



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.  
(signature) (Full name)

«09» of July 2019

**WORKING PROGRAM OF ACADEMIC DISCIPLINE (WPAD)**

«General Surgery»

Education program

Specialty 31.05.01 «General medicine»

**Form of study: full time**

year 3, semester 5,6  
lectures 36 hours  
practical classes 144 hours  
laboratory works not provided  
total amount of in-classroom works 180 hours  
independent self-work 108 hours  
including preparation to exam 36 hours  
control works ()  
pass-fail exam year 3, semester 5  
exam year 3, semester 6

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

Authors: Professor V. Usov, Associate Professor Kiselev A.Yu.

## ANNOTATION

Academic discipline "General surgery " is designed for students enrolled in the educational program of higher education 31.05.01" General medicine", included in the basic part of the curriculum, implemented in the 3th year in the 5,6 semesters. The total complexity of the discipline is 288 hours, 8 credits. Federal state educational standard of higher education in the specialty 31.05.01 "General medicine" (level of training specialty) was used in the development of the working program of this discipline.

The course program is based on the medical knowledge obtained by students:

- Ability to abstract thinking, analysis, synthesis (GCC-1);
- the willingness to solve common tasks of professional activity with the use of information and bibliographic resources, biomedical terminology, information and communication technologies, taking into account the main requirements for information security (GPC-1).

### **The purpose of the academic discipline:**

Formation of students' knowledge on the prevention, diagnosis, differential diagnosis of major surgical diseases and their most frequent complications, skills to make a plan of conservative and surgical treatment, to develop a set of measures for the rehabilitation of the patient, assessing his ability to work, dispensary features.

### **Tasks:**

1. study of the basic principles of diagnostic and therapeutic activity in surgery.
2. mastering the basics of clinical examination of surgical patients and the skills of self-supervision of patients
3. familiarity with semiotics of the main types of surgical diseases
4. mastering the methods of providing first aid for surgical diseases, injuries.
5. to study the principles of diagnosis and differential diagnosis of surgical diseases in their typical and atypical manifestations, as well as in complicated forms of pathology
6. master the skills of interpreting the results of special research methods

7. be able to choose the method of treatment and prophylaxis, as well as the preparation of a rehabilitation plan for the main surgical diseases
8. master the skills of medical records

As a result of studying this discipline, students form the following universal, general professional and professional competencies:

Code and the wording of competence	Stages of competence	
GPC-11 the readiness to use medical devices, provided by medical assistance procedures	Knows	Rules of asepsis in the implementation of medical activities, the stages of treatment of surgical patients.
	Is able to	Put on and change sterile gloves, sterile gown independently and with the help of the operating sister. Perform preoperative processing and processing of the surgical field.
	Possesses	The technique of processing the hands of the surgeon and the surgical field with disinfectant solutions before surgery
PC-5 the readiness to collect and to analyze patient complaints, data of its history, the results of laboratory, instrumental postmortem and other examinations in order to recognize the incidence or the absence of diseases	Knows	the etiology, diagnosis, treatment and prevention of infectious diseases; the clinical signs, features of the course and possible complications of infectious diseases occurring in typical form; modern methods of clinical instrumental diagnosis of patients infection profile; features of the collection of pathological materials; precautions; special clothing; basic principles of diagnosis, treatment and rehabilitation of infectious diseases, indications for hospitalization with infectious diseases; principles of follow-up observation, rehabilitation of infectious patients; implementation of specific and nonspecific prevention of infectious diseases.
	Is able to	participate in the organization and provision of medical - preventive and sanitary anti-epidemic, prophylactic and rehabilitation assistance to the population with infectious diseases; interpret the results of the survey, make a preliminary diagnosis, outline the scope of additional studies to clarify the diagnosis; formulate a clinical diagnosis; develop a treatment plan taking into account the course of the disease, select and appoint drug therapy, use methods of non-drug treatment, to conduct rehabilitation measures.
	Possesses	the interpretation of the results of laboratory, instrumental methods of diagnosis with infectious disease; algorithm for making a preliminary diagnosis with the subsequent direction to additional examination and to specialist doctors; an algorithm for making a comprehensive clinical diagnosis of patients; the algorithm for the implementation of the main medical diagnostic and therapeutic measures to provide first medical aid in emergency and life-threatening conditions for infectious diseases.
PC-8 the ability to determining the	Knows	Fundamentals of management of patients who need infusion-transfusion therapy

tactics of patient surveillance with different nosological entities.	Is able to	Draw up a program of infusion-transfusion therapy in various pathological conditions. Determine the indications for infusion-transfusion therapy.
	Possesses	Skills of establishing the diagnosis, prescribing and carrying out the necessary infusion-transfusion therapy in various pathological conditions;
PC-10 the willingness to deliver medical first aid in case of sudden acute diseases and conditions, exacerbation of a chronic disease , which are not life-threatening and do not require emergency medical assistance	Knows	Means of infusion therapy and their mechanism of action for the treatment of sudden acute illness conditions, exacerbations of chronic diseases that are not accompanied by a threat to the patient's life and do not require emergency medical care
	Is able to	To apply means of infusion-transfusion therapy for the treatment of sudden acute diseases, conditions, exacerbation of chronic diseases that are not accompanied by a threat to the patient's life and do not require emergency medical care.
	Possesses	Skills of applying means of infusion-transfusion therapy for the treatment of sudden acute diseases, conditions, exacerbation of chronic diseases that are not accompanied by a threat to the patient's life and do not require emergency medical care
PC-11 the willingness to assist at the delivering emergency medical care for the patients in the conditions, requiring urgent medical participation;	Knows	Fundamentals of emergency medical care in conditions requiring urgent medical interventions, including post-transfusion reactions and complications of infusion-transfusion therapy
	Is able to	To provide emergency medical care in conditions requiring urgent medical interventions, including post-transfusion reactions and complications of infusion-transfusion therapy
	Possesses	Skills of providing emergency medical care in conditions requiring urgent medical interventions, including post-transfusion reactions and complications of infusion-transfusion therapy

The following methods of active / interactive training are used to form the above competences within the discipline "General surgery":

1. Provides for practical training using computer-based training programs.
2. For the organization of independent work, the preparation of abstracts and reports is proposed for performance in the group and at the student conference; and also, preparation for practical exercises, work with additional literature, preparation of essays, occupation conference.

The share of practical classes conducted in interactive forms is 10% of the classroom time; self-extracurricular work - 33% of the time.

## **I. STRUCTURE AND CONTENT OF THEORETICAL PART OF THE COURSE (36 HOURS)**

### **Module 1. Introduction to general surgery. (2 hours.)**

Philosophy of general surgery. History of surgery. Achievements of surgery and development prospects. Surgical deontology. Organization of surgical care in the Russian Federation. Modern methods of diagnosis of surgical diseases (invasive and non-invasive). The main and additional methods of radiation diagnosis (ultrasound, x-ray, fluoroscopy, CT, MRI, PET).

### **Module 2. Aseptic and antiseptic (2 hours.)**

Asepsis. Prevention of contact and implantation microbial contamination. Antiseptic (mechanical, physical, chemical, biological)

### **Module 3. Basics of anesthesiology, resuscitation, intensive care (4 hours.)**

#### **Topic 1. Introduction to anesthesiology (2 hours.)**

Pain. Types of pain. Nociceptive sensitivity, reflex arc. Local anesthesia. Regional anesthesia: conductive, intravascular (intravenous, intraarterial), intraosseous, spinal, epidural. Novocainic blockade. General anesthesia: intravenous, inhalation, endotracheal anesthesia. Analgesics, anesthetics and muscle relaxants.

#### **Topic 2. Cardiopulmonary resuscitation (2 hours.)**

Terminal states (preagonia, agony, clinical death, biological death, brain death), clinical signs, diagnosis. Basics of resuscitation, principles. Basic cardiopulmonary resuscitation, signs of effectiveness. Acute circulatory failure (shock, collapse, syncope). Types of shock, severity, pathogenesis, clinic, diagnosis, prevention. Intensive therapy.

### **Module 4. Basics of transfusiology. Bleeding (6 hours.)**

#### **Topic 1. Blood transfusion (2 hours.)**

The doctrine of blood types. Isohemagglutination. Determination of blood types. Subgroups of blood. Blood substitutes. Blood transfusion and blood substitutes. Complications of blood transfusions, causes, clinical presentation, diagnosis, prevention and treatment.

## **Topic 2. Blood loss. Shock (2 hours.)**

The doctrine of bleeding. Types of bleeding. Diagnosis of bleeding. The severity of blood loss. The reaction of the body to acute and chronic blood loss. Hemorrhagic shock.

## **Topic 3. First aid for blood loss (2 hours.)**

Temporary and definitive methods to stop bleeding. Infusion therapy for acute blood loss. Coagulation, anti-coagulation and fibrinolytic blood systems. DIC syndrome, pathogenesis, clinic, diagnosis, prevention, treatment.

## **Module 5. Basics of surgical damage (6 hours.)**

### **Theme 1. The doctrine of wounds (2 hours.)**

The doctrine of wounds. Classification of wounds. Wound process Phases of the wound process. Types of wound healing (primary and secondary tension). Principles of treatment of wounds depending on the phase of the wound process. PHO, types, indications, methods of implementation. WMO, types, indications, methods of implementation. Primary and secondary seams. Gunshot wounds. Zones of the wound channel. Principles of diagnosis and treatment of gunshot wounds

### **Theme 2. Thermal damage (2 hours.)**

Burns, classification, etiology, pathogenesis, diagnosis, first aid, treatment. Burn disease, stages of burn disease, pathogenesis, clinic, diagnosis, treatment. Frostbite, pathogenesis, pre-reactive and reactive period, clinic, diagnosis, treatment. Chilling Trench foot. Hypothermia, severity, first aid, treatment, prevention.

