Evaluation tools for certification in the discipline "Pathology"

for students entering in 2024

according to the educational program 33.05.01 Pharmacy,

focus (profile) Pharmacy (specialty),

full-time education

2025-2026 academic year

1. Assessment tools for conducting ongoing certification in the discipline

The current assessment includes the following types of tasks: testing, solving situational problems, a test, writing and defending an essay, assessing the acquisition of practical skills (abilities), and an interview on test questions.

1.1. Examples of test tasks

Verifiable indicators of competency achievement:UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1

1. Levels of study of the pathological process

a) tissue

b) organ

c) cellular

d) systemic

d) subcellular

e) molecular

g) organismic

c) population

2. Causes of development of fatty degeneration of the myocardium

a) hypoxia, intoxication

b) arterial hypertension

c) hypercholesterolemia, hypoxia

d) protein starvation, intoxication

d) hyperglycemia, hypercholesterolemia

3. Pulmonary embolism can occur with thrombosis of the veins:

a) lower limbs

b) intestinal mesentery

c) pelvis

d) cerebral sinuses

d) renal veins

e) pulmonary veins

4. Select the types of coma:

a) toxic

b) infectious

c) diabetic

d) hepatic

d) renal

e) cerebral

5. Anasarca is called

a) lymphatic edema

b) pastosity

c) generalized edema

d) subcutaneous hemorrhage

d) swelling of the lower extremities

6. Macroscopic characteristics of chronic gastric ulcer outside of exacerbation

a) localization on the lesser curvature and in the pylorus

b) located in any part of the stomach

c) hydrochloric hematin in the bottom

d) the edges are dense, calloused

d) the edges are soft and smooth

7. 11 g/L of total lipids were detected in the patient's blood. This...

a) laboratory norm

b) hyperlipemia

c) hypolipemia

d) hyperlipoproteinemia

e) dyslipoproteinemia

e) lipidosis

8. DIC syndrome develops as a result of a massive release into the bloodstream

a) protein S

b) protein C

c) endothelial derivatives

d) heparin-like molecules

d) soluble tissue factors

9. The cause of gangrene of the lower extremities in atherosclerosis

a) lymphostasis

b) arterial thrombosis

c) deep vein thrombosis

d) prolonged spasm of veins

d) rupture of varicose veins

10. During a hypertensive crisis, it is possible to detect in the brain tissue

a) cyst

b) hematoma

c) hemosiderosis

d) atrophy of the cortex

d) glial scar

e) diapedetic hemorrhages

1.2. Examples of situational problems.

Verifiable indicators of competency achievement: UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1

Situational task #1:

A 48-year-old man, after exposure to cold, suddenly experienced acute pain in the left side of the chest, shortness of breath, headaches, muscle aches, and chills; his temperature was 39.2°C. He was admitted to the hospital on the third day of illness. Examination revealed absent breath sounds in the upper lobe of the left lung, a pleural friction rub, tachycardia, neutrophilic leukocytosis, and an increased ESR. Despite treatment, two weeks later the patient developed a cough with purulent sputum, chest pain on the left side, and a temperature of 38.7°C.

Questions for situational task #1:

1. What disease did the patient develop?

2. Stage of the disease?

3. What is the cause of pleural friction rub?

4. Name the complication that developed in the patient.

5. List possible extrapulmonary complications.

Situational task #2:

Patient Z., 68, was admitted to the clinic for abscess drainage. After drainage, her body temperature remained at 39°C, and shortness of breath developed. Blood tests revealed leukocytosis with a

shift to promyelocytes and an elevated ESR. Urine tests revealed mild proteinuria, leukocyturia, and isolated red blood cells. Death occurred due to acute heart failure.

Questions for situational task #2:

1. What clinical and morphological form of sepsis developed in the patient?

2. What type of sepsis depends on the nature of the entry point?

3. What macroscopic changes in connection with the peculiarities of the spread of the infection can be found in the lungs, heart, kidneys, and brain?

