MINISTRY OF EDUCATION AND SCIENCE OF THE RUSSIAN FEDERATION
Federal state autonomous educational institution
of higher education
«Far Eastern Federal University»
(FEFU)

SCHOOL OF BIOMEDICINE

«AGREED»
Head of education program
«General medicine»
_____ Khotimchenko Yu.S._____
(signature) (Full name)
«09» of July 2019

«APPROVED»
Director of the Department of Clinical Medicine
_____ Geltser B.I._____
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«09» of July 2019

WORKING PROGRAM OF ACADEMIC DISCIPLINE (WPAD)
«Pathological Anatomy»
Educational program
Specialty 31.05.01 «General medicine»
Form of study: full time

year 3 semester 5,6
lectures 36 hours
practical classes 108 hours
laboratory works not provided
total amount of in-classroom work 144 hours
independent self-work 144 hours
including exam preparation 81 hours
control works ()
credit not provided
exam 3 year, 5,6 semester

The working program is drawn up in accordance with the requirements of the Federal state educational standard of higher education (level of training), approved by the order of the Ministry of education and science of the Russian Federation from 09.02.2016 № 95.

The working program of the discipline was discussed at the meeting of the Department of fundamental and clinical medicine. Protocol No. 8, 09 of July 2019

Author: Turmova E.P.

ANNOTATION

The discipline "Pathological Anatomy" is intended for students of the 3 course, enrolled in the direction of 31.05.01. "General Medicine" is an obligatory discipline of the basic part of the mathematical and natural science cycle. The complexity of the discipline 8 credits., 288 hours. The study of the discipline is based on knowledge acquired as a result of the development of the following disciplines of the EP: "Biology", "Anatomy", "Physiology", "Histology, embryology, cytology", "Latin language"

The course program is based on the basic knowledge gained by students: the ability to abstract thinking, analysis, synthesis (GC-1);
the capacity for the assessment of morphological and physiological states and pathological processes in the human body for solving professional tasks (GPC-9);

The study of the discipline is based on knowledge acquired as a result of mastering the following disciplines: "Biology", "Anatomy", "Histology, embryology, cytology".

The obtained knowledge and skills are necessary for the development of the following disciplines: General Surgery, Forensic Medicine, Neurology, Medical Genetics, Neurosurgery, Obstetrics and Gynecology, Otorhinolaryngology.

The purpose of mastering the discipline "Pathological Anatomy" is: the study of the structural bases of diseases and pathological processes, their etiology and pathogen, pathomorphological manifestations, complications, outcomes and causes of death for using the knowledge gained in clinical departments and in the work of a doctor.

Tasks:

- the study of cell pathology and general pathological processes, which together determine the morphological manifestations of a particular disease;

• - etiology, pathogenesis and morphology of diseases at different stages of their development (morphogenesis), structural bases of recovery, complications, outcomes and long-term effects of diseases;

• - morphology and mechanisms of adaptation and compensation of the organism in response to the effects of pathogenic factors and changing environmental conditions;

• - Changes in diseases arising in connection with changing environmental conditions and treatment (pathomorphosis), and as a result of therapeutic, surgical and diagnostic manipulations (pathology of therapy).

• - pathoanatomical service, its tasks in the health care system.

To successfully study the discipline "Pathological Anatomy" the following preliminary competences should be formed in students:

• readiness to use in practice the methods of the humanities, natural sciences, and biomedical sciences in educational activities;

• the ability and willingness to identify the natural scientific nature of problems, analyze the results of natural science, biomedical, improve their professional knowledge and skills;

• ability and readiness to analyze information using a systematic approach, to the perception of innovation, to use the obtained theoretical, methodological knowledge and skills in fundamental scientific, medical and biological disciplines in academic work.

As a result of studying this discipline, students form the following general cultural / professional competencies (elements of competencies):

Competence code and formulation	**Stages of forming the competence**	
- the ability and willingness to analyze the results of his own activity to prevent professional errors (CPC-5)	Knows	Etiology, pathogenesis, diagnosis, treatment and prevention of the most common diseases; The clinical picture, peculiarities of the current and possible complications of the most common diseases occurring in a typical form;
	Is able to	Interpret the results of the survey, put the patient in a preliminary diagnosis, outline the scope of

		additional research
	Possesses	Interpretation of results of laboratory, instrumental methods of diagnostics in patients of different age;
the capacity for the assessment of morphological and physiological states and pathological processes in the human body for solving professional tasks (CPC – 9)	Knows	Concepts of etiology, pathogenesis, morphogenesis, pathomorphosis of disease, nosology, principles of classification of diseases, basic concepts of general nosology
	Is able to	- Work with microscopes - Explain the nature of the deviations in the course of development, which can lead to the formation of variants of anomalies and vices
	Possesses	Skills of microscopy and analysis of histological preparations and electronic microphotographs;
the ability of determining the patient's basic pathological conditions , symptoms, syndromes, diseases in accordance with the International Statistical Classification of Diseases and problems related to health , the 10th review. (PC – 6)	Knows	Basic pathological state, symptoms, syndromes diseases, nosological forms in According to ICD.
	Is able to	Identify key pathological state, symptoms, syndromes diseases, nosological forms in According to ICD in patients with the studied pathology.
	Possesses	medico-anatomical conceptual apparatus; the simplest medical instruments (phonendoscope, spear, neurological hammer, scalpel, tweezers, probe, clamp, expander, etc.);

I. STRUCTURE AND CONTENT OF THE THEORETICAL PART OF THE COURSE (36 hours)

Semester 5

Section 1 Introduction to Pathological anatomy (4 hours)

Theme 1. History of pathological anatomy. Damage and death of cells and tissues. (2 hours)

The content and algorithm of studying the subject "pathological anatomy". Ethical and deontological norms in pathological anatomy. The basic stages of the history of pathological anatomy development. Tasks, objects and methods of pathology research. Necrosis. Apoptosis.

Theme 2. Metabolic disorders in cells and tissues. (2 hours)

Pathology of Accumulation (dystrophy). Violations of protein, lipid, carbohydrate metabolism. Mukoidnoe and fibrinoid swelling. Hyaline changes. Violations of the exchange of chroproteids (endogenous pigments). Metabolic disorders of nucleic acids. Violations of mineral metabolism. Pathological calcification. Formation of stones.

Section II. General Pathology (14 hours)

Theme 3. Disorders of blood and lymph circulation. (2 hours)

Violation of blood (full blood, anemia). Bleeding, hemorrhages, Plasmorragia. Violations of lymph circulation and tissue fluid content. Stasis. Sladge syndrome. Thrombosis. Shock. DVC-syndrome. Embolism. Ischemia. Myocardial.

Theme 4. Inflammation. (2 hours)

Inflammation, general characteristic. Acute inflammation. exsudative inflammation.

Theme 5. Chronic inflammation. Regeneration and wound healing (2 hours)

Productive and chronic inflammation. Specific granulomas (tuberculosis, syphilis, leprosy, rhinoplasty). Regeneration processes. Types of wound healing prosecces. Reparation. Healing wounds. Hyperplasia. Hypertrophy. Atrophy. Metaplasia. Dysplasia. Intraepithelial neoplasia.

Theme 6. Pathology of the immune system (2 hours).

Hypersensitivity reactions. Autoimmunization and autoimmune diseases. Amyloidosis. Primary and secondary immunodeficient syndromes.

Theme 7. Pathological changes in infectious diseases (2 hours)

Infectious and parasitic diseases, general characteristics. Particularly dangerous infections. Viral and bacterial infections transmitted by air-drip: Influenza, SARS, measles, pertussis, diphtheria, scarlet fever, meningococcal disease, meningitis infection. Viral infections: herpes, cytomomegaly, HIV infection.

Theme 8. Pathological anatomy of tissue growth. Pathologic diagnosis of neoplasia (2 hours)

The basic properties of tumors and tissue growth. Nomenclature and principles of classification. Metastasis. The effect of the tumor on the body.

Theme 9. Pathological anatomy of tissue growth (II). Mesenchymal tissue tumors. Epithelial tissue tumors. Neural tissue tumors. Pathologic diagnosis of cancer. (2 hours)

Tumors of the epithelium. Organ-specific and organ-nononspecific tumors. Tumors from tissues-derivatives of mesenchhims, neuroectoderm and melanin-producing tissue. Principles of classification. Clinical-morphological characteristic. Peculiarities of metastasis.

6 semester (18 hours)

Section 3 Specific pathological anatomy (18 hours)

Theme 10. Pathology of red blood cells. (2 hours) Anemia. (etiology, pathogenesis) Erythrocytosis. Polycythemias.

Theme 11. Pathophysiology of white blood cells (Hemoblastosis) (2 hours). Definition of the concept of leukemia (acute and chronic), principles for the classification of leukemia, pathogenetic features of hematopoietic tissue tumors, characteristics of leukemia.