### **Topic 3. Circulatory disorders (2 hours)**

Circulatory disorders. Acute thrombosis of arteries of extremities, etiology, pathogenesis, clinic, diagnosis, treatment. Obliterating diseases of the arteries (atherosclerosis, endarteritis), stages of the course, complications, pathogenesis, clinic, diagnosis, treatment. Necrosis, ulcers and fistulas, etiology, pathogenesis, clinic, diagnosis, treatment.

## **Module 6. Basics of Traumatology (6 hours.)**

### **Topic 1. Introduction to traumatology (2 hours.)**

General issues of traumatology. Injuries, types. Classification of injuries. General principles for the diagnosis of traumatic injuries, determination of the severity of injury. Traumatic disease, pathogenesis, clinic, diagnosis, treatment. The syndrome of prolonged crushing of tissues (crash syndrome, positional compression syndrome), pathogenesis, clinic, diagnosis, treatment.

### **Topic 2. Limb injuries (2 hours.)**

Fractures and dislocations, causes, clinic, diagnosis, prevention, treatment Standards of first medical and medical care. First aid for fractures and dislocations, transport immobilization. Modern approaches to the treatment of fractures and dislocations.

### **Topic 3. Damage to the skull, chest, abdomen (2 hours.)**

Traumatic brain injury, classification, clinic, diagnosis, treatment. Closed chest injuries (pneumothorax, hemothorax), pathogenesis, clinic, diagnosis, treatment. Closed abdominal damage, pathogenesis, clinic, diagnosis, treatment.

## **Module 7. Basics of purulent surgery (6 hours.)**

### **Topic 1. Local forms of surgical infection (2 hours.)**

Surgical infections of the skin and soft tissues. Primary uncomplicated infections of the skin and soft tissues (furuncle, furunculosis, carbuncle, purulent hydradenitis, abscess, erysipelas, cellulitis, phlegmon). Treatment of primary uncomplicated infections of the skin and soft tissues. Primary complications of skin and soft tissue infections (necrotizing cellulitis, necrotizing fasciitis, pyomyositis, mononecrosis (gas gangrene). Classification. Clinical picture. Treatment of complicated infections.

### **Topic 2. Common and generalized forms of surgical infection (2 hours.)**

Common and generalized forms of surgical infection. Purulent pleurisy, etiology, pathogenesis, clinic, treatment. Peritonitis, etiology, pathogenesis, clinic, treatment. Stages of generalization of wound infections (microbiological event, infection, sepsis, severe sepsis, septic shock). Surgical sepsis, pathogenesis, clinic, diagnosis, treatment.

### **Topic 3. Purulent diseases of bones and joints (2 hours.)**

Purulent diseases of bones and joints. Acute hematogenous osteomyelitis, chronic osteomyelitis, purulent arthritis, etiology, pathogenesis, clinic, diagnosis, treatment. Tuberculosis of bones and joints. Tuberculous arthritis, spondylitis, stages of the course, pathogenesis, clinic, diagnosis, treatment.

### **Module 8. The perioperative period (2 hours.)**

Surgery. Stages of surgery. The impact of operating trauma on the patient. Preoperative and postoperative periods. Complications of the postoperative period. Antibiotic prophylaxis. The tasks of intensive care in the postoperative period. Nutrition of surgical patients: parenteral, enteral, gastro - and enterostomy.

### **Module 9. Fundamentals of Oncology (2 hours.)**

Benign and malignant tumors. Classification. Modern concepts of oncogenesis. Modern methods of diagnosis of cancer. The value of preventive examinations. Treatment of oncological diseases (surgical, chemotherapy, radiation therapy, hormonal and immunotherapy, combined, combined treatment).

## **II. STRUCTURE AND CONTENT OF PRACTICAL PART OF THE COURSE (144 HOURS)**

### **Section I. Introduction to General Surgery. (8 ocloc'k)**

#### **Topic 1. General surgery issues (4 hours)**

Types of surgical care. Surgical deontology. Organization of surgical care in the Russian Federation. Modern methods of diagnosis of surgical diseases (invasive and non-invasive). The main and additional methods of radiation diagnosis (ultrasound, x-ray, fluoroscopy, CT, MRI, PET). Keeping medical records.

#### **Topic 2. Desmurgy (4 hours)**

Types of dressings. Rules and techniques of dressing (bandage, adhesive, elastic, kosynochnyh). Headbands and neck. Bandages on the chest. Bandages on the abdomen and perineum. Bandages on the upper limb. Bandages on the lower limb.



## **Section II. Examination of the surgical patient. Radiology diagnosis. (16 hours)**

### **Topic 1. Physical examination methods (4 hours)**

Methods of examination of the surgical patient (complaints, anamnesis, objective research on organs and systems)

### **Topic 2. Diagnostic methods (4 hours)**

Invasive and non-invasive methods for the diagnosis of surgical diseases. Principles of radiation diagnosis. Safety issues when working with ionizing radiation. The main and additional methods of radiation diagnosis.

### **Topic 3. Diagnosis of organs and body systems (4 hours)**

Radiation study of the respiratory, digestive, osteo-articular systems and the semiotics of their diseases (ultrasound, CT, MRI, PET, scintigraphy).

### **Topic 4. Surgery of the surgical patient (4 hours)**

Primary examination of the patient. Evaluation of consciousness. General and local status. The main and additional methods of examination of the patient. Methods of diagnosis. Writing a course history.

## **Section III. Aseptic and antiseptic (8 hours)**

### **Topic 1. Antiseptic (4 hours)**

The concept of antiseptic. The ideological precursors of antiseptics: Lister, N.I. Pirogov. Lister antiseptic. The development of antiseptics in Russia (PI Pelekhin, N.V. Sklifosovsky). Types of modern antiseptics (mechanical, physical, chemical, biological). Views on the mechanism of action of antiseptics: the effect on phagocytosis, bacteriostatic and bactericidal action of antiseptics. Characteristics of basic antiseptics and antibiotics. Basics of rational antibiotic therapy. Complications in the use of antibiotics and their prevention. Enzymotherapy of surgical infection. The main methods of using antiseptics.

### **Topic 2. Aseptic (4 hours)**

Asepsis - as a modern method of prevention of surgical infection. The value of asepsis in modern conditions. Sources of infection, exogenous infection (airborne, drip, contact, implant). Prevention of airborne and drip infections.

Organization of the surgical department, its layout, the main premises and their device. Chamber, dressing, their equipment. The operating unit, its device and equipment: operating, preoperative, sterilization, material. Cleaning the operating room and dressing room after work. Prevention of implantation infection. Sterilization of materials for stitches (silk, catgut, hair, nylon, etc.). Sterilization of alloplastic and homoplastic materials in surgery and traumatology. Surgical instruments, especially their devices, sterilization, care for them. Dressing material, its basic properties. Basic requirements for dressings. Preparation of dressing linen and sterilization. Autoclave his device and work. Presterilizing treatment of instruments for the prevention of HIV infection.

#### **Section IV. Basics of anesthesiology, resuscitation, intensive care (8 hours)**

##### **Topic 1. Introduction to anesthesiology (4 hours)**

Pain. Types of pain. Nociceptive sensitivity, reflex arc. Local anesthesia. Regional anesthesia: conductive, intravascular (intravenous, intraarterial), intraosseous, spinal, epidural. Novocainic blockades: (perirephalous according to AV Vishnevsky, cervical vagosympathetic, conductive, case). General anesthesia: intravenous, inhalation, endotracheal anesthesia. The mechanism of action of a narcotic substance on the body (the theory of anesthesia). Pharmacodynamics of narcotic substances. Analgesics, anesthetics and muscle relaxants. The clinical course of anesthesia. Mask anesthesia. Intubation method. Intravenous anesthesia. Indications, contraindications. Complications and struggle with them. Equipment for anesthesia. Equipment for mechanical ventilation. Methods of artificial ventilation. The concept of management methods of vital body functions.

##### **Topic 2. Cardiopulmonary resuscitation (4 hours)**

Terminal states (preagonia, agony, clinical death, biological death, brain death), clinical signs, diagnosis. Basics of resuscitation, principles. Basic cardiopulmonary resuscitation, signs of effectiveness. Equipment and means of resuscitation. Acute circulatory failure (shock, collapse, syncope). Types of shock, severity, pathogenesis, clinic, diagnosis, prevention. Intensive therapy.

#### **Section V. Basics of transfusiology. Bleeding (24 hours)**

## **Theme 1. The doctrine of blood (4 hours)**

History of blood transfusions. The doctrine of blood types. Blood subgroups Isoagglutination and blood types. Serological characteristics of blood systems ABO, Rh-hr, Kell. Blood subgroups by ABO system. The method of determining the blood group for standard sera and erythrocytes. Determination of the validity of standard serums for the determination of blood groups. Preservation of blood, its storage and determination of suitability for transfusion. Rh factor and its definition. Blood transfusion and plasma substitutes. Complications of blood transfusions, causes, clinical presentation, diagnosis, prevention and treatment.