4. What macroscopic changes in the spleen were found at autopsy?

1.3.Examples of tasks for assessing the acquisition of practical skills

Verifiable indicators of competency achievement: UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1

1. Examine diphtheritic inflammation from a macroscopic view. Describe the "Diphtheritic Colitis" specimen. Note the color, surface, thickness, and nature of attachment of the film replacing the colonic mucosa.

2. Examine diphtheritic inflammation using the microscopic picture. Describe the "Diphtheritic Colitis" slide (stained with hematoxylin and eosin). Note the condition of the intestinal mucosa, the thickness, composition, and location of the fibrinous film, and changes in the underlying tissues.

1.4.Example of a test paper

Verifiable indicators of competency achievement: UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1

1. Protein metabolism disorders. Parenchymal and stromal-vascular (mesenchymal) protein dystrophies. Morphological characteristics, causes, pathogenesis, outcomes, and functional significance.
2. Tissue necrosis. Stages, morphological features, and significance for the body. Classification and characteristics of the main types of necrosis.

1.5. Examples of essay topics

Verifiable indicators of competency achievement: UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1

1. Disruption of pigment and mineral metabolism.
2. Crush syndrome.
3. Anemia.
4. Respiratory failure.

1.6. Examples of interview control questions

Verifiable indicators of competency achievement: UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1

1. Typical lipid metabolism disorders. The concept of obesity. Lipoid dystrophies. Cholesterol and lipoprotein metabolism pathology. Significance in pathology.

2. Main forms of water-salt metabolism disorders. Edema. Types of edema and mechanisms of their development.
3. Morphology of adaptive and compensatory processes. Concepts of hypertrophy and atrophy, hyperplasia and aplasia. Causes and mechanisms, significance for the body.

4.2. Assessment tools for conducting midterm assessment in the discipline

Interim certification is carried out in the formexam.

The midterm assessment includes the following types of tasks: assessment of practical skills and interview.

4.2.1. Example of assessment of practical skills and abilities

Verifiable indicators of competency achievement: UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1

1. Describe the morphological changes in the heart using a practical example of studying the macropreparation “Myocardial infarction”.

2. Describe the morphological changes in the brain using a practical example of studying a microscopic specimen of "Brain Hemorrhage"

4.2.2. List of interview questions

No.	Questions for midterm assessment	Verifiable indicators of competency achievement
1.	Pathology as a science and academic discipline. Sections of the pathology course. The subject and objectives of pathology. The place of pathology in higher pharmaceutical education.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
2.	Pathology methods. The role of experimentation in the development of medicine and pharmacy, its types, capabilities, and limitations. Moral, ethical, and legal aspects of animal experiments.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
3.	Morphological research methods in pathology. Autopsy, biopsy, macro-, micro-, and ultramicroscopic examination. Concepts of histochemistry and immunohistochemistry.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
4.	The concept of health, pre-illness, and disease. Stages and outcomes of disease. Principles of disease classification. The concept of symptoms and syndromes.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
5.	The concept of etiology. The role of causes and conditions in the development of diseases. Classification of etiological factors.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
6.	The concept of pathogenesis and morphogenesis. The main categories of pathogenesis. General and local,	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1,

	primary and secondary, specific and nonspecific, reversible and irreversible. Vicious cycles of pathogenesis.	OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
7.	The relationship between damage and protective-adaptive processes in disease development. Pathological reactions, pathological processes, and pathological conditions. Symptoms and syndromes.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
8.	The concept of reactivity and its role in pathology. Types of reactivity and the factors that determine it. The possibility of developing pathological reactivity under the influence of drugs.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
9.	Hereditary forms of pathology. General understanding of genomic, chromosomal, and gene diseases.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
10.	Causes of cell damage. General mechanisms of cell damage. The role of free radical oxidation in cell pathology.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
11.	The main manifestations of cellular damage. Reversible and irreversible cellular damage. Acute and chronic cellular damage. The main forms and manifestations of damage to cell membranes, mitochondria, nuclei, and lysosomes.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
12.	Mechanisms of cellular defense and adaptation during injury. Pathways for pharmacotherapy during cellular injury.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
13.	Typical protein metabolism disorders. The concept of alimentary dystrophies. Disturbances in blood protein composition.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
14.	Basic principles of pharmacocorrection of metabolic disorders.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
15.	The concept of hyper-, hypo-, and avitaminosis. Characteristic manifestations of the most important avitaminosis.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1