Theme 12. Diseases of the cardiovascular system. (2 hours)

Atherosclerosis. Arterial hypertension. Hypertension and secondary hypertension. Coronary heart disease (CHD). Cardiomyopathies. Diseases of the endocardium. Disease of the myocardium. Diseases of the pericardium. Tumors of the heart. Vasculitises. Arterial disease. Aneurysms. Venous disease. Vascular tumors. Cerebrovascular diseases (CVB).

Theme 13. Diseases of the respiratory system. (2 hours)

Congenital anomalies of the lungs. Atelectasises. Vascular pathology of the lungs. Pneumonias. Chronic diffuse lung diseases. Chronic obstructive and

restrictive lung diseases. Interstitial lung disease. Bronchial asthma. Tumors of the bronchi and lung tissue. Lung cancer.

Theme 14. Diseases of the gastrointestinal tract. (2 hours)

Diseases of throat and throat. Diseases of the esophagus. Stomach trouble. Intestinal diseases (congenital anomalies, vascular diseases, ulcerative colitis, Crohn's disease). Diseases of the Appendix of the cecum. Tumors of the stomach and intestines.

Theme 15. Diseases of the liver, biliary tract and exocrine pancreas. (2 hours)

Hepatic cell failure. Circulatory disorders in the liver. Hepatitis. Cirrhosis. Liver damage caused by drugs and toxins. Alcoholic liver disease. Nonalcoholic steatosis of the liver. Liver tumor. Cholelithiasis. Cholecystitis. Diseases of the exocrine part of the pancreas. Tumors of the biliary tract and pancreas.

Theme 16. Kidney disease. (2 hours)

Glomerular disease. Acute glomerulonephritis. Chronic glomerulonephritis. Non-inflammatory glomerulopathy. Kidney disease associated with lesions of the tubules and interstitial. Necrotic nephrosis (acute tubulars). Pyelonephritis. Nephrosclerosis. Renal amyloidosis. Urolithiasis (kidney stones). Kidney and urinary tract tumors.

Theme 17. Diseases of the endocrine system. (2 hours)

Diseases of the endocrine part of the pancreas (diabetes). Thyroid disease. Diseases of the parathyroid glands. Hypothalamic-pituitary and pituitary diseases. Diseases of the adrenal glands. Autoimmune polyglandular syndromes. Tumors of the endocrine glands. Neuroendocrine tumor. Multiple endocrine neoplasia syndromes.

Theme 18. Diseases of the nervous system (2 hours)

The main manifestations of brain tissue lesions. Expanding (volume) intracranial lesions. Traumatic brain injury. Infectious lesions. Demyelinating

disease. Metabolic disease. Tumors of the Central nervous system. Pathology of peripheral nerves and paraganglia. The tumor peripheral nerves and paraganglia.

II. THE STRUCTURE AND CONTENT OF THE PRACTICAL PART OF THE COURSE (108 hours)

Semester 5 (54 hours)

Topic 1. Pathological anatomy. Introduction. Table of contents. Tasks, objects and methods of the study. Prosection (4 час.)

1. Determination of the object of pathological anatomy.
2. Problems of pathological anatomy.
3. Basic methods and levels of pathological anatomy research.
4. The importance of pathological anatomy at the present stage.

Topic 2. Cell injury. Definition. Types. Classification, causes, anatomical and microscopic features. Apoptosis, necrosis. Necrobiosis. Definition. Mechanism. Microscopic features (4 hours)

1. The definition of necrosis, explain its essence.
2. The dynamics of the necrotic process.
3. Macroscopic, microscopic and ultrastructural signs of necrotic changes.
4. Characteristics of etiological species and clinical and morphological forms of necrosis.
5. Forms of necrosis, and to assess their functional value.
6. The essence of the concept of apoptosis,
7. Apoptosis and its importance for the body.

Topic 3. Pathological accumulation. Dystrophy. Definition, types, causes, classification, microscopic features. Pathological calcification. Gout. Pigmentation disorders. Definition, types, causes, classification, microscopic features. (4 hours).

1. Definition of dystrophies to call their types.

2. Distinctions parenchymatous and stromalno-vascular (proteinaceous and fatty) dystrophies on the basis of their macroscopic, microscopic and ultrastructural characteristic.

3. Mechanisms of development of parenchymatous dystrophies in various bodies at action of various reasons.

4. Clinical value of parenchymatous dystrophies and their outcomes.

5. Mechanisms of development of stromalno-vascular dystrophies of dystrophies in various bodies at action of various reasons.

6. Clinical value of stromalno-vascular dystrophies and their outcomes.

7. The substances relating to gemoglobinogenny, proteinogenny and lipidogenny pigments.

8. Types of violations of exchange of hromoproteid (endogenous pigments) and to explain mechanisms of their development.

9. Types of violations of exchange of nukleproteid and to explain mechanisms of their development.

10. Types of kaltsinoz (calcifications) and to explain the mechanism of their development.

11. Types of the stones which are formed in uric and bilious ways to explain the mechanism of their education.

12. Types mixed dystrophies on the basis of their macroscopic, microscopic and ultrastructural characteristic and to estimate their functional value.

Topic 4. Pathological anatomy of blood circulation. Hyperemia, ischemia. Infarction, Coagulation disorders. Disseminated intravascular coagulation (4 hours)

1. Definition of plethora, its types, development mechanisms.

2. Diagnostics of plethora of various tissues and organs on their macro - and a microscopic picture.

3. Value and outcome of plethora.

4. Definition of bleeding to state its reasons, development mechanisms, types, consequences for an organism.

5. Definition of hemorrhage to call its types, value for an organism.

6. Definition of an anemia to call its types; to describe morphology, to call outcomes.

7. Definition of a staz to explain its reasons, development mechanisms, to disclose functional value.

8. Definition of shock to call its types; to describe morphology, to call outcomes.

9. Definition of thrombosis to state types, the reasons and conditions of emergence.

10. Morphological characteristic of blood clot to distinguish it from a tromboembol and a posthumous parcel of blood.

11. Value of thrombosis and its outcomes for an organism.

12. Definition of an embolism to know its types.

13. Value of an embolism for an organism, death mechanism at a thrombembolia of a pulmonary artery.

14. Definition of a heart attack to know its reasons, development stages.

15. Types of a heart attack on a macroscopic and microscopic picture.

16. Value of a heart attack and its outcomes.

17. Definition of DIC syndrome to state its reasons, mechanisms of development, a stage, a consequence for an organism.

Topic 5. Inflammation. Definition. Stages and phases. Inflammatory cells. Alterative, exudate inflammation. Microscopic features. Chronic and granulomatous inflammation. Definition. Theories. Causes. Mechanism. Microscopic features (4 hours)

1. Inflammation definition to explain its etiology, the development mechanism, to estimate value of each phase of inflammation.

2. Inflammation forms in compliance with classification.

3. Definition of exudative inflammation to call its types.

4. Macro - and microscopic characteristic of different types of exudative inflammation.

5. Functional value and outcomes of different types of exudative inflammation.

6. Definition of productive inflammation to call its types.

7. Etiology and mechanism of development of each type of productive inflammation.

8. Types of productive inflammation on their macroscopic and microscopic picture.

9. Outcomes, complications and values of productive inflammation.

10. Definition of specific granulomas to be able to explain an etiology and the mechanism of their development.

11. Granulomas at tuberculosis, syphilis, a rinoskleroma and leprosy on their macroscopic and microscopic picture.

12. Outcomes, complications and value of productive inflammation.

Topic 6. Regeneration, reparation and adaptation processes. Definitions. Differences. Pathological disorders. Microscopic features. (4 hours)

1. Essence of adaptation and compensation.

2. Stages of compensatory and adaptive processes to give their morphological characteristic.

3. Definition of different types of compensatory and adaptive processes to explain the mechanism of their development.

4. Functional value of compensatory and adaptive processes.

Topic 7. Midterm control. (2 hours)

1. Control test

2. Control case solving.

Topic 8. Pathological anatomy of immune system. (4 hours)

1. A morphofunctional characteristic of immunocompetent cages (T - and V-lymphocytes, macrophages) to know T - and V-dependent zones in peripheral lymphoid fabric.

2. Immunogenesis and its morphological manifestations (humoral and cellular immune reactions).

3. Definition of immunopathological processes.

4. Characteristic of changes of an immunocompetent system at anti-gene stimulation and immune deficiency.

5. Morphological characteristic of reactions of hypersensitivity and reaction of transplant immunity.

6. Definition of an autoimmunization, autoimmune diseases, to give their morphological characteristic.

7. Changes of a timus (age involution, aktsidentalny transformation, a hypoplasia, a giperplaziya, a dysplasia) and peripheral lymphoid fabric at immunogenesis violations.