## **Topic 2. Blood loss. Shock (4 hours)**

The doctrine of bleeding. Types of bleeding. Diagnosis of bleeding. Temporary and definitive methods to stop bleeding. Blood loss, classification. The reaction of the body to acute and chronic blood loss. Hemorrhagic shock. Infusion therapy for acute blood loss.

## **Topic 3. Transfusion of blood and blood substitutes (4 hours)**

Drugs and blood components. The mechanism of action of transfused blood. Blood transfusion technique. Blood substitutes. Classification, mechanism of action. Blood transfusion. Indications and contraindications. Ways and methods of blood transfusion. Compatibility tests for blood transfusion. Intravenous, intraarterial, intraosseous blood transfusion.

## **Topic 4. Complications of blood transfusion (4 hours)**

The dangers and complications of blood transfusion, their prevention and treatment from the standpoint of evidence-based medicine. Classification. Clinic, diagnosis, prevention, treatment. Complications during blood transfusion of liquids, their prevention and treatment. Donation

## **Topic 5. Acid-base balance (4 hours)**

Water and electrolyte disorders in surgical patients. Basics of infusion therapy. Coagulation, anti-coagulation and fibrinolytic system of blood. Blood clotting disorders in surgical patients, diagnosis and prevention. DIC syndrome, pathogenesis, clinic, diagnosis, prevention and treatment.

## **Theme 6. Seminar on the module “Basics of Transfusiology. Bleeding (4 hours)**

### **Section VI. Basics of surgical damage (24 hours)**

#### **Topic 1. Wounds and wound process (8 hours)**

The doctrine of wounds. Classification of wounds. Wounds, causes, types. Wound process Phases of the wound process. The concept of infection wounds. Morphological and biochemical changes in the wound. Local symptoms of wounds. Types of wound healing (primary and secondary tension). Principles of treatment of wounds depending on the phase of the wound process. PHO, its rationale, types, indications, methods of implementation, results. WMO, types, indications, methods of implementation. Primary, primary delayed and secondary seams. Principles of treatment of infected wounds. Methods of local treatment: physical, chemical, biological. Methods of general effects on the body. Gunshot injury, traumatic factors. Zones of the wound channel of a gunshot wound. Principles of diagnosis and treatment of gunshot wounds. Methods of examination of the patient with soft tissue wounds. Types of wound healing. General principles of treatment of fresh wounds.

#### **Theme 2. Thermal damage (12 hours)**

Thermal and chemical burns. Classification. Methods for determining the area of the burn surface. Clinic, diagnosis of burns. General violations for burns (shock, toxemia, plasmorrhhea). Complications (sepsis). First aid for burns. Treatment. Outcomes Burn disease, stages of burn disease, pathogenesis, clinic, diagnosis, treatment. The organization of specialized departments to assist with burns. Frostbite Classification frostbite. Stage frostbite. Symptoms in the pre-reactive and reactive periods of frostbite. Modern views on the pathogenesis of frostbite. First aid. Treatment from the standpoint of evidence-based medicine. Chilling Trench foot. Hypothermia, severity, first aid, treatment, prevention. Features electric shock. Pathological changes in tissues and organs. Local and general signs of electric shock. Current and complications. First aid. Treatment from the standpoint of evidence-based medicine

### **Theme 3. Seminar on the module "Basics of surgical injuries" (4 hours)**

#### **Section VII. Basics of Traumatology (16 hours)**

##### **Topic 1. Introduction to Traumatology (4 hours)**

General issues of traumatology. Injuries, types. Classification of injuries. General principles for the diagnosis of traumatic injuries, determination of the severity of injury. Traumatic disease, pathogenesis, clinic, diagnosis, treatment. The syndrome of prolonged crushing of tissues (crash syndrome, positional compression syndrome), pathogenesis, clinic, diagnosis, treatment.

##### **Topic 2. Limb injuries (4 hours)**

Fractures and dislocations, causes, clinic, diagnosis, prevention, treatment Standards of first medical and medical care. Modern approaches to the treatment of fractures and dislocations. First aid for closed and open fractures: reposition and immobilization of fractures (plaster dressings, skeletal and lipoplasty traction, osteosynthesis). Indications and contraindications for surgical treatment of fractures. Functional treatments. Principles of treatment of fractures, delayed fusion fractures and false joints from the standpoint of evidence-based medicine.

##### **Topic 3. Damage to the skull, chest, abdomen (4 hours)**

Traumatic brain injury, classification, clinic, diagnosis, treatment. Closed chest injuries (pneumothorax, hemothorax), pathogenesis, clinic, diagnosis, treatment. Closed abdominal damage, pathogenesis, clinic, diagnosis, treatment. Traumatic shock: causes, pathogenesis, clinic, treatment.

### **Theme 4. Seminar on the module "Fundamentals of Traumatology" (4 hours)**

#### **Section VIII. Fundamentals of purulent surgery (16 hours)**

##### **Topic 1. General issues of surgical infection (4 hours)**

Surgical infections of the skin and soft tissues. Primary uncomplicated infections of the skin and soft tissues (furuncle, furunculosis, carbuncle, purulent hydradenitis, abscess, erysipelas, cellulitis, phlegmon). Treatment of primary uncomplicated infections of the skin and soft tissues. Primary complications of skin and soft tissue infections (necrotizing cellulitis, necrotizing fasciitis, pyomyositis, mononecrosis (gas gangrene). Classification. Clinical picture. Treatment

of complicated infections. Modern features of purulent surgical infection, prevention of purulent diseases and wound suppuration. Basic principles of conservative and operative treatment of acute purulent diseases from the standpoint of evidence-based medicine. Importance of the use of antibiotics.

### **Topic 2. Purulent diseases of bones and joints (4 hours)**

Purulent diseases of bones and joints. Acute hematogenous osteomyelitis, chronic osteomyelitis, purulent arthritis, etiology, pathogenesis, clinic, diagnosis, treatment.

Purulent diseases of the hand. Specific diseases of bones and joints. Tuberculosis of bones and joints. Tuberculous arthritis, spondylitis, stages of the course, pathogenesis, clinic, diagnosis, treatment.

### **Topic 3. Surgical infection of the cavities (4 hours)**

Common and generalized forms of surgical infection. Purulent pleurisy, etiology, pathogenesis, clinic, treatment. Peritonitis, etiology, pathogenesis, clinic, treatment. Stages of generalization of wound infections (microbiological event, infection, sepsis, severe sepsis, septic shock). Surgical sepsis, pathogenesis, clinic, diagnostics. The mechanism of development of early and late sepsis. Pathological picture. Feature of the flow. Common and local symptoms in sepsis. Complications. Treatment (local and general) from the standpoint of evidence-based medicine.

## **Theme 4. Seminar on the module "Basics of purulent surgery" (4 hours)**

### **Section IX. Surgery of the surgical patient (8 hours)**

#### **Topic 1. Physical examination methods (4 hours)**

Students should be able to conduct a survey of the surgical patient (examination, percussion, auscultation, know laboratory and instrumental methods of research). Curation of patients. Complaints of the patient. Survey on systems. The history of the disease, the life of the patient. Total information. Examination of the systems: lymphatic, osteo-articular, cardiovascular, respiratory, digestive organs, urinary. Examination of local signs of the underlying disease (local status).

Special methods (additional) examinations: laboratory, radiological, instrumental, etc.

### **Topic 2. Case history (4 hours)**

Curation of the patient continues, and as the completion of the study of the basics of the examination of the surgical patient, the students write the case history of the patient being supervised. When writing, special attention is paid to the method of examination of the surgical patient. Practical skills for mastering the methods of examination of a surgical patient are checked.

## **Section X. Perioperative period (8 hours)**

### **Topic 1. Surgery (4 hours)**

The concept of surgery. Indications and contraindications. Emergency, delayed and planned interventions. The influence of operating herbs on the human body. Preoperative preparation. Stages of surgery. Principles of surgery.

### **Topic 2. The postoperative period (4 hours)**

Maintaining the patient in the postoperative period. Complications of the postoperative period. Classification. Iokhv. Antibiotic prophylaxis. The tasks of intensive care in the postoperative period. Nutrition of surgical patients: parenteral, enteral, gastro - and enterostomy.

## **Section XI. Fundamentals of Oncology (4 hours)**

The concept of the oncological process. General characteristics of tumors. Benign and malignant tumors. Classification, clinic, diagnosis. Modern concepts of oncogenesis. Modern methods of diagnosis of cancer. The value of preventive examinations. Treatment of oncological diseases (surgical, chemotherapy, radiation therapy, hormonal and immunotherapy, combined, combined treatment).

## **Section XII. Test lesson (4 hours)**

## **TRAINING AND METHODOLOGICAL SUPPORT OF INDEPENDENT WORK OF STUDENTS**

The main content of the topics, evaluation tools are presented in the work program: terms and concepts necessary to master the discipline.

In the course of mastering the course “General surgery”, the student will have to do a large amount of independent work, which includes preparation for seminars and writing an essay.

Practical exercises help students to deeper learn the material, to acquire the skills of creative work on documents and primary sources.

Plans for practical classes, their topics, recommended literature, the purpose and objectives of its study are communicated by the teacher at the introductory classes or in the curriculum for the discipline.

Before proceeding to the study of the topic, it is necessary to familiarize yourself with the main questions of the practical training plan and list of recommended literature.

Starting the preparation for the practical lesson, it is necessary first of all to refer to the lecture notes, sections of textbooks and teaching aids in order to get a general idea of the place and importance of the topic in the course being studied. Then work with additional literature, make notes on the recommended sources.