16.	Antivitamins and their role in pathology. The concept of vitamin therapy and vitamin prophylaxis.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
17.	Typical carbohydrate metabolism disorders. Carbohydrate dystrophies. Hyper- and hypoglycemia. Types and mechanisms of development.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
18.	Typical lipid metabolism disorders. The concept of obesity. Lipoid dystrophies. Cholesterol and lipoprotein metabolism pathology. Significance in pathology.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
19.	Main forms of water-salt metabolism disorders. Edema. Types of edema and mechanisms of their development.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
20.	Disturbances in the metabolism and balance of essential electrolytes (sodium, potassium, magnesium, calcium, chlorides, bicarbonates, sulfates). Calcifications. The concept of rickets.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
21.	Types and mechanisms of acidosis and alkalosis. Gas and non-gas acidosis, alkalosis.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
22.	Damage and levels of damage during disease development. Brief description of the main pathogenic factors.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
23.	Hypoxia. Causes, types, and main development mechanisms. Consequences for organs and tissues.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
24.	Ways of prevention and pharmacological correction of hypoxic conditions.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
25.	Morphology of adaptive and compensatory processes. Concepts of hypertrophy and atrophy, hyperplasia and aplasia. Causes and mechanisms, significance for the body.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1

26.	The concept of tissue remodeling and regeneration. Causes, morphogenesis, and significance for the body. The concept of sclerosis, fibrosis, and cirrhosis.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
27.	Tissue necrosis. Stages, morphological features, and significance for the body. Classification and characteristics of the main types of necrosis.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
28.	Adaptation at the systemic level. Stress as a general adaptation syndrome. Stages, mechanisms of development, and manifestations of stress. The concept of anti-stress mechanisms.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
29.	Tumors and tumor growth. Theories of carcinogenesis. Endogenous and exogenous carcinogens, precarcinogens, and cocarcinogens. Viral and drug-induced carcinogenesis. The concept of precancerous conditions.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
30.	The concept of tumor atypia and tumor progression. Tumor classification. Comparative characteristics of benign and malignant neoplasms.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
31.	Systemic manifestations of tumor progression. The concept of cancer cachexia.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
32.	Mechanisms of antitumor protection and ways of pharmacological intervention in blastomogenesis.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
33.	Main forms of regional circulatory disorders. Arterial hyperemia. Causes, mechanisms, manifestations, and outcomes.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
34.	Venous hyperemia. Causes, mechanisms, manifestations, and outcomes. Varicose veins. Congestive congestion of the liver and lungs. Phlebitis and thrombophlebitis.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
35.	The concepts of ischemia, reperfusion, and stasis. Causes, mechanisms, manifestations, and outcomes. Infarction and types of infarctions.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1

36.	Thrombosis. Causes, mechanisms. Types of thrombi. Thrombophlebitis. Outcomes of thrombosis.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
37.	Emboli. Types of embolism. The concept of thromboembolic disease. Embolic outcomes. Pulmonary embolism.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
38.	Microcirculation disorders. Blood rheological abnormalities. Sludge and microthrombosis. The concept of DIC syndrome.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
39.	Principles of pharmacocorrection of regional blood and lymph circulation disorders and microcirculatory disorders.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
40.	General characteristics of inflammation. Etiology, local and general signs of inflammation. Main components of the inflammatory process.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
41.	Alterations at the site of inflammation, their types and significance. Inflammatory mediators, their origins, and their role in inflammation development.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
42.	Changes in microcirculation at the site of inflammation. Exudation, its mechanisms and significance. Types of exudates. Leukocyte emigration and phagocytosis during inflammation.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
43.	Proliferation, its mechanisms, and significance in inflammation. Metabolic disturbances at the site of inflammation. Inflammatory outcomes.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
44.	The role of cytokines, prostaglandins, and steroid hormones in the pathogenesis of inflammation. The interaction of damage and protective-adaptive mechanisms during inflammation.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
45.	The concept of the acute phase response of the whole organism to damage.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1