8. Definition of immunodeficient syndromes (primary and secondary.

9. Morphological characteristic to an amiloidosis.

Topic 9. Infectious disease: pathological anatomy and microscopic features. (4 hours)

1. Typhoid. Definition, etiology, pathogenesis, pathological anatomy, complications and outcomes;

2. Cholera. Definition, etiology, pathogenesis, pathological anatomy, complications and outcomes;

3. Staphylococcal infections. Classification, pathogenesis, pathological anatomy of the most frequent forms, complications and outcomes;

4. Classification, etiology, pathogenesis and general morphological characteristic of sepsis;

5. Pathological anatomy of kliniko-morphological forms of sepsis, complication, outcomes, causes of death;

6. Etiology, pathogenesis, morphological characteristic of anthrax, plague, complication, outcomes;

7. Etiology, pathogenesis, morphological characteristic столбня, complications, outcomes.

8. Cytomegaloviral infection. Definition, etiology, pathogenesis, pathological anatomy, complications and outcomes;

9. Etiology and pathogenesis of tuberculosis;

10. Classification of tuberculosis;

11. Morphological characteristic of various forms of primary, gekmatogenny and secondary tuberculosis;

Topic 10. Pathological anatomy of tissue growth #1. Tumor growth. Definition. Classification. General features. Pathologic diagnosis of neoplasia (4 hours)

1. Definition of a tumor.

2. Morphological features of tumor cells.

3. Principles of classification of tumors.

4. Morphological characteristic benign and malignant tumors.

Topic 11. Pathological anatomy of tissue growth #2. Mesenchymal tissue tumors (4 hours)

1. Benign and malignant mesenchymal tumors to give their morphological characteristic.

2. Ways of metastasis of mesenchymal tumors.

Topic 12. Pathological anatomy of tissue growth #3. Epithelial tissue tumors. Neural tissue tumors. Pathologic diagnosis of cancer (4 hours)

1. Classification of epithelial tumors and tumors from nervous tissue.

2. Macro - and microscopic characteristic benign and malignant the tumors from an epithelium.

3. Macro - and microscopic characteristic benign and malignant tumors of glands.

4. Macro - and microscopic characteristic of tumors from nervous and tissue.

5. Features of metastasis of malignant tumors from an epithelium and tumors from nervous and tissue.

Topic 13. Pathological anatomy of aging (4 hours)

1. Conference-type lesson.

Topic 14. The final lesson. Protecting of presentations. (4 hours)

1. Protecting of presentation about features of general pathology and it`s role for practice medicine

Semester 6 (54 hours)

Topic 15. Pathology of blood cells. (4 hours)

1. Principles of classification of anemias.

2. An etiology, pathogenesis and morphological characteristic of separate types of anemias (post-hemorrhagic, hemolytic, owing to violation of a krovoobrazovaniye).

3. Complications and causes of death at anemias.

4. Patomorfoz of anemias.

Topic 16. Pathology of bone marrow (4 hours)

1. Principles of classification of tumors of the haematogenic and lymphatic fabric.

2. Etiology, pathogenesis and morphological characteristic of separate types of leukoses and lymphoma (sharp leukosis, chronic myeloid leukosis, chronic lymphocytic leukosis, miyelomny disease, лимфогранулематоз).

3. Complications and causes of death at leukoses and lymphoma.

4. Patomorfoz of tumors of the haematogenic and lymphatic fabric.

Topic 17. Diseases of the cardiovascular system. (4 hours)

1. A hypertension, definition, its difference from symptomatic hypertensions.

2. Reasons and mechanism of development of a hypertension.

3. Hypertension stages, their morphological characteristic.

4. Clinicomorphological forms of a hypertension, a complication and outcomes.

5. Definition, etiology, pathogenesis and classification of coronary heart disease.

6. Sharp IBS (myocardial infarction), forms, stages.

7. Endocarditis. Definition. Classification;

8. Myocarditis. Definition. Classification;

9. Cardiomyopathy. Definition. Classification

10. Vaskulita. Definition. Classification

Topic 18. Diseases of the respiratory system. (4 hours)

1. Etiology, pathogenesis, classification of pneumonia;

2. Macroscopic and microscopic characteristic of focal pneumonia, complications and outcomes, causes of death;

3. Etiology, pathogenesis, classification, morphological characteristic of flu, complication and outcomes;

4. Etiology, pathogenesis, morphological characteristic of an adenoviral infection, RS-infection, paraflu, complication and outcomes;

5. Classification, etiology and pathogenesis of chronic diseases of lungs;

6. Morphological characteristic of diseases from group of chronic diseases of lungs;

7. Lung cancer – definition, classification. Complications, features of metastasis.

Topic 19. Diseases of the gastrointestinal tract. (4 hours)

1. Etiology, pathogenesis, morphological characteristic of the sharp and chronic ezofagit and gastritis;

2. Etiology, pathogenesis, morphological characteristic of stomach ulcer, its complication and outcomes;

3. Risk factors of development of cancer of stomach. Classification of cancer of stomach. Morphological characteristic, features of metastasis.

4. Etiology, pathogenesis, morphological characteristic of diseases of a small intestine, its complication and outcomes

5. Etiology, pathogenesis, morphological characteristic of diseases thick, its complications and outcomes

Topic 20. Diseases of the liver, biliary tract and exocrine pancreas. (4 hours.)

1. Gepatosis. Definition, classification, etiology, pathogenesis, morphological characteristic of a complication and outcomes;

2. Hepatitis. Definition, classification, etiology, pathogenesis, morphological characteristic of a complication and outcomes;

3. Cirrhosis. Definition, classification, etiology, pathogenesis, morphological characteristic of a complication and outcomes;

4. Liver cancer. Classification, morphological characteristic of a complication and feature of metastasis;

Topic 21. Kidney disease. (4 hours)

1. Classification of diseases of kidneys;

2. An etiology, pathogenesis of the most often found diseases of kidneys (diffusion glomerulonefrit, acute nephrosis, or a acute renal failure, pyelonephritis, an urolithic disease);

3. Morphological characteristic of various diseases of kidneys;

4. Complications and outcomes of various diseases of kidneys;

5. Kidney cancer. Classification, morphological characteristic, metastasis.

Topic 22. Diseases of the endocrine system. (4 hours)

1. Classification of diseases of endocrine glands;

2. Etiology, pathogenesis, morphological characteristic of diabetes, complication and cause of death;

3. Morphological characteristic of diabetes;

4. Etiology, pathogenesis, classification of a craw, complication and cause of death;

5. Morphological characteristic of different types of a craw

6. Etiology, pathogenesis, morphological characteristic of diseases of a male reproductive system, its complication and outcomes

7. Etiology, pathogenesis, morphological characteristic of diseases of a female reproductive system, its complication and outcomes

Topic 23. Diseases of the nervous system (4 hours)

1. The dystrophic (degenerative) diseases which are characterized by prevalence of injuries of neurons of various localization;

2. The demyelinating diseases, are characterized by primary defeat of myelin covers (primary demyelination) or axons (secondary demyelination);

3. Inflammatory diseases are divided into meningitis, encephalitis and meningoentsefalita.

Topic 24. Diseases of musculoskeletal system (4 hours)

1. Osteopetrosis

2. achondroplasia

3. Imperfect osteogenesis

4. Giperostosis

5. Pedzhet's disease

Topic 25. Occupational and Environmental pathology. (4 hours)

1. silicosis, silicatosis. Classification, etiology, pathogenesis, layering and causes of death;

2. Clinical-morphological characteristic of diseases, which are caused by the influence of physical factors of the external environment (Caeson ¬ naya, vibrating and radiation diseases);

3. Major morphological changes arising in the case of salts of heavy metals, acids, alcohols and carbon monoxide.

Topic 26. Pathology of pregnancy and the postpartum period. (4 hours)

1. Classification of diseases of pregnancy and postpartum period;

2. Etiology, pathogenesis, morphological characteristics of eclampsia, ectopic pregnancy, bubble drift.

Topic 27. Pathology of the placenta. (4 hours)

1. Characteristic of age peculiarities of the structure of the last (depending on the period of pregnancy);

2. Malformations of placenta: classification, pathogenesis, pathological anatomy, complications, outcomes;

3. Circulatory disorders in the placenta: classification, etiology, pathogenesis, pathological anatomy, complications and outcomes;

4. Inflammation of the last: etiology, pathogenesis, pathological anatomy, complications and outcomes.

Topic 28. Dental pathology. (2 hours)

1. Test control
2. Presentation and conference-like discussion.

III. SCHOLASTIC-METHODICAL PROVISIONING FOR THE STUDENTS' INDIVIDUAL WORK

Scholastic-methodical provisioning for the students' individual work in the discipline pathological anatomy presented in Supplement 1 and includes:

- schedule for performing individual work in the discipline, including the approximate time to allocate on each task;
- description of the tasks for individual work of students and methodical recommendations for their completion;
- requirements for submission and registration of results of individual work.