In the process of studying the recommended material, it is necessary to understand the construction of the topic being studied, to highlight the main points, to follow their logic and thereby to get into the essence of the problem being studied.

It is necessary to keep records of the material being studied in the form of an outline, which, along with the visual, includes the motor memory and allows you to accumulate an individual fund of auxiliary materials for a quick repetition of what you read, to mobilize accumulated knowledge. The main forms of record: a plan (simple and detailed), extracts, theses.



In the process of preparation, it is important to compare the sources, think over the material being studied and build an algorithm of actions, carefully consider your oral presentation.

At a practical lesson, each participant should be ready to speak on all the questions posed in the plan, to be as active as possible in their consideration. The speech should be convincing and reasoned, and simple reading of the abstract is not allowed. It is important to show your own attitude to what is being said, express your personal opinion, understanding, substantiate it and draw the right conclusions from what has been said. You can refer to notes of notes and lectures, directly to primary sources, use the knowledge of monographs and publications, facts and observations of modern life, etc.

A student who did not have time to speak at a practical lesson can present a prepared summary to the teacher for verification and, if necessary, answer the teacher's questions on the topic of the practical lesson in order to get a credit score on this topic.

The educational and methodological support of the independent work of students in the discipline "Hospital surgery, pediatric surgery" is presented in Appendix 1 and includes:

- characteristics of tasks for independent work of students and methodological recommendations for their implementation;
- requirements for the presentation and presentation of the results of independent work;
- criteria for assessing the performance of independent work.

## IV. CONTROL OF ACHIEVEMENTS OF THE COURSE GOALS

Code of competence		Stages of competence formation			
№ π/π	Controlled modules / sections / themes of academic discipline	Codes and stages of the formation of competencies		Evaluation tools - name	
				current control	intermediate evaluation
1	Module 1. Introduction to general surgery. Module 2. Aseptic and antiseptic (2 hours.) Module 3. Basics of anesthesiology, resuscitation, intensive care. Module 4. Basics of transfusiology. Bleeding Module 5. Basics of surgical damage. Module 6. Basics of Traumatology. Module 7. Basics of purulent surgery.	readiness for use of medical devices provided for by the procedures for rendering medical assistance (GPC-11).	Knows	EO-1 Interview	Questions of final control 4 semester - 1-36
			Is able to	PW-1 Test	PW-1 Test
			Possesses	EO-3 Report	EO2 Colloquium
2	Module 3. Basics of anesthesiology, resuscitation, intensive care. Module 4. Basics of transfusiology. Bleeding Module 5. Basics of surgical damage. Module 6. Basics of Traumatology. Module 7. Basics of purulent surgery. Module 9. Fundamentals of Oncology	patient, his medical history, examination results, laboratory, instrumental, autopsy and other studies in order to recognize the condition or establish the fact of the presence or absence of the disease (PC-5);	Knows	EO-1 Interview	Questions of final control 4 semester - 1-38
			Is able to	PW-1 Test	PW-1 Test
			Possesses	EO-3 Report	EO2 Colloquium
3	Module 3. Basics of anesthesiology, resuscitation, intensive care. Module 4. Basics of transfusiology. Bleeding Module 5. Basics of surgical damage. Module 6. Basics of Traumatology. Module 7. Basics of purulent surgery. Module 9. Fundamentals of Oncology	the ability to determine the tactics of managing patients with various nosological forms (PC-8);	Knows	EO-1 Interview	Questions of final control 4 semester - 36-110
			Is able to	PW-1 Test	PW-1 Test
			Possesses	EO-3 Report	EO2 Colloquium

4	Module 3 Basics of anesthesiology, resuscitation, intensive care. Module 4. Basics of transfusiology. Bleeding Module 5. Basics of surgical damage. Module 6. Basics of Traumatology. Module 7. Basics of purulent surgery. Module 8. Perioperative period Module 9. Fundamentals of Oncology	readiness to provide medical care for sudden acute diseases, conditions, exacerbation of chronic diseases that are not accompanied by a threat to the patient's life and do not require emergency medical care (PC-10);	Knows	EO-1 Interview	Questions of final control 4 semester - 1-38
			Is able to	PW-1 Test	PW-1 Test
			Possesses	EO-3 Report	EO2 Colloquium
5	Module 3 Basics of anesthesiology, resuscitation, intensive care. Module 4. Basics of transfusiology. Bleeding Module 5. Basics of surgical damage. Module 6. Basics of Traumatology	willingness to participate in the provision of emergency medical care in conditions requiring urgent medical intervention (PC-11);	Knows	EO-1 Interview	Questions of final control 4 semester - 1-38
			Is able to	PW-1 Test	PW-1 Test
			Possesses	EO-3 Report	EO2 Colloquium

Control and methodological materials, as well as criteria and indicators which are necessary for the evaluation of knowledge and skills, and characterizing the stages of the formation of competencies in the process of mastering the educational program are presented in Appendix 2

#### **IV. LIST OF EDUCATIONAL LITERATURE AND INFORMATIONAL-METHODICAL REQUIREMENTS FOR THE DISCIPLINE**

##### **Primary**

1. Trends in Cerebrovascular Surgery / DOI <https://doi.org/10.1007/978-3-319-29887-0> Copyright Information: Springer International Publishing Switzerland 2016 ISBN978-3-319-29885-6  
<https://link.springer.com/book/10.1007/978-3-319-29887-0#editorsandaffiliations>
2. Upper Abdominal Surgery / DOI <https://doi.org/10.1007/978-1-4471-5436-5> ISBN978-1-4471-5435-8  
<https://link.springer.com/book/10.1007/978-1-4471-5436-5#editorsandaffiliations>
3. Lower Abdominal and Perineal Surgery / Brendon J. Coventry / DOI <https://doi.org/10.1007/978-1-4471-5469-3> ISBN978-1-4471-5468-6  
<https://link.springer.com/book/10.1007/978-1-4471-5469-3#editorsandaffiliations>

##### **Additional**

1. Patient Safety in Surgery / Philip F. Stahel, Cyril Mauffrey / DOI <https://doi.org/10.1007/978-1-4471-4369-7> ISBN978-1-4471-4368-0  
<https://link.springer.com/book/10.1007/978-1-4471-4369-7#editorsandaffiliations>

##### **The list of resources of the information-telecommunication network “Internet”**

1. Russian Society of Surgeons / <http://xn----9sdbbejx7bdduahou3a5d.xn--plai/>
2. School of Modern Surgery / <http://www.websurg.ru/>
3. The main surgical portal / <http://www.operabelno.ru/>
4. Doctor - Surgeon Medical Surgical Portal / <http://xupypr.org/>
5. WebSurg / <http://www.websurg.com/?lng=ru>

6. MED-EDU.ru - Medical portal / <http://www.medvideo.org/surgery/>

## **I. METHODOLOGICAL RECOMMENDATIONS ON THE COMPLETING THE DISCIPLINE**

The purpose of the practical classes is to consolidate the knowledge gained by students in lectures, the modeling of practical situations, and also to test the effectiveness of students' independent work.

Practical lesson usually includes interviewing students for seminars. This allows the teacher to recognize the level of students' knowledge of lecture course materials, basic textbooks, knowledge of current problems and the current situation in the modern educational space. Further, the ability of students to apply their theoretical knowledge to solving practical problems is revealed.

It is advisable to begin the preparation for the practical lesson by repeating the material of the lectures. It should be borne in mind that the lecture course is limited in time and does not allow the lecturer to consider in detail all aspects of the issue being studied. Therefore, it is required to independently expand knowledge of both theoretical and practical nature. At the same time, the lectures provide a good guide for the student to search for additional materials, since they set a certain structure and logic for studying a particular question

When working independently, the student should first of all study the material presented in the recommended literature and / or teacher's educational literature and monographs. It is necessary to draw students' attention to the fact that not only basic textbooks are included in the library list, but also more in-depth sources on each theme of the course. A consistent study of the subject allows the student to form a stable theoretical base.

An important part of the preparation for the practical class is the work of students with scientific and analytical articles that are published in specialized periodicals. They allow you to broaden your horizons and get an idea of current problems, possible ways to solve them and / or trends in the area under study.

The final step of preparing a student for practical training should be the acquaintance with the results of scientific research relevant to each topic.

### **Lecture - visualization**

The lecture is accompanied by the display of tables, slides, which contributes to a better perception of the presented material. Lecture - visualization requires certain skills - verbal presentation of the material must be accompanied and combined with the visual form. The information presented in the form of charts on the board, tables, slides, allows you to formulate problematic issues, and contribute to the development of professional thinking of future professionals.

### **Lecture - conversation.**

Lecture-conversation, or how else in pedagogy this form of education is called “dialogue with the audience,” is the most common form of active learning and allows you to involve students in the learning process, as there is direct contact with the teacher audience. Such contact is achieved in the course of the lecture, when students are asked questions of a problem or informational nature, or when I ask students to ask me questions themselves. Questions are offered to the entire audience, and any student can offer his own answer, another can complement it. At the same time, from lecture to lecture I identify more active students and try to activate students who are not participating in the work. This form of lecture allows you to engage students in work, increase their attention, thinking, gain collective experience, learn how to formulate questions. The advantage of the lecture-conversation is that it allows you to draw students' attention to the most important issues of the topic, to determine the content and pace of presentation of educational material.

