Evaluation tools for certification
in the discipline " Pharmaceutical ecology"
for students in basic vocational education
specialist 's program
specialty 33.05.01 Pharmacy,
focus (profile) Pharmacy,
Full-time form of education
for 2023-2024 academic year

1. Evaluation tools for the current certification in the discipline
The current certification includes the following types of tasks: testing, solving case problems, control work, oral questioning.

1.1. Examples of test items
Verifiable indicators of achievement of competencies: УК-1.1.1, УК-1.1.2; УК-8.1.1, УК8.1.2.1; УК-8.3.1; ОПК-3.1.1. ОПК-3.2.1. ПК-2.1.1., ПК-2.2.1

1.Pharmaceutical ecology is
a) the science of biogeocenoses of medicinal plants
b) section of applied ecology
c) section of human ecology

2. The biosphere includes
a) the entire hydrosphere and the lower part of the atmosphere
b) the upper parts of the hydrosphere and lithosphere and the lower part of the atmosphere
c) the entire hydrosphere, the lower part of the atmosphere and the upper part of the lithosphere
d) the entire hydrosphere, atmosphere, and the upper part of the lithosphere

1.2. An example of a case problem
Verifiable indicators of achievement of competencies: УК-1.1.1, УК-1.1.2; УК-8.1.1, УК8.1.2.1; УК-8.3.1; ОПК-3.1.1. ОПК-3.2.1. ПК-2.1.1., ПК-2.2.1

Task #1
In the aquatic environment, the amplitude of temperature values is small - it does not exceed 50°C, while in the ground-air environment it can reach up to 100°C. The aquatic environment has a high density and a relatively low oxygen content - 1% of the volume. Light in clean waters penetrates to a depth of 50-60 m, in heavily polluted waters - to a few centimeters.
Exercise:
1. Name the limiting factors of the aquatic environment.
2. What inhabitants are typical for the aquatic environment - homeothermic or poikilothermic, and why?
3. What is the ecological valency of aquatic life to the temperature factor?
4. Name the main ways of adaptation of aquatic organisms to high water density and lack of light.
5. Give examples of non-periodic factors that can affect aquatic life.

Task #2
During the environmental impact assessment, the following impurities were found in wastewater prepared for discharge into a reservoir: a) mineral - sand, slag, silt particles; b) chemical c) organic - plant residues, waste paper, physiological excretions of people and animals.
Laboratory data: wastewater pH 9.59 (N - pH 6.5-7.5); the content of chlorides is 6.5 mg/l (N - 1.5 mg/l), the content of mineral salts is 5.7 mg/l (N - 3.0 mg/l).
Exercise:
1. What category does wastewater belong to in terms of its composition?
2. Can wastewater be categorized as “treated”?

3. At what values of pH, COD, concentrations of oil products, chlorides, mineral salts, waste water is considered purified?
4. Name the norms of water consumption per inhabitant of our country, depending on the degree of development of the infrastructure of the settlement.

1.3. An example of a variant of control work
Verifiable indicators of achievement of competencies: УК-1.1.1, УК-1.1.2, УК-1.1.3, УК-1.2.1,УК- 1.2.2., УК- 1.3.1, УК-1.3.2; УК-8.1.1, УК8.1.2.1, УК-8.3.1; ОПК-3.1.1. ОПК-3.2.1, ОПК-3.3.1, ОПК3.3.2; ПК-2.1.1 ПК-2.2.1, ПК-2.3.3.
Examination "Applied ecology".
1. Classification of targeted anthropogenic impacts on the biosphere.
2. What waters are called waste (definition, characteristics)?

1.4. Sample for oral questioning.
Verifiable indicators of achievement of competencies: УК-1.1.1, УК-1.1.2, УК-1.1.3, УК-1.2.1,УК- 1.2.2., УК- 1.3.1, УК-1.3.2; УК-8.1.1, УК8.1.2.1, УК-8.3.1; ОПК-3.1.1. ОПК-3.2.1, ОПК-3.3.1, ОПК3.3.2; ПК-2.1.1 ПК-2.2.1, ПК-2.3.3.
1. "Greenhouse effect" - causes and consequences.
2. Deterioration of the ozone layer - causes and consequences.
3. "Acid rain" - causes and consequences.
4. What is eutrophication of water bodies, as a result of which this process occurs?

2. Assessment tools for conducting intermediate certification in the discipline
Interim certification is carried out in the form of a test.
Interim certification includes the following types of tasks: solving a situational problem, interview.