46.	Chronic inflammation. The concept of granuloma. Characteristics of productive inflammation in tuberculosis and syphilis.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
47.	Principles of pharmacocorrection of acute and chronic inflammation.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
48.	Allergies. General characteristics and stages. Classification of allergens. The concept of drug allergy.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
49.	Immediate and delayed allergies. Forms, stages, mechanisms, and outcomes.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
50.	The concept of autoimmune diseases. General characteristics and types. Immunological tolerance.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
51.	Immunodeficiency disorders, their hereditary and acquired forms. The concept of HIV infection.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
52.	Pharmacotherapy approaches for immunopathological conditions. Principles of vaccine therapy and vaccine prophylaxis.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
53.	The infectious process as a form of interaction between macro- and microorganisms. Stages and outcomes.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
54.	Pathogenesis of infectious diseases varies depending on the pathogen and its route of entry. Mechanisms of anti-infective resistance.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
55.	Etiology and pathogenesis of sepsis. Main forms of sepsis.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1

56.	Principles of pharmacological intervention in the infectious process.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
57.	Fever. Causes, types, periods, biological significance.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
58.	Principles of fever pharmacotherapy. The concept of pyrotherapy.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
59.	Pain as a protective response. Modern theories of pain. Nociceptive and antinociceptive systems.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
60.	Pathological pain. Principles of pain and pain syndrome treatment.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
61.	Shock. Types of shock. Stages and mechanisms of shock development.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
62.	Hemodynamic and vital organ dysfunction in shock. Irreversible changes in shock. The concept of crush syndrome.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
63.	Collapse. Types of collapse and its differences from shock. Coma. Types and stages of coma. Drug poisoning as a cause of coma.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
64.	Basic principles of pharmacocorrection in extreme conditions.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
65.	Anemias. Etiology and classification principles. Iron deficiency anemia. B12 and folate deficiency anemia.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1

66.	Hemolytic anemia. Hypo- and aplastic anemia.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
67.	Basic principles of pharmacocorrection of anemic conditions.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
68.	Leukocytosis and leukopenia. Pathogenetic significance of the main changes in the leukocyte count.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
69.	Leukemia: causes, classification principles. Morphological changes in internal organs in leukemia.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
70.	The main forms of circulating blood volume disorders. Hyper- and hypoviscotic conditions. Changes in ESR and their role in pathology.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
71.	Pathology of the hemostatic system. Platelet activation, thrombocytopathy, and thrombocytopenia. Hyper- and hypocoagulation. Activation and depression of fibrinolysis.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
72.	Causes, mechanisms of development and outcomes of DIC syndrome.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
73.	Basic principles of pharmacocorrection of the hemostasis system.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
74.	General etiology and epidemiology of cardiovascular diseases. Circulatory failure, types, and mechanisms of development. Acute and chronic heart failure. Concepts of metabolic and overload heart failure.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
75.	Coronary artery disease. Causes, mechanisms, forms, outcomes. Myocardial infarction. Pathogenesis and pathomorphology. Morphological picture of acute and chronic ischemic heart disease.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1

76.	Inflammatory diseases of the heart: endo-, myo- and pericarditis. Rheumatism.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
77.	Congenital and acquired heart defects. Cardiac arrhythmias.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
78.	Atherosclerosis. Etiology, pathogenesis and morphogenesis. Clinical and anatomical forms.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
79.	Hypertension and hypotension. Hypertension. Symptomatic hypertension.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
80.	Principles of pharmacocorrection in cardiovascular pathology.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
81.	Major respiratory disorders and their causes. Acute and chronic respiratory failure. Etiology, pathogenesis, and outcomes.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
82.	Upper respiratory tract pathology. ARVI. Influenza. Bronchitis.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
83.	Pneumonia. Types and mechanisms of development. Morphological picture. Outcomes and complications.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
84.	Chronic nonspecific lung diseases. Bronchiectasis. Emphysema. Pneumoconiosis. Pneumosclerosis.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
85.	Bronchial asthma. Causes, mechanisms, course, morphological presentation. Outcomes and complications.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1