IV. CONTROL FOR ATTAINING THE COURSE GOAL

№	Controled	Codes and stages of forming	Means for evaluation

	sections/topics of the discipline	the competences		Current control	Half-way attestation
1	**Section 1** Introduction to Pathological anatomy **Section 2**. General Pathology **Section 3** Specific pathological anatomy	the ability and willingness to analyze the results of his own activity to prevent professional errors (GPC-5)	Knows	PT-1 Test	Offset test questions 1-24 Exam questions 1-24
			Is able to	Case study	Case study
			Possesses	EP-3 Report, presentation	Case study
2	**Section 2**. General Pathology **Section 3** Specific pathological anatomy	the capacity for the assessment of morphological and physiological states and pathological processes in the human body for solving professional tasks (GPC – 9)	Knows	PT-1 Test	Offset test questions 25-44 Exam questions 25-44
			Is able to	Case study	Case study
			Possesses	EP-3 Report, presentation	Case study
3	**Section 1** Introduction to Pathological anatomy **Section 3** Specific pathological anatomy	the ability of determining the patient's basic pathological conditions , symptoms, syndromes, diseases in accordance with the International Statistical Classification of Diseases and problems related to health , the 10th review. (PC – 6)	Knows	PT-1 Test	Offset test questions 45-75 Exam questions 45-75
			Is able to	Case study	Case study
			Possesses	EP-3 Report, presentation	Case study

The model tests, methodical materials prescribing procedures for evaluation of knowledge, skills and/or practical experience, as well as criteria and indicators necessary to assess knowledge, abilities, skills and the defined

stages of forming competencies in the process of acquiring educational program, are presented in Addition 2.

V. LIST OF EDUCATIONAL LITERATURE AND INFORMATIONAL-METHODICAL REQUIREMENTS FOR THE DISCIPLINE

Primary

1. Pleural Anatomy: a Pathological and Surgical Perspective, Juan Antonio Moya Amorós 2017 https://link.springer.com/chapter/10.1007/978-3-319-58036-4_28
2. Clinical Globe Anatomy, Maram A. Elsayed, Igor Kozak 2018 https://link.springer.com/chapter/10.1007/978-3-319-99870-1_2
3. Larynx: Anatomy, Nonneoplastic, Benign, and Malignant, Margaret S. Brandwein-Weber 2018 https://link.springer.com/chapter/10.1007/978-3-319-76106-0_5

Additional

1. Abdominal Wall, Umbilicus, Hernias, Omentum, and Peritoneum, Derek C. Allen 2017 https://link.springer.com/chapter/10.1007/978-3-319-57360-1_11

The list of resources of the information-telecommunication network "Internet"

1. Central Scientific Medical Library: http://www.scsml.rssi.ru
2. Medical Internet Resources: http://www.it2med.ru/mir.html
3. Publishing House "Medicine": http://www.medlit.ru
4. Scientific Electronic Library: http://elibrary.ru/
5. Scientific Electronic Library: https://www.ncbi.nlm.nih.gov/

LIST OF INFORMATION TECHNOLOGIES AND SOFTWARE

The location of the computer equipment on which the software is installed, the number of jobs	**List of licensed software**
Multimedia auditorium Vladivostok Russian island, Ayaks 10, building 25.1, RM. M723 Area of 80.3 m2 (Room for independent work)	Windows Seven enterprice SP3x64 Operating System Microsoft Office Professional Plus 2010 office suite that includes software for working with various types of documents (texts, spreadsheets, databases, etc.); 7Zip 9.20 - free file archiver with a high degree of data compression; ABBYY FineReader 11 - a program for optical character recognition; Adobe Acrobat XI Pro 11.0.00 - software package for creating and viewing electronic publications in PDF; WinDjView 2.0.2 - a program for recognizing and viewing files with the same format DJV and DjVu.

In order to provide special conditions for the education of persons with disabilities all buildings are equipped with ramps, elevators, lifts, specialized places equipped with toilet rooms, information and navigation support signs

VI. METHODOLOGICAL RECOMMENDATIONS ON THE COMPLETING THE DISCIPLINE

The main goal is the formation of students' scientific outlook, preventive thinking based on pathology knowledge, competencies in systemic fundamental knowledge, skills and abilities in matters of hygiene and human ecology, necessary for the subsequent practical activities of the doctor.

Performing by students of extracurricular individual work in extracurricular time, both under the guidance of a teacher and without his direct participation is important in order to achieve this goal.

Students are encouraged to systematically study the teaching material using textbooks, texts and methodical writings in accordance with the study plan, and to perform all task in a timely manner, which is especially important when using grade-rating system for assessing students' knowledge.

The goal of students' individual work is to master fundamental knowledge, professional skills and experiences of their specialty, experience of creative scientific research. Individual work of students promotes the development of autonomy, responsibility and organization, creative approach to solving the problems of the educational and professional level, deepen and broaden knowledge, formation of interest to cognitive activity, mastering the techniques of learning, the development of cognitive abilities.

Individual work of students for the discipline is mandatory for each student, its volume is determined by the federal educational standard and curriculum. It is necessary at the very beginning of the course to carefully plan the time allocated for individual work with the sources and literature on the subject.

Individual work includes:

a) reading textbooks, lectures, methodical recommendations, scientific articles

b) reading and analyzing literature passages of journalistic nature;

c) reading and analysis of literary passages of scientific nature;

g) working with resources posted on the Internet.

The purpose of this types of work is to instill an interest in reading and to teach students to overcome difficulties in reading, extract the necessary information from the text to teach them to use Russian and International sources for self-education and improve their professional skills.

VII. CLASSROOM, EQUIPMENT AND MATERIAL REQUIREMENTS FOR THE DISCIPLINE

The educational process in the discipline is conducted in lecture, computer classes of the building of the School of Biomedicine of the FEFU campus, equipped with computers and multimedia systems, connected to the general corporate network of FEFU and the Internet.

For carrying out practical work, as well as for organizing independent work, students have access to the following laboratory equipment and specialized classrooms that meet applicable sanitary and fire regulations, as well as safety requirements for educational and research and production work:

Name of equipped premises and rooms for independent work	**List of basic equipment**
Computer class of the School of Biomedicine, M723, 15 comp.	Motorized screen 236 * 147 cm Trim Screen Line; DLP Projector, 3000 ANSI Lm, WXGA 1280x800, 2000: 1 EW330U Mitsubishi; The subsystem of specialized fixing equipment CORSA-2007 Tuarex; Video switching subsystem: DVI DXP 44 DVI Pro Extron matrix switcher; DVI extension cable for twisted pair DVI 201 Tx / Rx Extron; Audio switching and sound reinforcement subsystem; ceiling speaker system SI 3CT LP Extron; DMP 44 Extron digital audio processor; extension for the control controller IPL T CR48; Wireless LANs for students are provided with a system based on 802.11a / b / g / n 2x2 MIMO access points (2SS). Monoblock HP RgoOpe 400 All-in-One 19.5 (1600x900), Core i3-4150T, 4GB DDR3-1600 (1x4GB), 1TB HDD 7200 SATA, DVD +/- RW, GigEth, Wi-Fi, BT, usb kbd / mse, Win7Pro (64-bit) + Win8.1Pro (64-bit), 1-1-1 Wty
Reading rooms of the FEFU Scientific Library with open access to the Foundation (Building A - Level 10)	Monoblock HP RgoOpe 400 All-in-One 19.5 (1600x900), Core i3-4150T, 4GB DDR3-1600 (1x4GB), 1TB HDD 7200 SATA, DVD +/- RW, GigEth, Wi-Fi, BT, usb kbd / mse, Win7Pro (64-bit) + Win8.1Pro (64-bit), 1-1-1 Wty Internet access speed 500 Mbit / s. Jobs for people with disabilities are equipped with braille displays and printers; equipped with: portable devices for reading flat-printed texts, scanning and reading machines with a video maker with the ability to adjust color spectra; magnifying electronic loops and ultrasonic markers
Accreditation and Simulation Center of the School of Biomedicine	Scales medical with a bar Centimeter tape (150x13 mm) Light meter-UV radiometer thermohygrometer Dynamometer Dynamometer carpal Height meter medical with a stool (for adult)

Appendix 1

THE MINISTRY OF EDUCATION AND SCIENCE OF THE RUSSIAN FEDERATION
Federal State autonomous education institution of higher education
«Far Eastern Federal University»
(FEFU)

SCHOOL OF BIOMEDICINE

TRAINING AND METHODOLOGICAL SUPPORT

INDEPENDENT WORK OF TRAINEES

Pathological anatomy
Educational program
Specialty 31.05.01. General Medicine
Form of training full-time

Vladivostok

2017

The schedule execution of independent work on discipline «Pathological anatomy» (63 hours)

№	Date / deadlines	Type of independent work	Estimated time to complete rules	Form of control
Semester 5				
	1st-6th Week	Work with preparations, literature and lecture notes, preparation for the control lesson	6 h.	PT-1 Colloquium
	7th-16th Week	preparation of presentations, Work with preparations, literature and lecture notes,	12 h.	EP—3 presentation
	17th-18th Week	preparation to exam	54 h.	EP—3 interview
Semester 6				
	1st-6th Week	preparation of presentations, Work with preparations, literature and lecture notes,	3 h.	EP—3 Report
	7th-18th Week	Submission of presentations on the theme of the abstract	6 h.	EP—3 Report, presentation
	17th-18th Week	preparation to exam	27 h.	EP—3 interview

Methodical recommendations for the preparation of presentations

For the preparation of the presentation it is recommended to use: PowerPoint, MS Word, Acrobat Reader, LaTeX-bev package. The simplest program for creating presentations is Microsoft PowerPoint. To prepare a presentation, it is necessary to process the information collected while writing the essay.