### **Lecture - press conference**

At the beginning of the lesson, the teacher calls the topic of the lecture and asks students to ask him in writing questions on this topic. Each student must within 2-3 minutes formulate the most interesting questions on the topic of the lecture, write them on a piece of paper and pass the note to the teacher. The teacher within 3-5 minutes sorts the questions according to their semantic content and begins to give a lecture. The presentation of the material is presented in the form of a coherent disclosure of the topic, and not as an answer to each question asked, but during the

lecture the corresponding answers are formulated. At the end of the lecture, the teacher conducts a final assessment of the questions, revealing the knowledge and interests of the students.

### **Practical training in the discipline "Hospital surgery, pediatric surgery"**

Practical exercises - a collective form of consideration of educational material. Seminars, which are also one of the main types of practical exercises, intended for in-depth study of the discipline, held interactively. At the workshop on the topic of the seminar, questions are sorted out and then, together with the teacher, they hold a discussion, which is aimed at consolidating the material under discussion, developing skills to debate, develop independence and critical thinking, the students' ability to navigate through large information flows, to develop and defend their own position on problematic issues academic disciplines. As active learning methods are used in practical classes: a press conference, a detailed conversation, dispute. A detailed conversation involves preparing students for each issue of the lesson plan with a list of recommended compulsory and additional literature recommended for all. Reports are prepared by students on pre-proposed topics.

Dispute in the group has several advantages. The dispute may be called by the teacher during the course of the lesson or planned by him in advance. In the course of the controversy, students form resourcefulness, quick thinking reaction.

Press conference. The teacher instructs 3-4 students to prepare short reports. Then one of the participants in this group makes a report. After the report, students ask questions that are answered by the speaker and other members of the expert group. Based on the questions and answers, a creative discussion takes place with the teacher.

## **VII. LIST OF INFORMATION TECHNOLOGIES AND SOFTWARE**

<b>The location of the computer equipment on which the software is installed, the number of jobs</b>	<b>List of licensed software</b>
Multimedia auditorium Vladivostok Russian island, Ayaks 10, building 25.1, RM.	Windows Seven enterprise SP3x64 Operating System Microsoft Office Professional Plus 2010 office suite that includes software for working with various



M723 Area of 80.3 m2 (Room for independent work)	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

### **LOGISTICS DISCIPLINE**

For practical work, as well as for the organization of independent work, students have access to the following laboratory equipment and specialized classrooms that meet the current sanitary and fire regulations, as well as safety requirements during training and scientific and industrial works:

<b>Name of the equipped rooms and rooms for independent work</b>	<b>List of main equipment</b>
690922, Primorsky Krai, Vladivostok, island Russian, the Saperny Peninsula, the village of ayaks, 10, RM. M 516	Class of topographic anatomy and operative surgery Set of surgical large (1 PC.) Package d / disposal CL. B (yellow) with screed, 50*60 cm Needles W 204/3 DS 70 (130) Disposable robe (sleeve: knitted cuff) Disposable gloves, non-sterile (size M) Disposable, non-sterile gloves (size S) Disposable, non-sterile gloves (size L) Pointed scissors (2 PCs.) Spatula neurosurgical 2-sided small (2 PCs .) Suture Polyester braided M 3.5 (0) a coil of 10 meters PR-VA Russia Dacron braided white M 3 (2/0) 200 meters tape, PR-VA Russia Functional model of the knee joint "luxury" (1 PC .) Model of knee joint, 12 parts (1 PC.) Posters of the abdominal cavity – plastic) - laminated Chest posters ( plastic) - laminated Fake hernia (1 PC .) Dummy brush (collapsible) (1 PC.) Laryngoscope intubation (1 PC.)

Multimedia audience	Monoblock Lenovo C360G-i34164G500UDK; projection Screen Projecta Elpro Electrol, 300x173 cm; Multimedia projector, Mitsubishi FD630U, 4000 ANSI Lumen 1920 x 1080; Flush interface with automatic retracting cables TLS TAM 201 Stan; Avervision CP355AF; lavalier Microphone system UHF band Sennheiser EW 122 G3 composed of a wireless microphone and receiver; Codec of videoconferencing LifeSizeExpress 220 - Codeconly - Non-AES; Network camera Multipix MP-HD718; Two LCD panel, 47", Full HD, LG M4716CCBA; Subsystem of audiocommentary and sound reinforcement; centralized uninterrupted power supply
Reading rooms of the Scientific library of the University open access Fund (building a - 10)	Monoblock HP Loope 400 All-in-One 19.5 in (1600x900), Core i3-4150T, 4GB DDR3-1600 (1x4GB), 1TB HDD 7200 SATA, DVD+/-RW, GigEth, wifi, BT, usb kbd/mse, Win7Pro (64-bit)+Win8.1Pro(64-bit), 1-1-1 Wty Speed Internet access 500 Mbps. Jobs for people with disabilities equipped with displays and Braille printers.; equipped with: portable reading devices flatbed texts, scanning and reading machines videovelocitly with adjustable color spectrums; increasing electronic loops and ultrasonic marker
690922, Primorsky Krai, Vladivostok, Aleutian street 57 690049, Vladivostok, street Russian 55  690034, Vladivostok, Voropaeva str., 5  690922, Primorsky Krai, Vladivostok, island Russian, the Saperny Peninsula, the village of ayaks, 10	State budgetary institution of health care "Primorsky regional clinical hospital №1»  Regional State Autonomous Health Institution " Regional Clinical Hospital №2»;  Regional State Autonomous Healthcare Institution "Vladivostok Clinical Hospital № 4»;  Medical center of the Federal state Autonomous educational institution of higher education "far Eastern Federal University".

Practical training is conducted on a clinical basis.

**Clinical bases:**

1. Medical Center of the Federal State Autonomous Educational Institution of Higher Education "Far Eastern Federal University";
2. Regional State Institution "Regional Clinical Hospital №2";
3. Regional State Institution "Vladivostok Clinical Hospital № 4";



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**

in discipline «**General surgery**»  
Educational program  
Preparation for 31.05.01. General Medicine  
**Form of training full-time**

**Vladivostok  
2017**

Independent work includes:

1. Library and homework with educational literature and lecture notes,
2. Preparation for practical exercises,
3. Performance of an individual task
4. Preparation of the essay
5. Preparation for testing and control interview.

The procedure for the performance of independent work by students is determined by the schedule of independent work on the academic discipline.

### **Schedule of independent work on the academic discipline**

<b>N p/p</b>	<b>Date / Deadline</b>	<b>Type of independent work</b>	<b>Estimated time to complete (hour)</b>	<b>Form of control</b>
<b>5 semester</b>				
1	2-3 weeks	Essay Individual task	21	EO-3-Report, speaking on the practical class
2	4-15 weeks	Presentation on the essay Presentation of the results of an individual task	6	EO-3-Report, speaking on the practical class
3	17-18 weeks	Preparing to exam	27	EO-1-Interview PW-1 - Test
<b>6 semester</b>				
1	2-3 weeks	Essay Individual task	3	EO-3-Report, speaking on the practical class
2	4-14 weeks	Presentation on the essay Presentation of the results of an individual task	6	EO-3-Report, speaking on the practical class
3	15-18 weeks	Preparing to exam	45	EO-1-Interview PW-1 - Test

### **Темы докладов и рефератов**

For the discipline of 99 hours of independent work, 2 oral reports on the proposed topics are carried out within the framework of these hours.

1. Methods of sterilization of optical devices

2. Wound drainage methods (current concepts)
3. Modern dressings as a component of the combined antiseptics
4. Intra- and postnarcotic complications
5. The statement of the biological death of the patient and the rules for the treatment of the corpse
6. Bleeding from the gastrointestinal tract
7. Post-transfusion complications
8. Spinal puncture: technique of execution, importance as a diagnostic method
9. Features of examination of a trauma patient
10. Radiodiagnosis of fractures and dislocations
11. Features of fractures in children
12. Gunshot wound, features of wound morphology, treatment tactics
13. Modern principles of treatment of purulent wounds.
14. The concept of precancerous diseases (obligate, optional), the degree of cellular polymorphism
15. Mumps: clinic, diagnosis, features of prevention and treatment
16. Primary chronic forms of osteomyelitis - pathological characteristics
17. Primary chronic forms of osteomyelitis - pathological characteristics
18. Inflammation of the serous cavity of the joint - arthritis, bursitis (etiology, diagnosis, treatment features)
19. Extracorporeal detoxification methods for peritonitis
20. Chest injuries and lung diseases as a cause of pleurisy, which can complicate the course of these diseases and injuries.
21. Pathomorphological changes in bones and joints in tuberculosis
22. Osteo-articular tuberculosis as a type of extrapulmonary tuberculosis. Pathogenesis of osteo-articular lesions
23. Parasitic diseases in the practice of the surgeon
24. Microbiological characteristics of purulent focus and diagnosis of anaerobic infection

25. Features of surgical interventions for anaerobic infection
26. Disorders of the mesenteric blood circulation as one of the manifestations of universal atherosclerosis
27. Surgical interventions for varicose veins of the lower extremities
28. The concept of trophic ulcers of the lower extremities and modern ideas about treatment
29. Lymphostasis: etiology, pathogenesis, clinic and treatment
30. Basic principles of complex treatment of surgical sepsis.

### **Guidelines for writing and design of the essay**

Essay - the creative activity of the student, which reproduces in its structure the research activities to solve theoretical and applied problems in a particular branch of scientific knowledge.

The essay is a model of scientific research. It is an independent work in which a student solves a problem of a theoretical or practical nature, applying the scientific principles and methods of this branch of scientific knowledge. The result of this scientific search can have not only subjective, but also objective scientific novelty, and therefore can be presented for discussion by the scientific community in the form of a scientific report or a message at a scientific-practical conference, as well as a scientific article.

