosing pig diseases");

- geodatabases of animal diseases. Such databases are created using GPS technology and the Google Earth Pro program;

- databases on the population of agricultural and wild animals,the location of large livestock farms and veterinary control border posts. Such databases are created based on information provided by the State Committeeaccording to Russian statistics and other official sources;

3. Also, to evaluate the effectiveness of preventive measures, the veterinarian may conduct repeated examinations and studies of animals to assess the effectiveness and safety of the prescribed treatment and, if necessary, adjust the treatment plan.

Task 18.

Read the text and write a detailed, reasoned answer.

Drawing up a plan of activities that are carried out after establishing a laboratory diagnosis of a dangerous infectious disease.

Answer: After a diagnosis of a dangerous infectious disease, including a zoonosis, is confirmed by laboratory testing, taking into account the preliminary epizootic diagnosis, a draft Epizootic Action Plan (EAP) is immediately prepared. These measures are necessary to contain

and eliminate the epizootic outbreak and prevent the spread of the pathogen, in accordance with applicable legal regulations. The Plan specifies the responsible persons and the timeframes for implementing the measures.

As new information emerges and laboratory test results are received, the epizootological diagnosis is clarified and measures are adjusted.

What should be included in the EMP Plan?:

Answer:

1. interdepartmental interaction during the implementation of primary medical examinations with the executive authorities of the constituent entity of the Russian Federation, municipal authorities, and other structures, assigning to them the implementation of the relevant primary medical examinations depending on the nosology and scale of the outbreak;
2. clarification of the number of animals in the outbreak, problem area, or threatened zone;
3. active identification and isolation of sick animals;
4. a list of measures aimed at breaking three links in the epizootic chain;
5. implementation of measures to remove and destroy all susceptible animals and animal products contaminated with the pathogen, in accordance with current legislation);
6. examination of animals at risk of infection;
7. Establishing observation for a period of three incubation periods for animals exposed to the risk of infection;
8. organization of forced vaccination (if necessary);
9. organization and implementation of disinfection (deratization, disinfestation) works;
10. active explanatory work among the population, preparation of leaflets, bulletins, etc.;
11. conducting monitoring studies in populations of susceptible animals (if necessary);
12. attraction of forces and logistical support with an indication of the source of funding.

PC-16 ID-2 Know the types of measures to ensure veterinary and sanitary safety and the requirements for their implementation in accordance with the legislation

Russian Federation in the field of veterinary medicine

Task 19.

Read the text and write a detailed, reasoned answer.

The activities of a working group of specialists after establishing a final diagnosis of a dangerous infectious disease, including zoonotic diseases, and approval of the Plan of Anti-Epizootic and Preventive Measures in accordance with the legislation of the Russian Federation in the field of veterinary medicine.

Answer: The measures outlined in the Plan depend on the current situation and are developed taking into account current regulatory and methodological documents regarding the identified nosological entity.

Upon arrival at the outbreak site, the working group assesses the clinical picture and analyses epizootological data to conduct an epizootological investigation.

The tasks of the Working Group are:

1) establishing the probable source of the pathogen;
2) establishing the probable date of introduction of the infectious agent into the population;
3) establishing the possible spread of the disease and its scale;
4) recommendations on inspection, sampling, testing procedures, controls and other measures to be applied and on the strategy to be implemented, including recommendations on biosecurity measures on farms or in herds and on emergency vaccination;
5) conducting and registering epizootological investigations;

6) collection of epizootological data related to geographical, meteorological and other necessary information;
7) analysis of epizootological data and regular risk assessment;
8) assisting in ensuring that animal carcasses and animal waste are handled with minimal harmful impact on the environment.
9) upon completion of the epizootological investigation at the outbreak, a "Report on the epizootological investigation of the outbreak of an infectious disease with the establishment of a cause-and-effect relationship" is prepared, which should contain proposals for eliminating the causes that led to the outbreak.

Task 20.

Read the text and write a detailed, reasoned answer.

In the event of a quarantine infection occurring anywhere on the planet, in accordance with the WHO Health Regulations, a special System for processing epidemiologically and epizootologically important data comes into force, with the adoption of appropriate management decisions.

Describe the algorithm of actions of the aforementioned System when a particularly dangerous infection outbreak occurs:

Answer: 1. Any country in the world after a final diagnosis of a quarantine infection (plague, yellow fever and cholera, typhus and relapsing fever, poliomyelitis, influenza, anthrax, tularemia, brucellosis, arbovirus infections, botulism, etc.)
sends information to WHO about emerging cases;
2.WHO processes these materials and sends them to all countries of the world;
3. countries of the world, having received this information about an unfavorable epizootic/epidemic situation, make a decision to carry out special anti-epidemic/anti-epidemic measures and inform the WHO about this;
4.WHO processes the received information and sends it to all countries of the world;
5. All epidemiologically/epizootically significant information from the territory of any country in the world is first sent to the WHO Database, where it is analyzed and processed.using geoinformation technologies, including GIS, to make management decisions to eliminate a particularly dangerous infection;
6.at the level of the Russian Federation, the processing of veterinary-significant information is carried out by Information and analytical center and Information and computing center as part of the All-Russian Research Institute of Animal Husbandry (Vladimir).

PC-19 is capable of organizing monitoring studies using big data processing systems and artificial intelligence in professional activities.

ID-1PC-19 Know software packages for automatic management of veterinary documentation

ID-2PC-19 Possess skills in working with large volumes of veterinary documentation

ID-3PC-19 Possess knowledge in the field of artificial intelligence and data analysis

CLOSED TYPE TASKS

Combined type tasks with a choice of one correct answer from the proposed options

ID-1PK-19 Know software packages for automatic management of veterinary documentation

Task 1.