86.	Principles of pharmacocorrection of respiratory diseases.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
87.	General etiology of gastrointestinal diseases. Digestive disorders in the oral cavity. Main disorders of swallowing and food passage through the esophagus.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
88.	Disturbances in the secretion volume and composition of gastric juice. Acute gastritis. Ulcerative lesions of the gastrointestinal tract. Etiology and pathogenesis of gastric and duodenal ulcers.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
89.	Major dyspeptic syndromes. Etiology and pathogenesis of intestinal obstruction. Enteritis and colitis. Intestinal dysbacteriosis.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
90.	Intestinal infections. Concepts of peritonitis and intestinal autointoxication.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
91.	Principles of pharmacological correction of digestive system pathology.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
92.	The main types of hepatotropic damaging factors. The main pathological and clinical-laboratory liver syndromes.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
93.	Acute and chronic liver failure. Understanding jaundice: etiology, pathogenesis, and morphological manifestations.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
94.	Hepatitis and hepatoses. Etiology, pathogenesis and morphogenesis. Liver cirrhosis. Drug-induced hepatitis. Hepatic coma.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
95.	Acute and chronic pancreatitis. Pharmacotherapy for liver and pancreatic pathology.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1

96.	Pathology of the excretory organs. Acute and chronic renal failure. Etiology, pathogenesis, and morphogenesis. Outcomes.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
97.	Glomerulo- and tubulopathies. Types, causes, mechanisms of development, pathomorphology, and outcomes.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
98.	Pyelonephritis. Cystitis. Urolithiasis. Types, causes, mechanisms of development, pathomorphology, and outcomes. Concept of renal hypertension.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
99.	Principles of pharmacocorrection in diseases of the kidneys and urinary tract.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
100.	General etiology, classification, and pathogenesis of neurological disorders. Pathology of the sensory and motor systems.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
101.	Disorders arising from pathology of the autonomic nervous system. Neurotrophic disorders.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
102.	Traumatic brain injuries. Meningitis, arachnoiditis, encephalitis.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
103.	Pathology of higher nervous activity: the concept of neuroses and psychoses. Pathology of thinking.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
104.	General characteristics of myasthenia, parkinsonism, epilepsy.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
105.	General characteristics of schizophrenia and manic-depressive psychosis.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1

106.	General characteristics of substance abuse, alcoholism and drug addiction.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
107.	Pharmacocorrection for diseases of various parts of the nervous system.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
108.	Basic principles of endocrine regulation in health and disease. General etiology and mechanisms of endocrine disorders. Hyper-, hypo-, and dysfunctional endocrinopathies.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
109.	Pathology of the hypothalamic-pituitary system: general characteristics of Itsenko-Cushing's disease, diabetes insipidus, pituitary dwarfism, pituitary cachexia, gigantism, acromegaly.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
110.	Thyroid and parathyroid gland pathology. Etiology, pathogenesis, and clinical manifestations of major diseases.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
111.	Diabetes mellitus. Etiology, forms, pathogenesis, manifestations, and complications.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
112.	Adrenal and gonadal pathology. Etiology, pathogenesis, and clinical manifestations of major diseases.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
113.	Basic principles of pharmacocorrection in endocrine pathology.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
114.	Classification of skin diseases. Infectious skin diseases. Allergic skin diseases. Metabolic and trophic skin pathology.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
115.	Musculoskeletal pathology. Arthritis and arthrosis. Bone pathology. Osteomyelitis.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1

116.	The main causes of adverse drug effects. The concept of drug dependence, drug addiction, and substance abuse.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
117.	Drug-induced lesions of the gastrointestinal tract and liver.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
118.	Drug-induced lesions of the respiratory and cardiovascular systems.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
119.	Drug-induced lesions of the kidneys and urinary tract. Drug-induced endocrinopathies.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1
120.	Adverse drug effects on the fetus. Complications of hormonal therapy. Vaccination reactions and complications.	UK-7.1.1, UK-7.2.1, UK-7.3.1; OPK-2.1.1, OPK-2.2.1, OPK-2.3.1; PC-3.1.1, PC-3.2.1, PC-3.3.1

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