The abstract is carried out under the direction of the supervisor and involves the acquisition of skills for building business cooperation based on ethical standards of scientific activity. Purposefulness, initiative, disinterested cognitive interest, responsibility for the results of their actions, conscientiousness, competence - personality traits that characterize the subject of research activities corresponding to the ideals and norms of modern science.

The essay is an independent educational and research activity of the student. The supervisor provides advisory assistance and evaluates the process and results of activities. He provides approximate themes of essay, clarifies with the student

the problem and theme of research, helps to plan and organize research activities, assigns time and a minimum number of consultations.

Traditionally there was a certain structure of the abstract, the main elements of which in order of their location are the following:

1. Title page.
2. The task.
3. Table of Contents
4. List of symbols, symbols and terms (if necessary).
5. Introduction.
6. The main part.
7. Conclusion.
8. Bibliographic list.
9. Appendixes

The title page lists: educational institution, graduating department, author, scientific advisor, research theme, place and year of the essay.

The name of the essay should be as short as possible and fully comply with its content.

The table of contents reflects the names of the structural parts of the essay and the pages on which they are located. The table of contents should be placed at the beginning of work on one page.

The presence of a detailed introduction - an obligatory requirement for the abstract. Despite the small volume of this structural part, its writing causes considerable difficulties. However, a qualitatively executed introduction is the key to understanding the entire work, which testifies to the professionalism of the author.

Thus, the introduction is a very important part of the essay. The introduction should start with a justification of the relevance of the chosen theme. From how the author of the essay can choose a theme and how correctly he understands and evaluates this theme from the point of view of modernity and social significance, it characterizes his scientific maturity and professional preparedness.

In addition, in the introduction it is necessary to isolate the methodological basis of the essay, to name the authors, whose works constituted the theoretical basis of the study. A review of the literature on the theme should show the authors thorough acquaintance with special literature, his ability to systematize sources, critically examine them, highlight the essential, determine the most important in the current state of knowledge.

The introduction reflects the importance and relevance of the chosen topic, defines the object and subject, purpose and objectives, and the chronological framework of the study.

Introduction should be completed by setting out general conclusions about the scientific and practical significance of the theme, its degree of scrutiny and providing with sources, then hypothesis is proposed.

The main part describes the essence of the problem, reveals the theme, determines the author's position, factual material is given as an argument and for illustrations of put forward provisions. The author needs to demonstrate the ability of sequential presentation of material while its analysis. Preference is given to the main facts, rather than small details.

The essay ends with the final part, which is called "conclusion". This part of the essay synthesizes scientific information, which is accumulated in the main part. This synthesis is a consistent, coherent presentation of the results obtained and their relation to a common goal and specific tasks that were set and formulated in the introduction. It is here that contains the so-called "output" knowledge, which is new in relation to the original knowledge. The conclusion may include suggestions of a practical nature, thereby increasing the value of theoretical materials.

So, in conclusion, the student should a) present the findings of the study; b) reflect the theoretical and practical significance, the novelty of the abstract; c) indicate the possibility of applying the results of the study.

After the conclusion it is accepted to place the bibliographic list of the used literature. This list is one of the essential parts of the essay and reflects the independent creative work of the author.



The list of sources used is placed at the end of the work. It is made or in alphabetical order (by the name of the author or the name of the book), or in the order in which the references appear in the text of the written work. In all cases, the full title of the work, the names of the authors or the editor of the publication are indicated if the writing team involved a group of authors, data on the number of volumes, the name of the city and publisher in which the work was published, year of publication, number of pages.

### **Guidelines for writing and design of the presentations**

For the preparation of the presentation is recommended to use: Power Point, MS Word, Acrobat Reader, LaTeX beamer. The simplest program for creating presentations is Microsoft PowerPoint. For the preparation of the presentation it is necessary to process the information collected when 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 the presentation context will be).
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) for displaying 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. The

diagram is a 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.

### **Guidelines for writing and design of the practical class**

Monitoring the results of independent work is carried out in the course of conducting practical exercises, oral surveys, interviews, solving situational problems, examinations, including through testing.

1. The student should prepare for the practical lesson: repeat the lecture material, read the necessary section on the topic in the textbook.
2. Lesson begins with a quick frontal oral survey on a given topic.
3. In the classroom students work with lecture notes, slides.
4. For classes, you must have a notebook for recording theoretical material, a textbook.
6. At the end of the lesson, homework is given on the new topic and it is proposed to compile tests on the material that has been studied, which were studied in the lesson (summary).
7. The presentations and the activity of the students in the classroom are evaluated by the current assessment.

### **Guidelines for the preparation of the report**

1. Independent student selection of the report topic.
2. Selection of literary sources on the chosen topic from the recommended basic and additional literature offered in the work program of the discipline, as well as work with the resources of the Internet information and telecommunications network specified in the work program.
3. Work with the text of scientific books, textbooks is reduced not only to the reading of the material, it is also necessary to analyze the selected literature, compare the presentation of the material on the

topic in different literary sources, pick up the material so that it reveals the topic of the report.

4. The analyzed material is outlined, the most important thing is that it should not be simply a conscientious rewriting of source texts from selected literary sources without any comments and analysis.

5. Based on the analysis and synthesis of literature, the student draws up a plan for the report, on the basis of which the text of the report is prepared.

6. The report should be structured logically, the material is presented in one piece, coherently and consistently, conclusions are drawn. It is desirable that the student could express his opinion on the formulated problem.

7. The report takes 7-10 minutes. The report is told, but not read on paper.

#### Guidelines for working with literature

1. It is necessary to make an initial list of sources. The basis may be a list of references recommended in the course work program. For convenience, you can create your own file of selected sources (authors' last name, title, publication characteristics) as a working file in a computer. This card index has the advantage, because it allows you to add sources, replace, if necessary, one with another, remove those that were not relevant topics. The initial list of references can be supplemented using the electronic catalog of the FEFU library, and do not hesitate to contact the library staff for help.

2. Working with literature on one topic or another, one must not only read, but also learn the method of studying it: make a brief summary, algorithm, scheme of the read material, which allows it to be quickly understood and remembered. It is not recommended to literally rewrite the text.

#### **Criteria for evaluation of the oral report**

Oral report on the discipline "Hospital surgery, pediatric surgery" is evaluated by the point system: 5, 4, 3.

"5 points" is exposed to a student, if he expressed his opinion on the formulated problem, argued it, having precisely defined its content and components, is able to

analyze, summarize the material and draw correct conclusions using basic and additional literature, freely answers questions, which indicates what he knows and owns the material.

“4 points” is given to a student if he presents material on the chosen topic coherently and consistently, gives arguments to prove one or another position in the report, demonstrates the ability to analyze the main and additional literature, but admits some inaccuracies in the wording of concepts.

“3 points” are given to a student if he has conducted an independent analysis of the main and additional literature, however, certain provisions of the report are not always sufficiently argued, mistakes are made in presenting the material and not always fully answering additional questions on the topic of the report.

### **Criteria for evaluation of the abstract**

Evaluation criteria for the abstract: the novelty of the text; the validity of the choice of source; the degree of reveal of the essence of the issue; compliance to the design requirements.

#### **The novelty of the text:**

- a) the relevance of the research theme;
- b) novelty and independence in the formulation of the problem, the formulation of a new aspect of the well-known problem;
- c) the ability to work with research, critical literature, to systematize and structure the material;
- d) the appearance of the author's position, independence of assessments and judgments;
- e) stylistic unity of the text.

#### **The degree of disclosure of the essence of the question:**

- a) the plan compliance with the theme of the abstract;
- b) compliance of the content to the theme and plan of the essay;
- c) completeness and depth of knowledge on the theme;
- d) the validity of the methods and methods of working with the material;

e) the ability to generalize, draw conclusions, compare different points of view on one issue (problem).

**The validity of the choice of sources:** a) evaluation of the used literature: the use of the most famous works on the research topic (including journal publications of recent years, recent statistics, summaries, references, etc.).

**Compliance with the design requirements:**

- a) the correctness of references to the used literature, references;
- b) assessment of literacy and presentation culture (including spelling, punctuation, stylistic culture), knowledge of terminology;
- c) compliance with the requirements for the volume of the abstract.

**The reviewer should clearly state** the remark and questions, preferably with references to the work (possible on specific pages of the work), to research and evidence that the author did not take into account.

**The reviewer can also indicate** whether the student has addressed the theme earlier (essays, written works, creative works, olympiad works, etc.).

**The reviewer can also indicate** whether the student has addressed the theme earlier (essays, written works, creative works, olympiad works, etc.).

**The rating “Excellent”** is set if all the requirements for writing and presenting the abstract are fulfilled: the problem is indicated and its relevance is justified, a brief analysis of various points of view on the problem under consideration is made and own position is logically presented, conclusions are formulated, the theme is fully revealed, the volume is met, the requirements are met to the external design, given the correct answers to additional questions.

**Evaluation of “Good”** - the basic requirements for the essay are met, but there are some shortcomings. In particular, there are inaccuracies in the presentation of the material; there is no logical sequence in the judgments; not sustained volume of the abstract; there are omissions in the design; Additional questions are incomplete answers.

**Assessment “Satisfactory”** - there are significant deviations from the requirements for essay. In particular, the theme is only partially revealed; factual errors in the content of the abstract or when answering additional questions; there is no output.