2. Оценочные средства для проведения промежуточной аттестации по дисциплине
Intermediate certification is carried out in the form of an exam.
Intermediate certification includes the following types of tasks: solution of a situational problem, interview.

2.1. Examples of situational tasks
Verifiable indicators of achievement of competencies: УК-1.1.1, УК-1.1.2, УК-1.1.3, УК-1.2.1,УК- 1.2.2., УК- 1.3.1, УК-1.3.2; УК-8.1.1, УК8.1.2.1, УК-8.3.1; ОПК-3.1.1. ОПК-3.2.1, ОПК-3.3.1, ОПК3.3.2; ПК-2.1.1 ПК-2.2.1, ПК-2.3.3.

Task 1.
Case study: At a distance of 2 km from the plant of chromium compounds and the CHP, there are private residential buildings (under the smoke torch of the pipes). Forest areas have been destroyed on the territory of the industrial complex and quarries. Toxicants (SO2, NO2, CO, heavy metals) were found in the atmospheric air. Decrease and damage of leaves of a grass and trees, reduction of number of some species of plants and animals is noted. Anthropogenic pollution and eutrophication of water in reservoirs have been revealed. To combat the overgrowth of the reservoir, the breeding of herbivorous fish (silver carp) is used. An increase in the volume of production waste (solid and liquid) and a deterioration in the quality of the human environment (severe pollution of water, soil, air, an increase in the general morbidity of the population) were noted. The content of chromium in the soil reaches 50 mg/kg, potatoes - 65 mg/kg, carrots - 40 mg/kg, wheat - 80 mg/kg. The soils are light chestnut, acidic (pH-4.5).
Exercise:
1. Name the sources of soil pollution.
2. What pollutants affect OS objects?
3. What anthropogenic impact do emissions have on flora and fauna (direct or indirect)?
4. The concept of introduction, does it have a place in this problem?

Task 2.
During the environmental impact assessment, the following impurities were found in wastewater prepared for discharge into a reservoir: a) mineral - sand, slag, silt particles; b) chemical c) organic - plant residues, waste paper, physiological excretions of people and animals.
Laboratory data: wastewater pH 9.59 (N - pH 6.5-7.5); the content of chlorides is 6.5 mg/l (N - 1.5 mg/l), the content of mineral salts is 5.7 mg/l (N - 3.0 mg/l).
Exercise:
1. What category does wastewater belong to in terms of its composition?
2. Can wastewater be categorized as “treated”?
3. At what values of pH, COD, concentrations of oil products, chlorides, mineral salts, waste water is considered purified?
4. Name the norms of water consumption per inhabitant of our country, depending on the degree of development of the infrastructure of the settlement.

2.2. The list of questions to prepare for the interim certification

No.	Questions for intermediate certification	Verifiable indicators of achievement of competencies
1	Pharmaceutical ecology: definition, goals, objectives. The place of pharmaceutical ecology in the system of ecological knowledge.	УК-1.1.1, УК-1.1.2, УК-1.2.1, УК- 1.2.2., УК- 1.3.1, УК-1.3.2; УК-8.1.1, УК8.1.2.1, УК-8.3.1; ОПК-3.1.1. ОПК-3.2.1, ОПК-3.3.1, ОПК3.3.2; ПК-2.1.1 ПК-2.2.1, ПК-2.3.3,
2	History of formation and development of scientific ecological knowledge. Formation of ecology as a complex interdisciplinary science.	УК-1.1.1, УК-1.1.2, УК-1.1.3, УК-1.2.1,УК- 1.2.2., УК-1.3.1, УК-1.3.2; УК-8.1.1, УК8.1.2.1, УК-8.3.1; ОПК-3.1.1. ОПК-3.2.1, ОПК-3.3.1, ОПК3.3.2; ПК-2.1.1 ПК-2.2.1, ПК-2.3.3,
3	The development of the teachings of V.I. Vernadsky about the biosphere. Functions of living matter in the biosphere (according to VI Vernadsky) The concept of the noosphere.	УК-1.1.1, УК-1.1.2; УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2
4	Large cycle of substances in nature.	УК-1.1.1, УК-1.1.2; УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2
5	The biological cycle of substances in nature.	УК-1.1.1, УК-1.1.2; УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2