Read the passage from the text and choose the correct answer.

Artificial Intelligence (AI) in Veterinary MedicineThese are complex software systems based on machine learning algorithms and neural networks. They process huge amounts of specialized data and discover veterinary-relevant patterns inaccessible to humans.

The final decision in veterinary diagnostics is made by...?

6. AI;
7. veterinarian;
8. neural network;
9. machine learning algorithm;
10. emergency epizootic commission

Answer: 2

ID-1PC-19 Know software packages for automatic management of veterinary documentation

Task 2.

Read the passage from the text and choose the correct answer.

There are some AI-based software packages and tools for automated veterinary documentation management.

Please select one of the AI-based software packages for automated management of large volumes of veterinary documentation:

1. neural network;
2. machine learning algorithm;
3. Teleradiology for image recognition;
4. ScribVet;
5. geographic information database

Answer: 4

Combined type tasks with a choice of several correct answers from the proposed options

ID-3PC-19 Possess knowledge in the field of artificial intelligence and data analysis

Task 3.

Read the text and choose several correct answers.

Artificial intelligence (AI) plays an important role in veterinary medicinein various aspects: diagnosis of animal diseases, prognosis, selection of therapy and automation of the documentation process in veterinary clinics.

What knowledge?What skills are needed for a veterinarian to work in the field of AI when analyzing large amounts of data?

1.basics of programming;
2. mathematical and statistical knowledge;
3.machine learning;
4.electronic database of environmental monitoring;
5.processing of veterinary-significant data and its analysis

Answer: 1,2,3,5

ID-3PC-19 Possess knowledge in the field of artificial intelligence and data analysis

Task 4.

Read the text and choose several correct answers.

Artificial intelligence (AI) plays an important role in veterinary medicinein various aspects: diagnostics of animal diseases, forecasting the likelihood of developing specific diseases based on the analysis of veterinary-significant data over several years, selection of therapy and automation of the documentation process in veterinary clinics.

What knowledge?What are the necessary skills for a veterinarian to work in the field of AI in predicting diseases of productive and domestic animals?

1. ability to analyze veterinary-significant data from sensors, cameras in livestock buildings or veterinary clinics;
2. ability to analyze automatic information to identify deviations from the norm in animals;
3. knowledge of machine learning algorithms on thousands of behavioral recordings of healthy and sick animals;
4. knowledge of algorithms for recognizing normal and abnormal patterns in medical images/photos;
5. knowledge of natural language processing methods for analyzing text data, including medical records and symptoms described by animal owners;
6. compilation, analysis and storage of databases of veterinary-significant data with geospatial reference

Answer: 1,2,3,4,5

ID-3PC-19 Possess knowledge in the field of artificial intelligence and data analysis

Task 5.

Read the text and choose several correct answers.

Artificial intelligence (AI) plays an important role in veterinary medicinein various aspects: diagnosis of animal diseases, prognosis, selection of therapy and monitoring of patients' condition.

List the main areas of application of AI in laboratory diagnostics of animals:

1.increasing the accuracy of diagnosesthrough advanced data analysis, including X-rays and blood tests, which reduces the number of repeat tests;
2. automation of routine tasks duringprocessing and systematization of medical records;
3.support for veterinarians at the expense ofproviding AI with a second opinion, which is especially important in complex cases with high accuracy and confidence in the diagnosis;
4. comparative analysis of various AI technologies and neural networks with traditional methods of diagnosing animal diseases;
5. Demonstration of the potential and limitations of AI application in veterinary medicine

Answer: 1,2,3,4,5

Closed-ended tasks to establish compliance

ID-3PC-19 Possess knowledge in the field of artificial intelligence and data analysis

Task 6.

Read the text and match.

In veterinary medicine, there is a concept called predictive veterinary medicine.Veterinary medicine is a field of veterinary science focused on animal welfare, early disease detection, personalized treatment, and scientifically based prevention. This is achieved through the use of artificial intelligence (AI) and machine learning technologies, which analyze animal health data, identify patterns in epizootology and epidemiology (for zoonotic diseases), and predict the development of potential epizootics or epidemics (for zoonotic diseases).

Establish correspondences between AI capabilities and the results of its application:

AI Possibility		Result	
A	big data analysis	1	AI can process and analyze vast amounts of data faster and more accurately than humans. This includes medical records, test results, and images such as X-rays and ultrasounds.
B	pattern recognition	2	Machine learning algorithms are trained to recognize anomalies in ultrasound and MRI images, behavioral anomalies, or the health status of animals when prescribing medications, which helps identify diseases at early stages.
IN	forecasting	3	AI can predict the likelihood of developing certain diseases based on veterinary-relevant data over several years, allowing veterinarians to take preventative measures.

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

A	B	IN

Answer: A1, B2, B3

ID-2PC-19 Possess skills in working with large volumes of veterinary documentation

Task 7.

Read the text and match.

Both apps and virtual assistants are being used to develop personalized treatment protocols for animals based on artificial intelligence (AI).These tools help analyze pet health data, identify problems, and offer care recommendations.

Match the ability to use AI with its characteristic:

	Possibility of using AI		Characteristic
A	Whistle app	1	An AI consultant developed by the company uses photos and descriptions of clinical symptoms, and also provides a preliminary assessment of the animal's health based on test results.