**The rating of “Unsatisfactory”** - the theme of the essay is not revealed, there is a significant lack of understanding of the problem or the student’s abstract is not presented.



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

**«General surgery»**  
Educational program  
Preparation for 31.05.01. General Medicine  
**Form of training full-time**

**Vladivostok**  
**2017**

**Passport of the Fund Assessment Tools** is filled in accordance with the Regulations on the Funds of Evaluation Tools of Educational Programs of Higher Education - Bachelor's Programs, Specialties, FEFU Magistrates, approved by order of the Rector on 12/05/2015 No. 12-13-850.

Code of competence	Stages of competence formation	
readiness for use of medical devices provided for by the procedures for rendering medical assistance (GPC-11).	Knows	Rules of asepsis in the implementation of medical activities, the stages of treatment of surgical patients.
	Is able to	Put on and change sterile gloves, sterile gown independently and with the help of the operating sister. Perform preoperative processing and processing of the surgical field.
	Possesses	The technique of processing the hands of the surgeon and the surgical field with disinfectant solutions before surgery
PC-5 the readiness to collect and to analyze patient complaints, data of its history, the results of laboratory, instrumental postmortem and other examinations in order to recognize the incidence or the absence of diseases	Knows	the etiology, diagnosis, treatment and prevention of infectious diseases; the clinical signs, features of the course and possible complications of infectious diseases occurring in typical form; modern methods of clinical instrumental diagnosis of patients infection profile; features of the collection of pathological materials; precautions; special clothing; basic principles of diagnosis, treatment and rehabilitation of infectious diseases, indications for hospitalization with infectious diseases; principles of follow-up observation, rehabilitation of infectious patients; implementation of specific and nonspecific prevention of infectious diseases.
	Is able to	participate in the organization and provision of medical - preventive and sanitary anti-epidemic, prophylactic and rehabilitation assistance to the population with infectious diseases; interpret the results of the survey, make a preliminary diagnosis, outline the scope of additional studies to clarify the diagnosis; formulate a clinical diagnosis; develop a treatment plan taking into account the course of the disease, select and appoint drug therapy, use methods of non-drug treatment, to conduct rehabilitation measures.
	Possesses	the interpretation of the results of laboratory, instrumental methods of diagnosis with infectious disease; algorithm for making a preliminary diagnosis with the subsequent direction to additional examination and to specialist doctors; an algorithm for making a comprehensive clinical diagnosis of patients; the algorithm for the implementation of the main medical diagnostic and therapeutic measures to



		provide first medical aid in emergency and life-threatening conditions for infectious diseases.
ability to determine tactics of management of patients with different nosological forms (PC-8);	Knows	Fundamentals of management of patients who need infusion-transfusion therapy
	Is able to	Draw up a program of infusion-transfusion therapy in various pathological conditions. Determine the indications for infusion-transfusion therapy.
	Possesses	Skills of establishing the diagnosis, prescribing and carrying out the necessary infusion-transfusion therapy in various pathological conditions;
willingness to provide medical care for sudden acute diseases, conditions, exacerbation of chronic diseases that are not accompanied by a threat to the patient's life and do not require emergency medical care (PC-10)	Knows	Means of infusion therapy and their mechanism of action for the treatment of sudden acute illness conditions, exacerbations of chronic diseases that are not accompanied by a threat to the patient's life and do not require emergency medical care
	Is able to	To apply means of infusion-transfusion therapy for the treatment of sudden acute diseases, conditions, exacerbation of chronic diseases that are not accompanied by a threat to the patient's life and do not require emergency medical care.
	Possesses	Skills of applying means of infusion-transfusion therapy for the treatment of sudden acute diseases, conditions, exacerbation of chronic diseases that are not accompanied by a threat to the patient's life and do not require emergency medical care
willingness to participate in the provision of emergency medical care in conditions requiring urgent medical intervention (PC-11);	Knows	Fundamentals of emergency medical care in conditions requiring urgent medical interventions, including post-transfusion reactions and complications of infusion-transfusion therapy
	Is able to	To provide emergency medical care in conditions requiring urgent medical interventions, including post-transfusion reactions and complications of infusion-transfusion therapy
	Possesses	Skills of providing emergency medical care in conditions requiring urgent medical interventions, including post-transfusion reactions and complications of infusion-transfusion therapy

## CONTROL OF ACHIEVEMENTS OF THE COURSE GOALS

Code of competence		Stages of competence formation			
№ п/п	Controlled modules / sections / themes of academic discipline	Codes and stages of the formation of competencies		Evaluation tools - name	
				current control	intermediate evaluation
1	Module 1. Introduction to general surgery. Module 2. Aseptic and antiseptic (2 hours.) Module 3. Basics of anesthesiology, resuscitation, intensive care. Module 4. Basics of transfusiology. Bleeding Module 5. Basics of surgical damage. Module 6. Basics of Traumatology. Module 7. Basics of purulent surgery.	readiness for use of medical devices provided for by the procedures for rendering medical assistance (GPC-11).	Knows	EO-1 Interview	Questions of final control 4 semester - 1-36
			Is able to	PW-1 Test	PW-1 Test
			Possesses	EO-3 Report	EO2 Colloquium
2	Module 3. Basics of anesthesiology, resuscitation, intensive care. Module 4. Basics of transfusiology. Bleeding Module 5. Basics of surgical damage. Module 6. Basics of Traumatology. Module 7. Basics of purulent surgery. Module 9. Fundamentals of Oncology	patient, his medical history, examination results, laboratory, instrumental, autopsy and other studies in order to recognize the condition or establish the fact of the presence or absence of the disease (PC-5);	Knows	EO-1 Interview	Questions of final control 4 semester - 1-38
			Is able to	PW-1 Test	PW-1 Test
			Possesses	EO-3 Report	EO2 Colloquium
3	Module 3. Basics of anesthesiology, resuscitation, intensive care. Module 4. Basics of transfusiology. Bleeding Module 5. Basics of surgical damage. Module 6. Basics of Traumatology. Module 7. Basics of purulent surgery. Module 9. Fundamentals of Oncology	the ability to determine the tactics of managing patients with various nosological forms (PC-8);	Knows	EO-1 Interview	Questions of final control 4 semester - 36-110
			Is able to	PW-1 Test	PW-1 Test
			Possesses	EO-3 Report	EO2 Colloquium
4	Module 3 Basics of anesthesiology, resuscitation, intensive	readiness to provide medical care for sudden	Knows	EO-1 Interview	Questions of final control 4 semester -

	care. Module 4. Basics of transfusiology. Bleeding Module 5. Basics of surgical damage. Module 6. Basics of Traumatology. Module 7. Basics of purulent surgery. Module 8. Perioperative period Module 9. Fundamentals of Oncology	acute diseases, conditions, exacerbation of chronic diseases that are not accompanied by a threat to the patient's life and do not require emergency medical care (PC-10);			1-38
			Is able to	PW-1 Test	PW-1 Test
			Possesses	EO-3 Report	EO2 Colloquium
5	Module 3 Basics of anesthesiology, resuscitation, intensive care. Module 4. Basics of transfusiology. Bleeding Module 5. Basics of surgical damage. Module 6. Basics of Traumatology	willingness to participate in the provision of emergency medical care in conditions requiring urgent medical intervention (PC-11);	Knows	EO-1 Interview	Questions of final control 4 semester - 1-38
			Is able to	PW-1 Test	PW-1 Test
			Possesses	EO-3 Report	EO2 Colloquium

### The scale of assessment the level of formation of competences

Code and formulation of competence	Stages of the formation of competencies		Criteria	Indicators	Points
ability to determine tactics of management of patients with different nosological forms (PC-8);	Knows (threshold level)	Fundamentals of management of patients who need infusion-transfusion therapy	Knowledge of fundamentals of management of patients who need infusion-transfusion therapy	Formed and structured systematic knowledge of the fundamentals of management of patients who need infusion-transfusion therapy	65-71
	Is able to (advanced)	Draw up a program of infusion-transfusion therapy in various pathological conditions. Determine the indications for infusion-transfusion therapy.	Ability to draw up a program of infusion-transfusion therapy in various pathological conditions. Determine the indications for infusion-transfusion therapy	Ready and can to draw up a program of infusion-transfusion therapy in various pathological conditions. Determine the indications for infusion-transfusion therapy	71-84
	Possesses (high)	Skills of establishing the diagnosis,	Formed skills of establishing the	Skills surely to establish the	85-100

		prescribing and carrying out the necessary infusion-transfusion therapy in various pathological conditions;	diagnosis, prescribing and carrying out the necessary infusion-transfusion therapy in various pathological conditions	diagnose, prescribe and conduct the necessary infusion-transfusion therapy in various pathological conditions;	
ability to determining the patients basic pathological conditions, symptoms, syndromes, diseases, clinical entities, in accordance with the International Statistical Classification of Diseases and Related Health X review (PC-6);	Knows (the threshold level)	The physiological signs of major pathological conditions, symptoms, syndromes, diseases, clinical entities, in accordance with the International Statistical Classification of Diseases and Related Health X review	The knowledge of physiological signs of major pathological conditions, symptoms, syndromes, diseases, clinical entities, in accordance with the International Statistical Classification of Diseases and Related Health X review	The capacity and willingness to learn a foreign language at the level of everyday communication, to the written and oral communication in the official language	45-64
	Is able to (advanced)	to verify and determine the normal basic pathological conditions of the human body, as well as to diagnose the symptoms and syndromes of diseases, clinical entities, in accordance with the International Statistical Classification of Diseases and Related Health X review	The ability to verify and determine the normal basic pathological conditions of the human body, as well as to diagnose the symptoms and syndromes of diseases, clinical entities, in accordance with the International Statistical Classification of Diseases and Related Health X review	The capacity to verify and determine the normal basic pathological conditions of the human body, as well as to diagnose the symptoms and syndromes of diseases, clinical entities, in accordance with the International Statistical Classification of Diseases and Related Health X review	64-85
	Possesses (high)	The basic skills of diagnosing pathological conditions, symptoms, syndromes, diseases, clinical entities	Possession the s basic skills of diagnosing pathological conditions, symptoms, syndromes, diseases, clinical entities	The capacity to basic skills of diagnosing pathological conditions, symptoms, syndromes, diseases, clinical entities	86-100

### Questions for assessing prior competencies

1. Give the definition of inflammation.
2. What are the classic clinical signs of inflammation?
3. List the tissue reactions that develop during inflammation (phase of

inflammation).