The sequence of preparation of the presentation:

1. Clearly state the purpose of the presentation.

2. Determine what the presentation format will be: live presentation (then how long it will be) or e-mail (what will be the context of the presentation).

3. Select the entire content of the presentation and build a logical chain of presentation.

4. Identify key points in the content of the text and highlight them.

5. Determine the types of visualization (pictures) to display them on slides in accordance with the logic, purpose and specificity of the material.

6. Choose the design and format the slides (the number of pictures and text, their location, color and size).

7. Check the visual perception of the presentation.

The types of visualization include illustrations, images, charts, tables. The illustration is a representation of a real-life visual. The images - as opposed to illustrations - are a metaphor. Their purpose is to cause an emotion and create an attitude towards it, to influence the audience. With the help of well-designed and presented images, information can remain permanently in a person's memory. Chart - visualization of quantitative and qualitative relationships. They are used for convincing data demonstration, for spatial thinking in addition to the logical one. Table - specific, visual and accurate data display. Its main purpose is to structure information, which sometimes facilitates the perception of data by the audience.

Practical tips on preparing a presentation

– printed text + slides + handouts are prepared separately;

– slides - a visual presentation of information that should contain a minimum of text, a maximum of images that carry a meaning, to look visually and simply;

– textual content of the presentation - oral speech or reading, which should include arguments, facts, evidence and emotions;

– recommended number of slides 17-22;

– mandatory information for the presentation: the subject, surname and initials of the speaker; message plan; brief conclusions from all that has been said; list of sources used;

– handout - should provide the same depth and coverage as the live performance: people trust more what they can carry with them than disappear images, words and slides are forgotten, and handouts remain a constant tangible reminder; handouts are important to distribute at the end of the presentation; Handouts should be different from slides, should be more informative.

Approximate topics of presentations

1. Inherited anemias
2. Interrelationships of vitamin B12, folic acid, and iron in anemias
3. Polycythemia vera
4. bone marrow failure
5. Leukemoid reaction
6. Hodgkin's lymphoma
7. Vascular hemorrhagic diathesis
8. Hemo ytic-uremic syndrome
9. Vitamin K-associated disorders
10. The Link Between Heart Failure & Sleeping Problems
11. Anemia in Heart Failure
12. Malignant hypertension
13. Postural hypotension
14. Atrophic gastritis
15. irritable bowel syndrome
16. Pruritus in chronic liver disease
17. Infant jaundice
18. Postherpetic neuralgia
19. Compartment syndrome

20. Anaphylaxis shock
21. Electrical injures
22. Fasciculation
23. Allergic and Immunologic Perspectives of Inflammatory Bowel Disease
24. Dwarfism
25. Gigantism and acromegaly
26. Hashimoto's Thyroiditis
27. Renovascular Hypertension
28. Gestational Diabetes
29. Role of the Cannabinoid System in Pain Control
30. Temporamandibular (TMJ) disorders and digestion problems
31. The Link Between Digestive Problems and Crooked Teeth

Appendix 2

THE MINISTRY OF EDUCATION AND SCIENCE OF THE RUSSIAN FEDERATION
Federal State autonomous education institution of higher education
«Far Eastern Federal University»
(FEFU)

SCHOOL OF BIOMEDICINE

FUND ASSESSMENT TOOLS

TRAINING COMPLEX OF DISCIPLINE

Pathological anatomy
Educational program
Preparation for 31.05.01. General Medicine
Form of training full-time

Vladivostok

2017

Fund of assessment tools passport

This part of the program is filled in accordance with the Regulations on the Funds of assessment tools of educational programs of higher education - undergraduate, specialist's and master's programs of Far Eastern Federal University, approved by order of the rector of 12.05.2015 №12-13-850.

Competence code and formulation	**Stages of forming the competence**	
the ability and willingness to analyze the results of his own activity to prevent professional errors (GPC-5)	Knows	Etiology, pathogenesis, diagnosis, treatment and prevention of the most common diseases; The clinical picture, peculiarities of the current and possible complications of the most common diseases occurring in a typical form;
	Is able to	Interpret the results of the survey, put the patient in a preliminary diagnosis, outline the scope of additional research
	Possesses	Interpretation of results of laboratory, instrumental methods of diagnostics in patients of different age;
the capacity for the assessment of morphological and physiological states and pathological processes in the human body for solving professional tasks (GPC – 9)	Knows	Concepts of etiology, pathogenesis, morphogenesis, pathomorphosis of disease, nosology, principles of classification of diseases, basic concepts of general nosology
	Is able to	- Work with microscopes - Explain the nature of the deviations in the course of development, which can lead to the formation of variants of anomalies and vices
	Possesses	Skills of microscopy and analysis of histological preparations and electronic microphotographs;
the ability of determining the patient's basic pathological conditions , symptoms, syndromes, diseases in accordance with the International Statistical Classification of Diseases and problems related to health , the 10th review. (PC – 6)	Knows	Basic pathological state, symptoms, syndromes diseases, nosological forms in According to ICD.
	Is able to	Identify key pathological state, symptoms, syndromes diseases, nosological forms in According to ICD in patients with the studied pathology.
	Possesses	medico-anatomical conceptual apparatus; the simplest medical instruments (phonendoscope, spear, neurological hammer, scalpel, tweezers, probe, clamp, expander, etc.);

CONTROL FOR ATTAINING THE COURSE GOAL

№	Controled sections/topics of the discipline	Codes and stages of forming the competences		Means for evaluation	
				Current control	Half-way attestation
1	**Section 1** Introduction to Pathological anatomy **Section 2**. General Pathology **Section 3** Specific pathological anatomy	the ability and willingness to analyze the results of his own activity to prevent professional errors (GPC-5)	Knows	PT-1 Test	Offset test questions 1-24 Exam questions 1-24
			Is able to	Case study	Case study
			Possesses	EP-3 Report, presentation	Case study
2	**Section 2**. General Pathology **Section 3** Specific pathological anatomy	the capacity for the assessment of morphological and physiological states and pathological processes in the human body for solving professional tasks (GPC – 9)	Knows	PT-1 Test	Offset test questions 25-44 Exam questions 25-44
			Is able to	Case study	Case study
			Possesses	EP-3 Report, presentation	Case study
3	**Section 1** Introduction to Pathological anatomy **Section 3** Specific pathological anatomy	the ability of determining the patient's basic pathological conditions , symptoms, syndromes, diseases in accordance with the International Statistical Classification of Diseases and problems related to health , the 10th review. (PC – 6)	Knows	PT-1 Test	Offset test questions 45-75 Exam questions 45-75
			Is able to	Case study	Case study
			Possesses	EP-3 Report, presentation	Case study

The scale of assessment the level of formation of competences

Code and the wording of competence	Stages of competence		Criteria	Indicators	Points
the ability and willingness to analyze the results of his own activity to prevent professional errors (GPC-5)	Knows	Etiology, pathogenesis, diagnosis, treatment and prevention of the most common diseases; The clinical picture, peculiarities of the current and possible complications of the most common diseases occurring in a typical form;	Knowledge of etiology, pathogenesis, diagnosis, treatment and prevention of the most common diseases; clinical picture, peculiarities of the current and possible complications of the most common diseases occurring in a typical form;	Formed structured systematic knowledge of etiology, pathogenesis, diagnosis, treatment and prevention of the most common diseases; clinical picture, peculiarities of the current and possible complications of the most common diseases occurring in a typical form;	65-71
	Is able to	Interpret the results of the survey, put the patient in a preliminary diagnosis, outline the scope of additional research	Ability to interpret the results of the survey, put the patient in a preliminary diagnosis, outline the scope of additional research	Ready and able to carry out interpretation the results of the survey, putting the patient in a preliminary diagnosis, outline the scope of additional research	71-84
	Possesses	Interpretation of results of laboratory, instrumental methods of diagnostics in patients of different age;	Skill in interpretation of results of laboratory, instrumental methods of diagnostics in patients of different age;	Systematic application of the skills of interpretation of results of laboratory, instrumental methods of diagnostics in patients of different age;	85-100
the capacity for the assessment of morphological and physiological states and pathological processes in the human body for solving professional tasks (GPC – 9)	Knows	Concepts of etiology, pathogenesis, morphogenesis, pathomorphosis of disease, nosology, principles of classification of diseases, basic concepts of general nosology	Knowledge of concepts of etiology, pathogenesis, morphogenesis, pathomorphosis of disease, nosology, principles of classification of diseases, basic concepts of general nosology	Formed structured systematic knowledge of concepts of etiology, pathogenesis, morphogenesis, pathomorphosis of disease, nosology, principles of classification of diseases, basic concepts of general nosology	65-71
	Is able to	- Work with microscopes	Ability to work with microscopes	Ready and able to work with	71-84