B	PetPace virtual assistant for owners	2	Analyzes pet activity through wearable devices. AI studies behavior patterns and alerts to problems weeks before symptoms appear.
IN	CYBERVET service/application	3	Establishes a primary diagnosis and creates a treatment plan for animals using AI. It allows for the selection of treatment regimens, special feeds, and veterinary medications. It uses machine learning algorithms with a multimodal language model based on OpenAI GPT-4.
G	Veterinarian GPT, a virtual assistant for owners and veterinarians	4	Specialized AI analyzes pet images, interprets veterinary records, and offers personalized advice. For example, it analyzes a dog's feeding habits and recommends a diet plan suitable for its age, breed, and health status.

Write the selected numbers under the corresponding letters:

A	B	IN	G

Answer: A2, B1, B3, D4.

ID-2PC-19 Possess skills in working with large volumes of veterinary documentation

Task 8.

Read the text and match

The effectiveness of veterinary monitoring and anti-epidemic measures for infectious diseases, including zoonoses, can be improved through the use of digital technologies and artificial intelligence (AI).

Establish a correspondence between digital technologies, AI and their capabilities:

Technology		Opportunity	
A	veterinary control sensors, video cameras and other digital equipment	1	To provide high-quality veterinary care, reduce the number of practice hours; the possibility of remote work
B	software: Microsoft Excel, SQL Server and Oracle systems, SPSS and SAS, etc.	2	**For**Analyzing large amounts of data and identifying patterns in animal illness before irreversible problems arise; predicting diseases; and making informed decisions based on data
IN	televeterinary science	3	**to improve monitoring of the condition of animals and diagnosis of pathologies in them**
G	blockchain technology	4	**for efficient resource management:**supply chain control for animal feed, veterinary drugs, diagnostic kits, vaccines, etc.
D	AI technologies	5	An AI system monitors the health of animals and poultry on farms by analyzing a continuous video feed from

			portable cameras located throughout the field. This allows veterinarians to recognize early signs of disease or stress (such as lameness or differences in egg laying time) before they develop into serious pathologies.

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

A	B	IN	G	D

Answer: A3, B2, B1, G4, D5.

ID-3PC-19 Possess knowledge in the field of artificial intelligence and data analysis

Task 9.

Read the text and choose the matches

Artificial Intelligence (AI) in Veterinary MedicineThese are complex software systems based on machine learning algorithms and neural networks. They process huge amounts of specialized data and discover patterns in it that are inaccessible to humans.

Establish a correspondence between specific AI actions and the results of their implementation in veterinary medicine

Actionin the field of AI		Result	
A	**programming basics**	1	To work in AI, you need to know programming languages such as Python, Java, or C++; be able to create a ready-made template for writing a program, which the programmer can use to write their own code; and be able to create libraries for machine learning: TensorFlow, PyTorch, Keras
B	**mathematical and statistical knowledge**	2	To work with machine learning and deep learning algorithms, you need to understand basic mathematical concepts such as algebra, matrices, probability theory, and veterinary statistics.
IN	**machine learning**	3	Data science skills, such as pandas and NumPy; data cleaning (the process of analyzing large amounts of data to help veterinarians make faster and more accurate diagnoses, personalize treatments, and monitor animal health in real time);

			creation of data visualization libraries
G	**data processing and analysis**	4	Working with AI algorithms requires knowledge of machine learning methods and understanding of basic algorithms such as linear regression and neural networks.

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

A	B	IN	G

Answer: A1, B2, B4, D3

Task 10.

Read the text and match.

Digital technologies in veterinary medicineinclude various systems that help remotely monitor the condition of animals, analyze their behavior and development rate, identify diseases at early stages, and prevent herd infections.

Artificial Intelligence (AI)is a set of algorithms and systems capable of processing arrays of veterinary-relevant data, identifying patterns and making decisions based on complex calculations, simulating human intelligence.

Establish a correspondence between some areas of digitalization and AI in veterinary medicine and the results of their implementation:

	Directionsdigitalization and AI		Result
A	**telemedicine**	1	the possibility of using digital X-ray machines, tomographs, and various analyzers
B	**implementation of digital diagnostic equipment**	2	providing medical care remotely using information technology
IN	**electronic document management and electronic veterinary certification**	3	use of state information systems "Vesta", "Argus", "Mercury", "Assol", "Cerberus", "Cyrano", "Vetmonitoring"
G	**digital animal health monitoring systems**	4	the ability to present basic physiological data of animals in real time, in a convenient format, anywhere and at any time
D	**herd management systems**	5	automation of basic operations of accounting, planning, control, and analysis on a farm based on operational data on the condition of the herd
E	**electronic sensors; tags,containing a**	6	Smart collars for pets help owners constantly monitor their pet's health and activity; they can be used to optimize

	unique identification number (chips)and collars		feeding and care.
AND	**artificial intelligence**	7	analysis of veterinary or medical (for zoonoses) images, disease prediction based on animal behavior, creation of individual treatment plans, and other tasks

Write the selected numbers under the corresponding letters:

A	B	IN	G	D	E	AND

Answer: A2, B1, B3, G4, D5, E6, G7.

Closed-ended tasks to establish a sequence

ID-2PC-19 Possess skills in working with large volumes of veterinary documentation

Task 11.

Read the text and establish the sequence.

Working with complex veterinary documentation requires specific skills, which must be mastered in a sequential manner, particularly in accounting and reporting. Responsibility for the accuracy, completeness, precision, and reliability of veterinary accounting and reporting data lies with the heads of veterinary institutions and chief veterinarians of farms, enterprises, and institutions.