6	A small cycle of substances in nature - what functions does it provide in nature.	УК-1.1.1, УК-1.1.2; УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2
7	Biogeochemical cycles of substances are the most vital for the biosphere (O2, C, S,. N).	УК-1.1.1, УК-1.1.2; УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2
8	The habitat of modern man (according to N.F. Reims).	УК-1.1.1, УК-1.1.2; УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2
9	Physical and chemical methods, methods of applied statistics used in ecological research.	УК-1.1.1, УК-1.1.2; УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2
10	Field and laboratory methods of ecological research.	УК-1.1.1, УК-1.1.2; УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2
11	Instruments used in ecological research.	УК-1.1.1, УК-1.1.2; УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2
12	Levels of biological organization and ecology. The body as a whole system.	УК-1.1.1, УК-1.1.2; УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2
13	The concepts of population, ecotype, biocenosis, biotope and biogeocenosis.	УК-1.1.1, УК-1.1.2; УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2
14	The concept of biogeocenosis. Scheme of biogeocenosis.	УК-1.1.1, УК-1.1.2; УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2
15	Intraspecific and interspecific interactions as the basis for the existence of	УК-1.1.1, УК-1.1.2;

	biocenoses.	УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2
16	Trophic levels: autotrophic and heterotrophic organisms; producers, consumers, decomposers and their role in metabolism and energy.	УК-1.1.1, УК-1.1.2; УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2
17	Environmental factors. Types of environmental factors. Ecological environmental factors affecting a living organism. Classification.	УК-1.1.1, УК-1.1.2; УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2
18	Patterns of the impact of environmental factors on the body: the rule of optimum; minimum rule; Shelford's tolerance rule.	УК-1.1.1, УК-1.1.2; УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2
19	Patterns of the impact of environmental factors on the body: the rule of two levels of adaptation; the ambiguity of the effect of the factor on various functions of the body; rule of interaction of factors; the law of ecological duplication.	УК-1.1.1, УК-1.1.2; УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2
20	Adaptation of the body to environmental factors. Basic laws and rules of adaptation.	УК-1.1.1, УК-1.1.2; УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2
21	The main mechanisms of formation of adaptations at the level of the body.	УК-1.1.1, УК-1.1.2; УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2
22	Features of adaptation of organisms to various environments of life Adaptations of plants to light and temperature conditions.	УК-1.1.1, УК-1.1.2; УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2
23	Anthropogenic factors - definition. Ecological Consequences of the Influence of Anthropogenic Factors on the Environment.	УК-1.1.1, УК-1.1.2; УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2
24	Modern environmental problems, ways to overcome them.	УК-1.1.1, УК-1.1.2; УК-1.1.3, УК-8.1,

		УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2
25	The impact of chemicals on public health. Routes of entry of chemicals into the body.	УК-1.1.1, УК-1.1.2; УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2
26	Xenobiotics: definition, classification. Routes of entry of xenobiotics into food.	УК-1.1.1, УК-1.1.2, УК-1.2.1, УК- 1.2.2., УК- 1.3.1, УК-1.3.2; УК-8.1.1, УК8.1.2.1, УК-8.3.1; ОПК-3.1.1. ОПК-3.2.1, ОПК-3.3.1, ОПК3.3.2; ПК-2.1.1 ПК-2.2.1, ПК-2.3.3,
27	Nutritional supplements. System of standardization and quality control of food additives.	УК-1.1.1, УК-1.1.2, УК-1.2.1, УК- 1.2.2., УК- 1.3.1, УК-1.3.2; УК-8.1.1, УК8.1.2.1, УК-8.3.1; ОПК-3.1.1. ОПК-3.2.1, ОПК-3.3.1, ОПК3.3.2; ПК-2.1.1 ПК-2.2.1, ПК-2.3.3,
28	Biologically active food supplements (BAA). The procedure for establishing the safety of dietary supplements.	УК-1.1.1, УК-1.1.2, УК-1.2.1, УК- 1.2.2., УК- 1.3.1, УК-1.3.2; УК-8.1.1, УК8.1.2.1, УК-8.3.1; ОПК-3.1.1. ОПК-3.2.1, ОПК-3.3.1, ОПК3.3.2; ПК-2.1.1 ПК-2.2.1, ПК-2.3.3,
29	Food ecology: Main regulatory documents related to the production, quality control and use of food additives (Federal laws of the Russian Federation, orders of the Ministry of Health of the Russian Federation, SanPiNs, guidelines and instructions approved by the Ministry of Health of the Russian Federation); general principles for evaluating the effectiveness, safety and good quality of food additives.	УК-1.1.1, УК-1.1.2, УК-1.2.1, УК- 1.2.2., УК- 1.3.1, УК-1.3.2; УК-8.1.1, УК8.1.2.1, УК-8.3.1; ОПК-3.1.1. ОПК-3.2.1, ОПК-3.3.1, ОПК3.3.2; ПК-2.1.1 ПК-2.2.1, ПК-2.3.3,
30	Environmental pollution - definition, indicate its types and objects of pollution.	УК-1.1.1, УК-1.1.2, УК-1.2.1, УК- 1.2.2., УК- 1.3.1, УК-1.3.2; УК-8.1.1, УК8.1.2.1, УК-8.3.1; ОПК-3.1.1. ОПК-3.2.1, ОПК-3.3.1, ОПК3.3.2; ПК-2.1.1 ПК-2.2.1, ПК-2.3.3,