		- Explain the nature of the deviations in the course of development, which can lead to the formation of variants of anomalies and vices	- explain the nature of the deviations in the course of development, which can lead to the formation of variants of anomalies and vices	microscopes - explain the nature of the deviations in the course of development, which can lead to the formation of variants of anomalies and vices	
	Possesses	Skills of microscopy and analysis of histological preparations and electronic microphotographs;	Skill in microscopic analysis of histological preparations and electronic microphotographs;	Systematic application of the skills of microscopic analysis of histological preparations and electronic microphotographs;	85-100
the ability of determining the patient's basic pathological conditions , symptoms, syndromes, diseases in accordance with the International Statistical Classification of Diseases and problems related to health , the 10th review. (PC – 6)	Knows	Basic pathological state, symptoms, syndromes diseases, nosological forms in According to ICD.	Knowledge of basic pathological state, symptoms, syndromes diseases, nosological forms in According to ICD.	Formed structured systematic knowledge of basic pathological state, symptoms, syndromes diseases, nosological forms in According to ICD.	65-71
	Is able to	Identify key pathological state, symptoms, syndromes diseases, nosological forms in According to ICD in patients with the studied pathology.	Ability to identify key pathological state, symptoms, syndromes diseases, nosological forms in According to ICD in patients with the studied pathology.	Ready and able to identify key pathological state, symptoms, syndromes diseases, nosological forms in According to ICD in patients with the studied pathology.	71-84
	Possesses	Medical and anatomical conceptual apparatus; the simplest medical instruments (phonendoscope, spear, neurological hammer, scalpel, tweezers, probe, clamp, expander, etc.);	Skill in using mdical and anatomical conceptual apparatus; the simplest medical instruments (phonendoscope, spear, neurological hammer, scalpel, tweezers, probe, clamp, expander, etc.);	Systematic application of the skills of using mdical and anatomical conceptual apparatus; the simplest medical instruments (phonendoscope, spear, neurological hammer, scalpel, tweezers, probe, clamp, expander, etc.);	

Evaluation tools for intermediate certification

Questions for the exam (5,6 semester)

1. Pathological anatomy. The content, purpose, objectives of the subject. Relationship with other related disciplines.

2. Theoretical basis of pathological anatomy, their historical roots. Dialectical unity of structure and function. Clinical and anatomical and experimental direction of modern pathological anatomy.

3. Organopathology and nosology. Definition of the essence of disease, the concept of their etiology, pathogenesis and pathomorphosis. The problem of correlation of external and internal factors in the causation of diseases.

4. History of the development of pathological anatomy in Russia and foreign countries.

5. Methods of pathological anatomy. An autopsy of the dead as one of the methods for studying the nature of diseases, clinical and anatomical analysis. Investigations of autopsy materials, biopsies and operating materials, their significance for intravital and postnatal recognition and dynamic study of diseases.

6. Cytological diagnosis in the clinic. Composition of points.

7. Methodological methods used in modern pathomorphological studies - darkfield, phasecontrast, polarization, luminescent and electron microscopy, histochemistry, histoenzymochemistry, immunomorphology, morphometry, mathematical analysis.

8. The pathoanatomical service, principles of its organization and importance in the health care system. The role and importance of pathoanatomical service in the Russian army in wartime conditions.

9. Clinical and anatomical conference, their significance and role.

10. Objects and methods of research in the patanatomy. Levels of research. Histological methods in the patanatomy.

11. Damage. Essence, causes, mechanisms and types of damage.

12. Pathology of protein metabolism.

13. The total death. Classification. Posthumous changes, mechanisms of development. The notion of resuscitation.

14. Local death. (Necrosis, necrosis), main types, causes of development, macro- and microscopic signs.

15. Gangrene. Definition of the concept. Types of gangrene, characteristics, outcomes.

16. An infarct as a kind of necrosis. Classification. Types of heart attacks in different organs.

Dependence of the infarct on the conditions of development. Outcomes. Dependence of outcomes of a heart attack.

17. Venous plethora. General and local. Consequences of venous plethora. Morphological manifestations.

18. Lymphostasis. Causes. Outcomes.

19. Arterial hyperemia. Causes, types, outcomes. Morphology of metabolic disorders with hyperemia.

20. Staz. Causes of development, morphology, outcomes.

21. Bleeding. The concept. Kinds. Causes, morphology. Outcomes.

22. Thrombosis. Causes, mechanism of thrombus formation, factors of thrombus formation.

23. Types of blood clots. Subsequent changes in blood clots. The value of thrombosis. Outcomes of thrombi.

24. DIC is a syndrome. Causes, stages of development, outcomes.

25. Embolism. The laws of motion of dense emboli. Types of emboli.

26. Types of embolism, causes, outcomes. Value.

27. Dystrophy. General mechanisms of occurrence. Causes of dystrophic processes. Classification. Histochemical methods of studying dystrophic processes.

28. Types of protein dystrophies. Macro - microscopic manifestations. Outcomes.

29. Horn dystrophy. Causes, morphology, outcomes, cause of cancer.

30. Fatty degeneration. Causes, morphogenesis, classification. Violation of fat in tissues. Outcomes.

31. Carbohydrate dystrophy. Mucous dystrophy. Causes, morphology, outcomes. Age features.

32. Extracellular disproteinosis. Classification. Causes, morphology, outcomes. Hyalinosis, causes, variants.

33. Mucoid and fibrinoid swelling. Causes, morphology, outcomes.

34. Hyalinosis. Classification, types of hyalicosis due to. Morphology. Outcomes.

35. Amyloidosis. Stages and theories of amyloidosis formation. Causes, morphology, outcomes.

36. Stromal fatty degeneration. General and local dystrophy. Causes, morphology, outcomes.

37. Violation of carbohydrate metabolism (extracellular dystrophy). Causes, morphology. Outcomes. Features of the violation of carbohydrate metabolism depending on age. Accumulation of glycogen, pathomorphosis.

38. Exogenous and endogenous pigmentation. Classification. Causes, manifestations, outcomes.

39. Hemoglobinogenic pigments. Hemosiderosis, hememelanosis. Causes, morphology, outcomes.

40. Bile pigments. Types of icterus. Causes, morphology. Mechanisms of jaundice formation. Differential diagnosis of the morphological picture of jaundice in the liver.

41. Lipidogenic pigments. Causes of metabolic disorders, morphology.

42. Violation of the exchange of nucleoproteins. Urolithiasis disease. Mechanisms of deposition of uric acid stones, complications, outcomes.

43. Calcareous dystrophy. Classification. Mechanisms of calcium metabolism disorders, outcomes.

44. Formation of stones (concrements) Mechanisms, theories of education, types of stones. Complications, outcomes.

45. Biological essence of inflammation. Causes of development, morphology and pathogenesis of stages of inflammation.

46. Classification of inflammation. Alterative inflammation, causes of alteration, manifestations. Outcomes.

47. Fibrinous inflammation. Species, localization, morphology, outcomes.

48. Purulent inflammation. Kinds. Causes of development, morphology, outcomes.

49. Productive inflammation. Classification. Causes. Morphology. General patterns of inflammation.

50. Catarrhal inflammation, localization, species, morphology, outcomes.

51. Granuloma. Concept Types of granulomas, structure.

52. Tubercular tubercle, developmental phases, types of tubercles, outcomes.

53. Productive inflammation around animal parasites (echinococcosis, cysticercosis, trichinosis). Morphology, complications, outcomes.

54. Importance of the body's immunological state for inflammation. Inflammation and allergy. Morphology of HNT and HRT reactions.

55. Atrophy. Classification, morphological features. Brown atrophy, senile atrophy.56.

Hypertrophy, causes of development, outcomes. Species, morphological traits. False Hypertrophy.

57. Metaplasia, hyperplasia, dysplasia. The concept. Value. Outcomes. Mechanisms of cancer development.

58. Healing of wounds. Stages of healing, morphological characteristics. Outcomes.

59. Regeneration. The general value of regeneration. Forms of regeneration. Types of regulation, sources of the process.

60. Classification of regeneration. Bone tissue regeneration.

61. Regenerate blood, bone marrow, vessels..

62. Regeneration of epithelial and muscle tissue.

63. Tumors. The concept of tumor growth. Theories of origin. Classification. The value of biopsy in oncology.

64. Features of the tumor cell. Signs of atypism. Benign and malignant Malignancy criteria

65. Metastasis, types, causes, stages of development. Relapse, causes of relapse, types. The metastatic cascade.

66. Benign tumors from the epithelium. Classification, localization, outcomes.

67. Malignant tumors of epithelium (cancers of integumentary and glandular epithelium). The main signs of a malignant tumor.