Establish a sequence of stages for working with veterinary documentation:

1. drawing up reports and accompanying documentsFor example, reports on veterinary procedures performed and cover letters when submitting material for research. Reports are prepared by veterinary specialists in duplicate. One remains with the organization where the procedure was performed, and the second is usually attached to the corresponding report;
2. journalingThey are used to record animal diseases and mortality, diagnostic tests, preventive, therapeutic, and veterinary-sanitary measures. The logs must be numbered, laced, and sealed with the veterinary service seal. The title page indicates the name of the institution, the start and end dates of the records;
3. development of plansFor example, plans of measures for the prevention of infectious and parasitic diseases of animals, a plan for the calendar work of the veterinary service;
4. reportingThey are compiled based on the initial registration and subsequent summation of data on animal diseases and mortality, diagnostic tests, treatment, and veterinary-sanitary measures. Some types of reports have a submission frequency: reports on contagious animal diseases (monthly), reports on anti-epidemic measures (quarterly), etc.

Answer: 1,2,4,3

ID-3PC-19 Possess knowledge in the field of artificial intelligence and data analysis

Task 12.

Read the text and establish the sequence.

Veterinary databases are important in the field of artificial intelligence (AI) for veterinary medicineBecause they serve as the basis for training AI algorithms for diagnosis, treatment, disease prognosis, and veterinary clinic management. This is because neural networks, trained on multimillion-dollar databases, absorb information about various animal species, their physiology, and potential diseases. This information allows veterinary programs to make more informed decisions that take into account even the most minute factors. Veterinary databases are designed to store, manage, and analyze information about animal-related diseases.

Establish a sequence of existing AI programs and information systems to createveterinary databasesin order of their importance for veterinary medicine:

1. in animal disease diagnostics: big data analysis, pattern recognition, forecasting;
2. in animal treatment: development of personalized treatment protocols, optimization of drug administration regimens4
3. In prevention: Predictive disease analytics is an approach to data analysis aimed at predicting the occurrence and spread of diseases based on existing data in order to find hidden patterns that cannot be seen with the naked eye, and based on these, to make predictions and informed decisions;
4. in management:

--automation of routine tasksAI can automatically process and organize medical records, freeing up veterinarians' time for more complex tasks.
--optimization of the clinic's workAI helps manage appointment schedules, automatically schedule follow-up visits, and remind patients about the need for preventive checkups.
--planning the workload of specialistsAI is capable of analyzing visit statistics and predicting peak workloads, evenly distributing patients among specialists based on their specialization.

Answer: 1,2,3,4

ID-3PC-19 Possess knowledge in the field of artificial intelligence and data analysis

Task 13.

Read the text and establish the sequence.

Veterinary expert system— is a computer program developed to support veterinary specialists in the diagnostic and treatment decision-making processes for animals. The main goal of such systems is to assist veterinarians in making the correct diagnosis and choosing the optimal treatment for each animal.

Describe the sequence n Some functions of veterinary expert systems (VES) in the field of AI in order of their importance for veterinary medicine:

1.diagnostics and prognosisVESs are capable of diagnosing diseases based on an animal's symptoms, tests, and medical history. They can also predict the progression of diseases and predict the effectiveness of various treatments;
2. Treatment recommendationsVESs provide veterinarians with treatment recommendations based on current clinical data and best practices. They can help determine optimal medications, dosages, and treatment regimens;
3. learning and knowledge sharing. VES can be trained based on new data and experience of veterinary specialists;
4. integration with other wind farmsMany software programs (such as "Vetmanager" or "1C: Medicine. Clinical Laboratory," the latter of which is adapted for veterinary applications and supports integration with other modules, such as "1C: Veterinary Certificate Management. Integration with FGIS Mercury") can integrate with other veterinary expert systems. This allows for the exchange of veterinary-relevant data and a complete picture of the animal's condition and treatment.

Answer: 1,2,4,3.

ID-3PC-19 Possess knowledge in the field of artificial intelligence and data analysis

Task 14.

Read the text and establish the sequence.

In veterinary medicine there is a concept of “targeted epizootology”, i.e. Using AI to leverage multi-layered animal health data to better understand disease dynamics in populations and develop systems for surveillance, early detection, and control of animal diseases.

Describe the sequence of stages "targeted epizootology" in**in order of their importance for veterinary medicine:**

1. understanding the dynamics of diseasesin an animal population. This is done using multi-level animal health data obtained from various fields, such as veterinary diagnostics, animal management, biosecurity, and others;
2. operational choice of interventionsin specific groups of animals, on specific farms or in production systems;
3. development of cost-effective surveillance systems, early detection and control of animal diseases;
4. timely and individual assessmentanimal health, disease risk and hazards on farms;
5. Obtaining accurate and timely informationto help livestock breeders, private veterinarians and veterinary services make better decisions.

Answer: 1,3,2,4,5

ID-2PC-19 Possess skills in working with large volumes of veterinary documentation

Task 15.

Read the text and establish the sequence.

Skills in working with large volumes of veterinary documentationThese skills include studying legal regulations, mastering record-keeping skills, preparing reports, and working with information systems. These skills are developed within the "Document Management in Veterinary Medicine" course and include knowledge of veterinary legislation, accounting and reporting requirements, and skills in working with specialized databases.

Describe the sequenceskills in working with large amounts of veterinary documentation in**in order of their importance for veterinary medicine:**

1.legislative norms: study of veterinary legislation, whichRegulates veterinary procedures, animal hygiene and veterinary-sanitary conditions for keeping animals, quarantine procedures, and other issues. For example, it is necessary to study: Law of the Russian Federation of May 14, 1993, No. 4979-1 "On Veterinary Medicine"; Veterinary Rules, which establish mandatory requirements for the preparation of veterinary accompanying documents and the appointment of veterinary-sanitary examinations.