31	The main anthropogenic (technogenic) pollutants of the atmosphere, methods of their analysis.	УК-1.1.1, УК-1.1.2; УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2
32	The main anthropogenic (technogenic) pollutants of the hydrosphere, methods of their analysis.	УК-1.1.1, УК-1.1.2; УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2
33	The main anthropogenic (technogenic) pollutants of the lithosphere and medicinal plant materials, methods for their analysis;	УК-1.1.1, УК-1.1.2, УК-1.2.1, УК- 1.2.2., УК- 1.3.1, УК-1.3.2; УК-8.1.1, УК8.1.2.1, УК-8.3.1; ОПК-3.1.1. ОПК-3.2.1, ОПК-3.3.1, ОПК3.3.2; ПК-2.1.1 ПК-2.2.1, ПК-2.3.3,
34	The main anthropogenic (technogenic) pollutants and pollution associated with the production of medicinal and chemical substances, areas of prevention.	УК-1.1.1, УК-1.1.2, УК-1.2.1, УК- 1.2.2., УК- 1.3.1, УК-1.3.2; УК-8.1.1, УК8.1.2.1, УК-8.3.1; ОПК-3.1.1. ОПК-3.2.1, ОПК-3.3.1, ОПК3.3.2; ПК-2.1.1 ПК-2.2.1, ПК-2.3.3,
35	The main consequences of atmospheric pollution: acid rain, depletion of the ozone layer, greenhouse effect - a characteristic of the cause and conditions of occurrence.	УК-1.1.1, УК-1.1.2; УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2
36	The main groups of measures for the protection of atmospheric air, purpose, characteristics.	УК-1.1.1, УК-1.1.2; УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2
37	Wastewater - definition, Mechanical and biological wastewater treatment: concept, main stages and methods, their characteristics.	УК-1.1.1, УК-1.1.2; УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2
38	The main types of anthropogenic impact on soils. Major soil pollutants.	УК-1.1.1, УК-1.1.2; УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2
39	What is land degradation and what are its causes?	УК-1.1.1, УК-1.1.2;

		УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2
40	"Soil erosion" - give a definition, list the types of erosion processes.	УК-1.1.1, УК-1.1.2; УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2
41	"Desertification" - give a definition, indicate the reasons.	УК-1.1.1, УК-1.1.2; УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2
42	Chemical-pharmaceutical enterprises and pharmacy organizations as sources of environmental pollution.	УК-1.1.1, УК-1.1.2, УК-1.2.1, УК- 1.2.2., УК- 1.3.1, УК-1.3.2; УК-8.1.1, УК8.1.2.1, УК-8.3.1; ОПК-3.1.1. ОПК-3.2.1, ОПК-3.3.1, ОПК3.3.2; ПК-2.1.1 ПК-2.2.1, ПК-2.3.3,
43	Eco-protective safety and technology in pharmaceutical and chemical production: content of concepts, examples.	УК-1.1.1, УК-1.1.2, УК-1.2.1, УК- 1.2.2., УК- 1.3.1, УК-1.3.2; УК-8.1.1, УК8.1.2.1, УК-8.3.1; ОПК-3.1.1. ОПК-3.2.1, ОПК-3.3.1, ОПК3.3.2; ПК-2.1.1 ПК-2.2.1, ПК-2.3.3,
44	Environmental organizations at industrial, including chemical and pharmaceutical enterprises; tasks of these organizations; the concept of MPC pollutants of the atmosphere, hydrosphere, soil, medicinal plant materials, as well as their hazard classes.	УК-1.1.1, УК-1.1.2, УК-1.2.1, УК- 1.2.2., УК- 1.3.1, УК-1.3.2; УК-8.1.1, УК8.1.2.1, УК-8.3.1; ОПК-3.1.1. ОПК-3.2.1, ОПК-3.3.1, ОПК3.3.2; ПК-2.1.1 ПК-2.2.1, ПК-2.3.3,
45	Natural conditions and nature management: concepts, types of nature management, examples of nature management in the Volgograd region.	УК-1.1.1, УК-1.1.2; УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2
46	Natural resources Classification of natural resources, examples of natural resources of the Volgograd region.	УК-1.1.1, УК-1.1.2; УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1,