68 Benign tumors of connective tissue. Signs of good quality.

69. Malignant tumors of connective tissue. Signs of malignancy, ways of metastasis.

70. Tumors of muscle tissue. Classification, growth, outcomes, ways of metastases.

71. Tumors of melanin-forming tissue. Classification, growth, outcome.

72. Tumors of their nervous tissue. Classification, growth, outcome.

73. Tumors from the vessels. Classification, growth, outcome.

74. Teratomas and teratoblastomas. Features of the development of these tumors. Signs.

75. Endocarditis. The concept, causes, types of endocarditis. Fibroplastic endocarditis. Morphology, outcomes.

76. Myocarditis. The concept. Ideophatic myocarditis. Causes, species, morphology, outcomes.

77. Acquired heart defects. Causes, pathogenesis, types of defects, outcomes.

78. Cardiosclerosis. Types, morphology, outcomes.

79. Atherosclerosis, the theory of atherosclerosis, pathogenesis, clinical and morphological forms, complications.

80. Stages of morphogenesis of atherosclerosis. Causes of the development of stages.

81. Hypertensive disease. Causes, pathogenesis. Types, stages of hypertension, morphology, outcomes.

82. Clinical and morphological forms of hypertensive disease. Complications. Causes of death.

83. Ischemic heart disease. Causes, pathogenesis, forms, morphology. Ischemic myocardial dystrophy. Acute congestive heart failure.

84. Myocardial infarction. Concept, causes of development. Classification, morphology, complications, causes of death.

85. Cardiomyopathy. Types, causes, complications.

86. Cerebro - vascular diseases. Etiology, pathogenesis, classification, patanatomy, outcomes.

87. Concept of rheumatic diseases, immunomorphology of disorganization of connective tissue. General patterns of the development of these diseases.

88. Rheumatism. Stages of development of rheumatism. Morphological manifestations. Clinical and anatomical forms.

89. Rheumatic changes in the heart and blood vessels, complications, outcomes.

90. Croupous pneumonia. Etiology, pathogenesis, stages of development, composition of exudate, patanatomy. Complications, causes of death.

91. Bronchopneumonia. Causes, pathogenesis, patanatomy, complications.

92. Interstitial pneumonia, etiology, pathological anatomy.

93. Chronic nonspecific lung diseases. Classification, reasons. Chronic bronchitis, bronchiectasis.

94. Emphysema of the lungs. Causes, pathogenesis, pathanatomy, outcomes. Pulmonary heart.

95. Bronchial asthma. Causes, pathogenesis, pathanatomy, outcomes

96. Chronic pneumonia. Causes, pathanatomy, outcomes. Pulmonary heart, the mechanism of development.

97. Lung cancer. Classification, features of the course, patanatomia metastases, three groups of complications.

98. Pneumoconiosis. The concept. Causes. Pathogenesis. Silicosis. Patanatomy. Outcomes.

98. Acute gastritis. Etiology, pathogenesis. Classification. Patanatomy. Complications. Outcomes.

99. Chronic gastritis. Classification. Causes, the role of RN - infection, mechanisms of development. Morphological picture. Signs of gastritis activity. The role of gastrobiopsy in the specification of the diagnosis. Precancerous conditions of the stomach.

100. Peptic ulcer of stomach and 12 tons of duodenal ulcer. Etiology, pathogenesis. Morphological picture during the period of exacerbation and remission. Complications. Outcomes.

101. Cancer of the stomach. Spread. Clinical and morphological classification Histological forms. Complications. Metastasis.

102. Enteritis. Classification. Etiology, pathogenesis. Morphological manifestations. Outcomes. Complications

103. Colitis. Classification. Etiology, pathogenesis. Complications. Outcomes.

104. Nonspecific ulcerative colitis. Etiology, pathogenesis. Morphological picture. Complications. Patomorfoz ulcerative colitis.

105. Crohn's disease. Etiology. Pathogenesis. Morphological picture. Complications. Outcomes.

106. Appendicitis. Etiology, pathogenesis, clinical and morphological forms, complications, outcomes.

107. Intestinal tumors. Classification. Spread. Clinical and morphological forms. Metastasis, complications, outcomes, causes of metastases and relapses.

108. Toxic dystrophy of the liver, as a variant of hepatosis. Etiology, pathogenesis, morphology. Complications, outcomes.

109. Fatty hepatosis (steatosis of the liver). Etiology, pathogenesis, morphology, complications. Outcomes.

110. Hepatitis. Definition. Classification. The role of puncture biopsy in diagnosis. Morphological picture of hepatitis. Signs of hepatitis activity.

111. Chronic hepatitis. Classification. Etiology. Pathogenesis. Clinico-morphological forms, their characteristics. Complications. Outcomes.

112. Alcoholic hepatitis. Etiology, pathogenesis, patanatomy, complications, outcomes.

113. Cirrhosis of the liver. The concept. Classification Etiology. Pathogenesis. Morphological signs of cirrhosis. Hepatic and extrahepatic changes. Complications. Outcomes.

114. Liver cancer. Etiology, pathogenesis. Primary and secondary cancer. Classification. Morphology, complications, metastases. Diseases.

115. Diseases of the gallbladder. Etiology, pathogenesis. Morphological picture with cholecystitis. Complications. Outcomes.

116. Glomerulopathies. Modern classification. Etiology and pathogenesis. The role of immune mechanisms. Morphological characteristics of different types of glomerulopathies.

117. Nephrotic syndrome. The concept. Classification. Forms (lipoid nephrosis, membranous nephropathy, amyloidosis of the kidneys). Etiology, pathogenesis, morphology, outcomes.

118. Amyloidosis of the kidney. Etiology, pathogens, stages, patanatomy.

119. Acute renal failure. Etiology, classification of causes, pathogenesis. Morphological picture in different clinical stages. Complications Outcomes.

120. Chronic tubulopathies. Myeloma, Padaric kidney. Morphology. Complications. Outcomes.

121. Renal stone disease. Etiology, pathogenesis. Patanatomy. Mechanism of formation ofstones. Complications Outcomes.

122. Nephrosclerosis as the basis of XPS. Chronic renal failure. Etiology, pathogenesis. Pathanatomy, outcomes.

123. Pyelonephritis. Etiology, pathogenesis, morphology, complications, outcomes.

124. Kidney cancer. Types of kidney tumors. Metastases, complications, outcomes

125. Hypertrophy of the prostate. Forms. Morphological characteristics. Complications Prostatecancer, causes of prostate cancer.

126. The glandular hyperplasia of the uterine mucosa. Endocervicosis, causes, morphologicalcharacteristics

127. Inflammatory diseases of the breast and genital organs. Etiology, pathogenesis. Morphology. Outcomes.

128 Breast Cancer. Forms and histological types of cancer. Ways of metastasis, causes of complications.

129. Cancer of the uterus (neck and body). Growth. Histological types. Metastases.

130. Toxicosis of pregnancy. Classification. Causes of death. Ectopic pregnancy, its types, complications.

131. Bubble skidding. Causes, pathogenesis. Morphology, complications, outcomes.

132. Diseases of the thyroid gland. Classification. Clinical and morphological forms. Morphological features of Graves' disease.

133. Classification of diseases of the thyroid gland. Zob Hoshimoto, Riedel's goiter, de Carvel. Morphology, outcomes.

134. Tumors of the thyroid gland. Types of tumors. Criteria for evaluation of malignant thyroid gland.

135. Diseases of the parathyroid glands. Classification. Extralegular and glandular manifestations of pathology.

136. Diabetes mellitus. Etiology, pathogenesis. Types of diabetic angiopathy, diabetic glomerulosclerosis. Coma with diabetes.

137. Diseases of the pituitary: acromegaly, hypophyseal nanism, cerebro-pituitary cachexia, Itenko-Cushing's disease. Non-diabetes mellitus. Etiology, pathogenesis, main manifestations.

138. Diseases of the adrenal glands. Adrenal cortex and adrenal syndrome. Addison's disease. Causes, morphology.

139. Radiation sickness, Etiology. Pathogenesis. Classification. Morphology. Complications. Outcomes.

140. General morphology of the infectious process. Local and general changes. Immunomorphological infections. Classification of infectious diseases. Exciter. Entrance gate. Pathomorphosis of infectious disease.

141. Acute respiratory viral infections. Influenza, forms. Etiology, pathogenesis, morphology, complications. Causes of death.

142. AIDS. Etiology, pathogenesis, epidemiology. Pathanatomy, stages of development, complications, causes of death.

143. Rickettsiosis. Features of infection, Classification. Epidemiological typhus. Etiology, pathogenesis, pathanatomy, outcomes.

144. Typhoid fever. Etiology, pathogenesis, patanatomy. Local and general changes in different stages of the development of the disease. Complications.

145. Dysentery, etiology, pathogenesis, patanatomy, complications, causes of death. Cholera. Etiology, pathogenesis. Patanatomy. Complications, outcomes.