2. Accounting: learning the procedure for keeping journals. For example, you need to master:

--a journal for registering sick animals- registers sick animals, records the medical care provided to them and the outcome of the disease,

--a journal for recording anti-epidemic measures— registers all measures against infectious diseases, including diagnostic tests, preventive and compulsory vaccinations, and antiparasitic treatments. nsportal.ru

---studying the requirements for journals- they must be numbered, laced and sealed with the seal of the veterinary service, contain a title page indicating the name of the institution, the start and end dates of the records;

3. Information systems: study of the Federal State Information System in Veterinary Medicine (VetIS). Required skills:
--preparation of veterinary accompanying documentsin individual components of the system (Argus, Mercury),
--registration of data and results of veterinary and sanitary examination, laboratory research and sampling for them,
--use of specialized databases for document processing, analysis of professional activity results and presentation of reporting documents;
4. Reporting: Study of the procedure for preparing reportsBased on the primary registration of data on animal diseases and mortality, diagnostic studies, preventive, therapeutic, and veterinary-sanitary measures. For example, it is necessary to master:
--unified reporting forms- each form consists of three parts: heading, content, design,
--filling in columns - unified names of indicators and designations, their summation,
--preparation of reports in two copies - one is transferred to the higher veterinary authority, the second is stored in the organization's archive.

Answer: 1,2,4,3

OPEN-TYPE TASKS

ID-2PC-19 Possess skills in working with large volumes of veterinary documentation

Task 16.

Read the text and write a detailed, reasoned answer.

Artificial Intelligence (AI) in Veterinary Medicine— these are complex software packages based on machine learning algorithms and neural networks.

How can I increase e**effectiveness of monitoring studies**with large amounts of veterinary documentation through the use of AI and digital technologies?

Answer:

1) to improve veterinary monitoring of the condition of animals and diagnosis of infectious and parasitic pathologies, veterinary control sensors, video cameras and other digital equipment are used;
2) to predict animal diseases use:
Veterinary expert systems are computer programs that contain databases of veterinary-relevant information, standard protocols, and knowledge about animal diseases. These systems analyze the data received about the animal's condition, its symptoms, and laboratory tests. They then compare this data with the existing knowledge base and offer the veterinarian possible diagnoses and treatment recommendations. Examples of veterinary expert systems include: "Coral," "Expert System for Diagnosing Equine Diseases," and "Expert System for Diagnosing Pig Diseases."
AI, particularly machine learning algorithms, assists in diagnosis, mortality and morbidity risk assessment, disease prevention, and epidemiological surveillance. For example, a machine learning model for predicting clinical outcomes and recovery time in dogs with parvovirus enteritis was successfully tested abroad (in Iran) this year.

ID-3PC-19 Possess knowledge in the field of artificial intelligence and data analysis

Task 17.

Read the text and write a detailed, reasoned answer.

Artificial Intelligence (AI) in Veterinary MedicineThese are complex software systems based on machine learning algorithms and neural networks. They process huge amounts of specialized data and discover patterns in it that are inaccessible to humans.

WhichWhat knowledge is required to work in the field of AI for the analysis of veterinary-relevant data?:

Answer:

1) Basics of programming. Working in AI requires knowledge of programming languages such as Python, Java, or C++. Knowledge of programming patterns (frameworks) and machine learning libraries such as TensorFlow, PyTorch, and Keras are also essential.

2) Mathematical and statistical knowledge. To work with machine learning and deep learning algorithms, it is necessary to understand basic mathematical concepts such as algebra, matrices, probability theory, and veterinary statistics.

3) Machine learning Working with AI algorithms requires knowledge of machine learning and deep learning methods. It's essential to understand basic algorithms such as linear regression, random forests, and neural networks (methods that help diagnose animal diseases and predict their health). A random forest is a machine learning algorithm consisting of many individual, independent "decision trees." It's suitable for processing structured data and can handle missing values well. It can be said that a random forest helps understand the importance of veterinary-relevant features and make decisions based on the model.

4) Data processing and analysis. The ability to work with large data sets, clean them, analyze them, and visualize them are essential skills for working in AI. Knowledge of specialized data tools, such as pandas, NumPy, and data visualization libraries, is essential.

5) Natural Language Processing (NLP). It is necessary to be able to create systems for analyzing texts and speech.

6) Computer vision Image and video analysis skills are required.

ID-3PC-19 Possess knowledge in the field of artificial intelligence and data analysis

Task 18.

Read the text and write a detailed, reasoned answer.

Artificial Intelligence (AI) in Veterinary MedicineThese are complex software systems based on machine learning algorithms and neural networks. They process vast amounts of specialized veterinary-relevant data and discover patterns in it that are inaccessible to humans.

What knowledge set is required to analyze a large array of specialized veterinary and epizootologically significant data using AI?

Answer: 1)Knowledge of veterinary databases— they are designed to store, manage and analyze information about diseases associated with animals.

2)Knowledge of veterinary expert systems— computer programs that analyze data about an animal's condition, its symptoms, and laboratory test results, then compare them with a knowledge base in the relevant fields and offer the veterinarian possible diagnoses and recommendations for treating animals.