		ОПК-3.3.2
47	Natural resource potential of the region: concept, characteristics.	УК-1.1.1, УК-1.1.2; УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2
48	Natural resources, features of resource management on the model of the Volgograd region.	УК-1.1.1, УК-1.1.2; УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2
49	Rational and irrational nature management: concepts.	УК-1.1.1, УК-1.1.2; УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2
50	General principles of rational nature management.	УК-1.1.1, УК-1.1.2; УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2
51	Monitoring of the state of the environment: concept, types of monitoring. Goals and objectives of environmental monitoring.	УК-1.1.1, УК-1.1.2; УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2
52	Ecological risks: concept, types. Public health risk assessment - content, stages.	УК-1.1.1, УК-1.1.2; УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2
53	Sanitary and hygienic monitoring: concept, goals and objectives, importance for the protection of public health.	УК-1.1.1, УК-1.1.2; УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2
54	Tasks and general principles of environmental protection.	УК-1.1.1, УК-1.1.2; УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2
55	Ecological expertise: concept, purpose, content.	УК-1.1.1, УК-1.1.2; УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2

56	The program of industrial environmental control - goals and objectives, main content.	УК-1.1.1, УК-1.1.2; УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2
57	Production environmental control program - the procedure and deadlines for submitting a report on the organization and the results of the implementation of industrial environmental control. Specialist Tasks.	УК-1.1.1, УК-1.1.2; УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2
58	Achievements in environmental science and practice, concepts for the development of environmental protection, including the protection of medicinal plants, environmental legislation.	УК-1.1.1, УК-1.1.2; УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2
59	Basic principles of environmental protection.	УК-1.1.1, УК-1.1.2; УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2
60	Protected areas: concept, functions, use.	УК-1.1.1, УК-1.1.2; УК-1.1.3, УК-8.1, УК-8.2, УК-8.3; ОПК-3.1.1, ОПК-3.2.1, ОПК-3.3.1, ОПК-3.3.2

2.3. An example of a test card for an intermediate certification

Federal State Budgetary Educational Institution of Higher Education
Volgograd State Medical University

Department: General hygiene and ecology
Subject: Pharmaceutical ecology
Specialty «Pharmacy» 33.05.01
Academic year: 2023-2024

Exam card N

Exam questions:
1. Pharmaceutical ecology: definition, goals, objectives. The place of pharmaceutical ecology in the system of ecological knowledge.
2. The main anthropogenic (man-made) pollutants and pollution associated with the production of medicinal and chemical substances, areas of prevention.
3. Basic principles of environmental protection.

Exam situational task
During the environmental impact assessment, the following impurities were found in wastewater prepared for discharge into a reservoir: a) mineral - sand, slag, silt particles; b) chemical c) organic - plant residues, waste paper, physiological excretions of people and animals.
Laboratory data: wastewater pH 9.59 (N - pH 6.5-7.5); chloride content 6.5 mg/l (N - 1.5 mg/l),

mineral salt content 5.7 mg/l (N - 3.0 mg/l).
1. What category does wastewater belong to in terms of its composition?
2. Can wastewater be categorized as “treated”?
3. At what values of pH, COD, concentrations of oil products, chlorides, mineral salts, waste water is considered purified?
4. Name the norms of water consumption per inhabitant of our country, depending on the degree of development of the infrastructure of the settlement.

L.S. Head of the Department _____Latyshevskaya N.I.

Full information about evaluation tools for certification
https://elearning.volgmed.ru/mod/folder/view.php?id=313051

Considered at the meeting of the department of General hygiene and ecology IPH may, 24, 2023, protocol No 9.

Head of the Department  N.I. Latyshevskaya