147. Amebiasis. Etiology, pathogenesis, patanatomy, complications.

148. Anthrax. Etiology, pathogenesis, patanatomy, complications. Outcomes.

149. Tularemia. Etiology, pathogenesis, patanatomy, complications, outcomes.

150. Brucellosis. Etiology, pathogenesis, patanatomy. Complications, outcomes.

151. Chuma. Ethnology, pathogenesis, forms of the disease, patanatomy, complications, outcomes.

152. Smallpox. Etiology, pathogenesis, patanatomy, complications.

153. Scarlet fever. Etiology, pathogenesis, patanatomy. General and local changes. Complications. Outcomes.

154. Measles. Etiology, pathogenesis, patanatomy, complications, outcomes.

155. Meningococcal infection. Etiology, pathogenesis, morphological forms, patanatomnia, outcomes.

156. Tuberculosis. Etiology, pathogenesis. Classification. Primary tuberculosis. Variants of the current. Patanatomy, complications.

157. Hematogenous tuberculosis. Etiology, pathogenesis, patanatomy.

158. Secondary tuberculosis, Etiology, pathogenesis, patanatomy, forms of manifestation.

159. Sepsis. Etiology, pathogenesis. Classification. General and local changes.

160. Clinical and morphological forms of sepsis. Patanatomy (septicemia, septicopyemia).

161. Septic endocarditis. Etiology, pathogenesis. Classification, patanatomiya. Complications.

162. Leukemia, Classification. Etiology, pathogenesis, pathanatomy, outcomes.

163. Acute and chronic lymphatic leukemia. Patanatomy, complications, outcomes.

164. Acute and chronic myelogenous leukemia. Patanatomy, complications, outcomes.

165. Lymphomas. Classification. Etiology, pagogenesis. Modern classification.

166. Lymphogranulomatosis (Hodgkin's disease). Clinical and morphological variants, patanatomy, outcomes. The main criteria of morphological diagnosis.

167. Airborne droplet infections. Diphtheria. Etiology. Pathogenesis. Patanatomy. Complications. Outcomes.

168. Stomach ulcer. Etiology, epidemiology.

169. The role of Helicobacter pylori in etiopathogenesis of peptic ulcer. General and local factors of peptic ulcer development.

70. The state of local immunity of the gastric mucosa in peptic ulcer.

171. The role of interepithelial lymphocytes of the gastric mucosa in peptic ulcer.

172. The role of lymphatic follicles of the gastric mucosa with peptic ulcer of the stomach and duodenum.

173. The state of local humoral and cellular immunity in peptic ulcer disease (I-II barrier of protection).

174. Methods of diagnostics of helicobacteriosis in peptic ulcer of stomach, modern methods of screening-diagnostics of this pathogen.

175. The role of histological study in assessing the effectiveness of local treatment of gastric ulcers.

176. The risk of ulcers. Ulcer, as a precancerous disease.

177. Morphological signs of gastritis activity.

178. Iatrogenia. The concept. Classification. Value.

179. Morphology of cell damage. Apoptosis, as programmed cell death.

180. Violation of water electrolyte balance. Lymphostasis, lymphedema. Swelling of internal organs

181. Hereditary fementopathies. Etiopathogenesis. Morphological characteristics and methods of diagnosis.

182. Cellular basis of the immune response.

183. Caisson disease. Pathomorphological aspects.

184. Diseases related to nutrition. Avitaminosis.

185. Diseases of veins and lymphatic vessels. Clinical and morphological characteristics.

186. Diseases of the myocardium of established etiology. Viral, microbial, parasitic myocarditis. Toxic myocarditis.

187. Pathological processes in the pleura.

188. Diseases of the esophagus. Diverticulum of the esophagus.

189. Vascular diseases of the intestine. Ischemic disease of intestinal.

Scoring criteria on the student competition on the subject «**pathological anatomy**»

Points (rating)	**Evaluation offset/exam (standard)**	**Requirements to the formed competences**
86-100	*«credited»/ «excellent»*	The rating of «excellent» to the students, if it is deeply and firmly mastered the program material, comprehensively, consistently, accurately and logically sound it sets, can be closely linked theory with practice, freely to cope with questions and other types of application knowledge is not difficult to answer at modification jobs has versatile skills and techniques perform practical tasks.
76-85	*«credited»/ «good»*	The rating of «good» to the students, if he knows for sure the material correctly and essentially sets out its not allowing significant inaccuracies in answering the question correctly applies the theoretical principles in solving practical issues and challenges, has the necessary skills and techniques for their implementation.

51-75	*«credited»/ «satisfactory»*	The rating of «satisfactory» to the students, if he has knowledge of only the base material, but did not learn his parts, admits inaccuracies, insufficient correct wording violations of logical consistency in the presentation of program material, has difficulty in carrying out practical work.
Less 50	*«fail»/ «unsatisfactory»*	The rating of «unsatisfactory» to the students, who did not know a large part of the program material, allows substantial errors, uncertainly, with great difficulty performing practical work.

Typical estimates of funds for the current certification

Test papers (examples)

1. Pathological anatomy methods:
    a. Biopsy+
    b. Microscopy
    c. Experiment+
    d. Autopsy+
    e. Cytology
2. Indicate the main tasks of the pathoanatomical service:
    a. interpretation of diseases pathogenesis
    b. provision of reliable information to state statistics, health and insurance authorities+
    c. improving the professional level of doctors+
    d. Lifetime and post-mortem diagnosis of diseases+
    e. Control and examination of the quality of medical and diagnostic work of health care institutions+
3. Variants of the pathoanatomical service organization
    a. pathoanatomical department in the hospital+
    b. the pathoanatomical bureau (city, regional, provincial)+
    c. Institute of Pathology+
    d. Department of pathological anatomy
    e. Histology laboratory

4. Urgent biopsy is:
    a. biopsy performed for the diagnosis of cancer
    b. aspiration biopsy
    c. biopsy performed within 30 minutes after material collection+
    d. imprint smear analysis
5. Basic principles of postmortem diagnosis:
    a. nosological+
    b. syndromic
    c. formal-logical
    d. instrumental and laboratory
    e. pathogenetic+
6. The main cause of death is:
    a. main disease+
    b. the pathological process that caused the onset of death
    c. complication of the underlying disease
    d. the most severe syndrome
7. The immediate cause of death is:
    a. terminal state
    b. the pathological process that led to death+
    c. heart-lung failure
    d. termination of integrative activity of the brain
8. Complications of the disease are:
    a. pathologic processes that are etiologically associated with the disease
    b. pathologic processes pathogenetically related to the disease+
    c. specific manifestations of the disease
    d. dystrophic damage to internal organs
9. There are the mechanisms of death:
    a. cardiac+
    b. renal

c. hepatic
d. brain+
e. pulmonary+

10. Select situations that can be interpreted as iatrogenic:
    a. overdose correctly prescribed pharmaceutical substances+
    b. incorrectly prescribed treatment or medical intervention+
    c. wrong technical performed medical intervention+
    d. psychological "trauma" caused by the statement of medical staff+
    e. pathology resulting from self-treatment

Evaluation tools for the current attestation

Control tests are designed for the students studying the course "Pathological anatomy ".

The tests are necessary for the control of knowledge during the current interim attestation, and for theevaluation of knowledge and thus to get credit for course.

While working with tests the student are asked to select one answer from the three - four proposed. At the same time the tests are not identical in their complexity.

Offered tests contain several variants of correct answers. The student must select all the correct answers.

The tests are designed both for individual and collective solving them. They can be used in the process both classroom lessons and independent work. The tests, required for the control of knowledge, are chosen in the process of the intermediate certification by each teacher individually.

The results of the test tasks are evaluated by a teacher on a five-mark grading scale or system of **"credit" - "not credit"**.

Evaluation of **"excellent"** is got by student at the correct answer to more than 90% of the proposed tests.

Evaluation of **"good"** getting - at the correct answer by more than 70% of tests.

Evaluation of **"satisfactory"** - at the correct answer to 50% of the offered tests.

Examples of Case studies

1. A 17-year-old boy infected with hepatitis A experiences mild nausea for about 1 week and develops very mild scleral icterus. On physical examination, he has minimal right upper quadrant tenderness. Laboratory findings include a serum AST of 68 U/L, ALT of 75 U/L, and total bilirubin of 5.1 mg/dL. The increase in this patient's serum enzyme levels most likely results from what changes in the hepatocytes?
2. A 16-year-old boy sustained blunt trauma to the abdomen when the vehicle he was driving struck a bridge abutment at high speed. Peritoneal lavage shows a hemoperitoneum, and at laparotomy, a small portion of the left lobe of the liver is removed because of the injury. Several weeks later, a CT scan of the abdomen shows that the liver has nearly regained its size before the injury. What process best explain this CT scan finding?
3. On a routine visit to the physician, an otherwise healthy 51-year-old man has a blood pressure of 150/95 mm Hg. If his hypertension remains untreated for years, what type of cellular alteration would most likely be seen in his myocardium?
4. A 69-year-old woman has had transient ischemic attacks for the past 3 months. On physical examination, she has an audible bruit on auscultation of the neck. A right carotid endarterectomy is performed. The curetted atheromatous plaque has a grossly yellow-tan, firm appearance. Microscopically, what materials can be found in abundance in the form of crystals that produce long, cleft-like spaces?