3) Knowledge of veterinary concepts thatinclude such categories as epizootic or infectious processes, animal health status, veterinary monitoring, populations of agricultural, domestic, or wild animals, spatiotemporal patterns in the epizootological geographic information system (GIS), i.e., the place and time in which certain processes associated with the spread of animal diseases occur. These categories of veterinary conceptsare used in multi-level animal health data sets to better understand the dynamics of infectious diseases in the population and to develop systems for epizootological and epidemiological (for zoonoses) surveillance, early detection and control of animal diseases.

ID-1PC-19 Know software packages for automatic management of veterinary documentation

Task 19.

Read the text and write a detailed, reasoned answer.

Artificial Intelligence (AI) in Veterinary MedicineThese are complex software systems based on machine learning algorithms and neural networks. They process vast amounts of specialized veterinary-relevant data and discover patterns in it that are inaccessible to humans.

Describe some AI-based software packages and tools for automated veterinary documentation management:

Answer:1) ScribVet Allows veterinarians to record themselves during examinations, and artificial intelligence automatically generates SOAP notes, client messages, appointment reports, and other document formats;

2) "Vetology". An AI diagnostic center where machine learning systems process veterinary imaging data. The platform combines image recognition technology with teleradiology services, assessing anatomical structures, detecting anomalies, and generating detailed clinical reports;

3)Digital. An integrated AI practice management ecosystem where intelligent systems handle veterinary-relevant workflows and client interactions in real time. The platform coordinates scheduling appointments with veterinarians and pet owners, veterinary (or medical documentation for zoonotic diseases), and inventory management of medications/disinfectants using AI-powered automation.

4) GoldieVet The system processes audio input using sophisticated speech recognition developed specifically for veterinary terminology and clinical/surgical workflows. The platform enables the rapid transformation of various clinical scenarios—from routine veterinary examinations of animals/birds to complex surgical procedures—into detailed medical records.

5) Federal State Information System "Mercury"(FGIS "Mercury"). It was developed to automate the input, processing, retrieval, and storage of veterinary accompanying documents.

ID-2PC-19 Possess skills in working with large volumes of veterinary documentation

Task 20.

Read the text and write a detailed, reasoned answer.

Artificial Intelligence (AI) in Veterinary MedicineThese are complex software systems based on machine learning algorithms and neural networks. They process vast amounts of specialized veterinary-relevant data and discover patterns in it that are inaccessible to humans.

What is the specific role of AI?in working with large volumes of veterinary documentation in diagnosing animal diseases, automating routine veterinary tasks?

Answer: 1) Personalization of data, i.e. analysis of veterinary or medical (in case of zoonoses) records, test results and images(X-rays, ultrasound) faster and more accurately than a person.

2) Automation of processing and systematization of recordsWith Freeing up veterinarians' time for more complex tasks. Here are some systems that help automate routine processes in veterinary clinics:

--ScritchA comprehensive AI-powered solution for veterinary clinics. It includes AI assistants like Emily and Mara, who automate appointment scheduling and veterinary records. Emily, the virtual assistant, interacts with pet owners, schedules appointments, and collects essential information about the pet's medical history before the clinic visit. Mara, another AI assistant, listens to appointment recordings and creates veterinary records in less than a minute.

--"VetAs" isAn AI assistant that helps automate routine tasks for veterinarians. The voice assistant instantly records all important patient data and creates complete and accurate animal examination reports in just a few minutes.
--DigitalAn integrated AI practice management ecosystem where intelligent systems handle veterinary workflows and interact with clients in real time. The platform combines cloud operations with AI-powered automation to help veterinary clinics manage everything from medical records to communication with pet owners.
3) Optimization of the clinic's workAI helps manage appointment schedules, automatically schedule return visits for owners and pets, and remind them of the need for preventative checkups.

3.1.3.Questions for test in the discipline 'Risk assessment and management in zoonoses'.

UC-1 Be able to critically analyse problem situations on the basis of a systematic approach, develop a strategy of action.
UC-1 ID-1 Know the methods of critical analysis and evaluation of modern scientific achievements, basic principles of critical analysis

1. The role and importance of state veterinary control in enterprises in risk assessment for zoonoses.
2. Possible epizootological risks and their assessment in zoonoses.
3. Types of preventive measures in zoonoses.
4. Management of epizootological risks in zoonoses.

UC-1 ID-2 Be able to obtain new knowledge on the basis of analysis, synthesis, etc.; collect and summarise data on current scientific problems related to the professional field; search for information and solutions on the basis of action, experiment, experience, information and communication technologies.

5. Features of the epizootic process of listeriosis as a saprozoanosis.
6. General characteristics of prion diseases of animals.
7. Conditions and factors determining stationarity, periodicity of anthrax.
8. Reservoirs of rabies pathogen in different animal species, determining its natural focality.

UC-1 ID-3 Possess the study of problems of professional activity with the use of analysis, synthesis and other methods of intellectual activity, including the use of information and communication technologies, identification of problems with the use of adequate methods for their solution; demonstration of evaluative judgements in solving problematic professional situations

9. Conditions and factors determining seasonality of anthrax.
10. Factors determining the stationarity and seasonality of rabies.
11. Methods of diagnostics of bacterial zoonoses. 12.
12. Diagnostic methods for viral zoonoses.

PC-11 Development of annual plan of anti-epizootic measures, plan of prevention of non-communicable diseases of animals, plan of veterinary and sanitary measures.
PC-11 ID-1 Be able to collect and analyse information, including veterinary statistics data, necessary for planning preventive and sanitary measures.

13. Drawing up the act of clinical and epizootological examination of the farm for anthrax in reindeer.

14. Registration of the act of clinical and epizootological examination of the farm for rabies in cattle.

15. Registration of the act of clinical and epizootological examination of the farm for bovine tuberculosis.

16. Registration of the act of clinical and epizootological examination of the farm for brucellosis of sheep.

17. Registration of the act of clinical and epizootological examination of the farm for leptospirosis of cattle.

18. Ways of infection of animals with dermatomycoses.

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

19. Ways of infection of animals with spongiform encephalopathy.

20.Preparation of accompanying documents for transfer of pathological material for suspected rabies in a dog.

21. Development of an annual plan of anti-epizootic measures for tuberculosis.

22. Development of the annual plan of anti-epizootic measures for brucellosis.

23. Development of annual plan of anti-epizootic measures for leptospirosis.

24. Development of annual plan of anti-epizootic measures in salmonellosis.

PC-12 Conduct preventive clinical examinations of animals, check veterinary and sanitary condition and microclimate of livestock buildings in accordance with the plan of anti-epizootic measures, plan of prevention of non-communicable diseases of animals, plan of veterinary and sanitary measures.

PC-12 ID-2 Be able to assess the impact of conditions of animal housing and feeding on the state of animal health within the framework of implementation of action plans for prevention of non-communicable animal diseases

25. Clinical and diagnostic examination of animals with botulism.

26. Clinical and diagnostic examination of animals with tetanus.

27. Clinical and diagnostic examination of animals with trichophytosis.

PC-12 ID-3 Be able to carry out veterinary control of quality and procurement of animal feed in order to ensure its veterinary and sanitary safety within the framework of implementation of action plans for prevention of non-communicable diseases of animals

28. Veterinary quality control of animal feed for the presence of toxins.

29. Veterinary quality control of animal feed for the presence of prion protein.

30. Veterinary quality control of animal feed in granaries and laboratory tests of rodents for listeriosis.

PC-12 ID-4 Know the recommended forms of the plan of anti-epizootic measures, plan of prevention of non-communicable diseases of animals, plan of veterinary and sanitary measures

31.Organisation of the system of anti-epizootic measures for leptospirosis.

32.Organisation of veterinary and sanitary preventive measures for dermatomycosis.

33.Organisation of health improvement measures in dermatomycosis.

PC-12 ID-5 Know the procedure of internal control of veterinary and sanitary condition of the object and microclimate of livestock premises, using digital equipment.

34. Control of veterinary and sanitary condition of the slaughterhouse at the poultry farm.

35. Control of microclimate of livestock premises within the framework of implementation of action plans for tuberculosis prevention.

36. Control of microclimate of livestock facilities within the framework of implementation of action plans for prevention of salmonellosis.

PC-13 Organise measures to protect enterprises from the introduction of infectious and invasive diseases in accordance with the plan of anti-epizootic measures

PC-13 ID-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.

37. Measures to combat leptospirosis.
38. General veterinary and sanitary measures for anthrax.
39. Special measures for anthrax.
41.Quarantine measures for anthrax eradication
42.Pathways of tuberculosis infection and factors of transmission of its pathogen.
43.Pathogenetic basis of tuberculosis.
44.Species of Salmonellae, their role in animal and human pathology.
45.Biology of pathogens of tuberculosis in animals and birds.
46. Pathways of infection of dermatomycoses and factors of transmission of their pathogens.
47. Pathways of infection with salmonellosis and factors of transmission of their pathogens.
48. Types of clostridia, their role in animal and human pathology.

PC-14 Organise prophylactic immunisations (vaccinations), therapeutic and preventive treatments of animals in accordance with the plan of anti-epizootic measures, analyse the effectiveness of measures for the prevention of animal diseases in order to improve them

PC-14 ID-1 Be able to assess the effectiveness of preventive measures and methods of their implementation, including the use of digital technologies.

49. Epizootological peculiarities of spore formation, ensuring the conservation of B. athracis as a species.
50. Peculiarities of taking material from compulsory killed animals in anthrax and its examination in accordance with the current GOST.
51. Prophylactic measures for anthrax in the threatened zone.
52. Measures to protect people from anthrax infection.
53. Therapeutic and prophylactic measures in tuberculosis.
54. Therapeutic and prophylactic measures in trichophytosis.
55. Therapeutic and prophylactic measures in microsporia.
56. Therapeutic and prophylactic measures in salmonellosis.
57. Preventive measures in bovine spongiform encephalopathy.
58. Measures to protect people from infection with salmonellosis.
59. Measures to protect people from infection with leptospirosis.
60. Scheduled diagnostic tests of animals for tuberculosis.

PC-16 Organise disinfection and disinsection of livestock premises to ensure veterinary and sanitary well-being in accordance with the plan of veterinary and sanitary measures, analyse the effectiveness of measures to prevent animal diseases in order to improve them

PC-16 ID-1 Be able to assess the effectiveness of preventive measures and methods of their implementation, including the use of digital technologies

61. Organisation of routine diagnostic tests of animals for tuberculosis for preventive purposes.
62. Prevention of leptospirosis among owners and proprietors of livestock, veterinary specialists.
63. Organisation of prophylactic vaccination of young animals of all species against anthrax.

64. Measures on prevention of brucellosis of animals in favourable farms.
65. Pathogenetic therapy aimed at detoxification and treatment of complications in leptospirosis.
66. Algorithm for making a lifetime diagnosis of anthrax in pigs using anthraxine allergen (anthraxin).

PC-16 ID-2 Know the types of measures to ensure veterinary and sanitary safety and requirements for their implementation in accordance with the legislation of the Russian Federation in the field of veterinary medicine
67. Disinfection and veterinary and sanitary measures after vacating the premises from livestock in case of significant prevalence of tuberculosis in the herd (more than 15% of the livestock).
68. Methods of investigation and slaughter of diseased animals with tuberculosis in less than 15 % of the herd.
69. Main preventive measures in anthrax-uninfected farms. 70.
70. Measures to eliminate brucellosis in unfavourable farms in accordance with the current Sanitary and Veterinary Rules
71. Measures to protect people from brucellosis infection.
72. Veterinary and sanitary, organisational and economic measures for the elimination of leptospirosis under restricted conditions.
73. Algorithm of differential diagnosis of anthrax in cows (exclude emphysematous carbuncle, malignant oedema, pasteurellosis (oedematous form) and piroplasmidosis, tympany of non-disease character, leukaemia).

PC-19 Is able to organize monitoring studies using big data processing systems and artificial intelligence in professional activities.

PC-19_{ID-1} To know the software packages for automatic management of veterinary documentation.

PC-19_{ID-2} To have the skills to work with large amounts of veterinary documentation.

PC-19_{ID-3} To possess knowledge in the field of artificial intelligence and data analysis.
74. Characterisation from the standpoint of immunogenesis and epizootic danger of three forms of leptospirosis infection: manifest disease, asymptomatic leptospirosis carrier and leptospirosis immunising subinfection.
75. Clinical and epizootological characteristics of bovine spongiform encephalopathy.
76.Epizootic risks in anthrax and measures to protect people from anthrax infection. Draw up a scheme of health measures in an anthrax-affected area.
77. Risk assessment of anthrax. Main preventive measures in farms stationary anthrax-unfavourable for anthrax.
78. Epizootological features, etiology, course and forms of clinical manifestation of tuberculosis in animals of different species. Epizootic risks in tuberculosis.

4. METHODICAL MATERIALS DEFINING THE PROCEDURES OF EVALUATION OF KNOWLEDGE, SKILLS AND EXPERIENCE OF ACTIVITY CHARACTERISING THE STAGES OF COMPETENCES FORMATION.

Criteria for assessing the knowledge of students during the colloquium:
- Mark ‘excellent’ - the learner clearly expresses his point of view on the issues under consideration, giving relevant examples.
- Mark ‘good’ - the student makes some errors in the answer
- The mark ‘satisfactory’ - the student reveals gaps in knowledge of basic educational and regulatory material.

- Mark ‘unsatisfactory’ - the student reveals significant gaps in knowledge of the basic provisions of the discipline, inability to get the correct solution to a particular practical problem with the help of the teacher.

Criteria for assessing the knowledge of students during testing:

The result of testing is evaluated on a percentage rating scale. Each student is offered a set of test tasks of 25 questions:
- Mark ‘excellent’ - 25-22 correct answers.
- Good’ mark - 21-18 correct answers.
- The mark ‘satisfactory’ - 17-13 correct answers.
- The mark ‘unsatisfactory’ - less than 13 correct answers

Knowledge criteria for crediting:

- The grade ‘pass’ should correspond to the parameters of any of the positive grades (‘excellent’, ‘good’, ‘satisfactory’).

- A grade of ‘pass’ should correspond to the parameters of the ‘unsatisfactory’ grade.

- The mark ‘excellent’ - all types of academic work provided for in the curriculum. The student demonstrates the conformity of knowledge, skills, abilities, skills given in the tables of indicators, operates the acquired knowledge, skills, abilities, skills, applies them in situations of increased complexity. At the same time, there may be inaccuracies, difficulties in analytical operations, transfer of knowledge and skills to new, non-standard situations.

- The mark ‘good’ - all types of academic work provided by the curriculum have been completed. The student demonstrates compliance of knowledge, skills and abilities with the indicators given in the tables, operates the acquired knowledge, skills and abilities, applies them in standard situations. There may be minor errors, inaccuracies, difficulties in analytical operations, transfer of knowledge and skills to new, non-standard situations.

- The mark ‘satisfactory’ - one or more types of academic work provided by the curriculum are not fulfilled. The student demonstrates incomplete compliance of knowledge, skills, skills given in the tables of indicators, significant errors are made, there is a partial lack of knowledge, skills, skills for a number of indicators, the student has significant difficulties in operating knowledge and skills in their transfer to new situations. -

- The mark ‘unsatisfactory’ - not fulfilled types of academic work provided by the curriculum. demonstrates incomplete conformity of knowledge, skills, skills given in the tables of indicators, significant errors are made, there is a lack of knowledge, skills, skills for a large number of indicators, the student has significant difficulty in operating knowledge and skills in their transfer to new situations

5. ACCESSIBILITY AND QUALITY OF EDUCATION FOR PERSONS WITH DISABILITIES

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

Disabled persons and persons with disabilities may use their own technical means when carrying out the procedure for assessing learning outcomes.

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

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

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

When carrying out the procedure of assessment of learning outcomes of disabled people and persons with disabilities in the discipline provides the following additional requirements depending on the individual characteristics of students:

a) instruction on the order of the evaluation procedure is provided in an accessible form (orally, in writing);

b) an accessible form of providing tasks of assessment means (in printed form, in printed form in enlarged font, in the form of an electronic document, tasks are read out by the teacher);

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

If necessary, for students with disabilities and persons with disabilities the procedure of assessment of learning outcomes in the discipline can be conducted in several stages.

The procedure of assessment of learning outcomes for disabled students and persons with disabilities is allowed using distance learning technologies.