4. What is exudate?
5. What is a transudate?
6. What is serous exudate?
7. What is fibrinous exudate?
8. What is purulent exudate?
9. Fever: definition, types, its difference from hyperthermia
10. Comparative characteristics of acute and chronic inflammation
11. Metabolism in the outbreak of inflammation (in stages)
12. The main groups of inflammatory mediators. Biological significance of inflammation
13. The elemental composition of proteins. The discovery of amino acids
14. The concept of anabolism and catabolism and their relationship
15. Macroergic compounds, concept. Macroergic connection, its features. Types of high-energy compounds.
16. Oxidation of food substances as the main source of useful energy. Types of oxidation
17. The concept of tissue respiration.
18. Basic carbohydrates of human food, the need for carbohydrates
19. Gluconeogenesis. The relationship of glycolysis and gluconeogenesis
20. Properties and distribution of glycogen. Exchange features

### **valuation tools for current certification**

Control tests are designed for students studying the course "General Medicine".

Tests are necessary both for the control of knowledge in the process of the current intermediate certification, and for the assessment of knowledge, the result of which can be the setting of credit.

When working with tests, the student is invited to choose one answer from three to four proposed. At the same time, tests are unequal in complexity. Among the

proposed there are tests that contain several options for correct answers. The student needs to specify all the correct answers.

Tests are designed for both individual and collective decision. They can be used in the process and classroom, and independent work. The selection of tests necessary for the control of knowledge in the process of intermediate certification is done by each teacher individually.

The results of the test tasks are assessed by the teacher on a five-point scale for issuing attestation or according to the "test" system - "no test". The mark "excellent" is set with the correct answer to more than 90% of the tests proposed by the teacher. A rating of "good" - with the correct answer to more than 70% of tests. A rating of "satisfactory" - with the correct answer to 50% of the tests proposed by the undergraduate.

### **Examples of test items.**

1. Антисептика является методом профилактики:

- a. экзогенной инфекции
- b. эндогенной инфекции
- c. эндогенной и экзогенной инфекции

1. Пути распространения экзогенной инфекции в хирургии являются:

- a. воздушно-капельный, контактный, имплантационный
- b. контактный, имплантационный, гематогенный
- c. имплантационный, лимфогенный, контактный

2. Важнейшим механизмом канцерогенеза является:

- a. гормональный
- b. иммунологический
- c. химический
- d. физический

3. Из перечисленных заболеваний доброкачественной опухолью является:

- a. атерома

- b. десмоид
- c. кистома яичника
- d. фиброаденома
- e. кондилома

4. Перекрестный метод определения группы крови производится с помощью:

- a. стандартных эритроцитов
- b. стандартных сывороток
- c. 33 % раствора полиглюкина
- d. стандартных сывороток и эритроцитов

5. Аутогемотрансфузия-это:

- a. обратное переливание крови больному, излившейся в различные полости
- b. переливание консервированной аутокрови, заблаговременно заготовленной от больного
- c. трансфузия крови непосредственно от донора к реципиенту

6. Реинфузия крови - это:

- a. переливание консервированной аутокрови, заблаговременно заготовленной от больного
- b. обратное переливание крови, излившейся в серозные полости

7. Проявления синдрома массивной гемотрансфузии:

- a. острая почечная недостаточность
- b. метаболический ацидоз, гиперкалиемия
- c. повышение фибринолитической активности крови

8. При острой анемии целесообразно применять:

- a. эритроцитарную массу
- b. тромбоцитарную массу
- c. лейкоцитарную массу

d. нативную плазму

9. Мигрирующий тромбофлебит характерен для:

- a. неспецифического аortoартериита
- b. облитерирующего атеросклероза
- c. облитерирующего тромбангиита

10. Симптомы, характерные для острой ишемии конечности:

- a. боли в конечности, отек, цианоз
- b. боли в конечности, бледность, ограничение активных движений
- c. кожный зуд, гиперемия голени, повышение температуры

11. Для коррекции метаболических нарушений при

"ишемическом синдроме" применяется:

- a. форсированный диурез и гемосорбция
- b. гемосорбция и согревание конечности
- c. форсированный диурез и согревание конечности

12. Для диабетической ангиопатии характерны:

- a. проксимальный тип поражения артерий и высокая частота инфекционных осложнений
- b. дистальный тип поражения артерий и высокая частота инфекционных осложнений
- c. проксимальный тип поражения артерий и нарушения тактильной чувствительности

13. Мелена-это:

- a. дегтеобразный стул
- b. стул с прожилками крови
- c. стул с большими сгустками крови

14. Воздушная эмболия чаще встречается при повреждении:

- a. подключичных вен
- b. почечных вен



- c. подвздошных вен
- d. аорты

15. Ранняя первичная хирургическая обработка раны проводится в сроки до:

- a. 6 часов
- b. 24 часов
- c. 48 часов

16. Причина гемоперитонеума определяется с помощью:

- a. обзорной рентгеноскопии брюшной полости
- b. лапароскопии
- c. аускультации
- d. ультразвукового исследования живота

17. Разрыв полых органов при закрытой травме живота бывает при нахождении их в момент травмы:

- a. в спавшемся состоянии
- b. переполненном состоянии
- c. повышенной перистальтике

18. Ожоги горячей водой характеризуются:

- a. малой глубиной и площадью
- b. малой глубиной и большой площадью
- c. большой глубиной и большой площадью

19. Газ в брюшной полости при перитоните появляется вследствие:

- a. внематочной беременности
- b. нарушении проницаемости стенки тонкой кишки
- c. перфорации полых органов

20. II степень ожога характеризуется повреждением:

- a. в пределах эпидермиса
- b. сосочкового слоя
- c. поверхностных слоев дермы
- d. всей дермы

21. IIIA степень ожога характеризуется повреждением:

- a. в пределах эпидермиса
- b. поверхностных слоев дермы
- c. всей дермы

22. IIIB степень ожога характеризуется повреждением:

- a. в пределах эпидермиса
- b. поверхностных слоев дермы
- c. всей дермы

23. Травма, нанесенная во время диагностических или лечебных процедур, называется:

- a. внутрибольничной
- b. нозокомиальной
- c. симультанной
- d. случайной
- e. ятрогенной

24. Ведущим звеном в патогенезе краш-синдрома является:

- a. миоглобинемия
- b. липидемия

25. Антисептиками группы окислителей являются: а) хлоргексидина биглюконат; б) калия перманганат; в) перекись водорода; г) диоксидин; д) йодопирон. Выберите правильную комбинацию ответов:

- a. б, в;
- b. а, б;
- c. в, г;
- d. г, д;
- e. верно все.

26. Антисептиками, относящимися к группе галогенов и

галогенсодержащих соединений, являются: а) калия перманганат; б)

гипохлорит натрия; в) диоксидин; г) повидон-йод; д) йодонат.

Выберите правильную комбинацию ответов:

- a. б, г, д;
- b. б, г;
- c. в, г, д;
- d. а, в;
- e. верно все.

27. Какие методы относятся к физической антисептике? а)

ультразвуковая кавитация раны; б) антибиотико-новокаиновая блокада гнойно-воспалительного очага; в) вакуумная аспирация; г) обработка ран раствором эффективного антисептика; д) использование лазерного излучения. Выберите правильную комбинацию ответов:

- a. а, в, д
- b. а, б, в;
- c. в, г, д;
- d. а, в, г
- e. а, г, д;

28. Пути эндогенной контаминации ран: а) через нестерильный хирургический инструментарий; б) проникновение непосредственно из полого органа; в) через руки медицинского персонала; г) через бактериально контаминированный экссудат брюшной полости; д) с током лимфы или крови из гнойно-воспалительного очага.

Выберите правильную комбинацию ответов:

- a. б, г, д;
- b. в, г, д;
- c. а, г, д;
- d. а, б, в;
- e. верно все.

29. Симптомы острой кровопотери:

- a. частый малый пульс;
- b. цианоз;
- c. падение АД;
- d. учащение дыхания;
- e. бледность кожных покровов.

30. Причиной возникновения раннего кровотечения:

- a. соскальзывание лигатуры с сосуда;
- b. отказ от лигирования мелких сосудов;
- c. понижение свертываемости крови больного;
- d. аррозия сосуда;
- e. резкое повышение АД.

31. Способы окончательной остановки паренхиматозного кровотечения:

- a. давящая повязка;
- b. тампонада;
- c. использование электрокоагуляции;
- d. наложение лигатуры на сосуд;
- e. наложение зажима.

32. Гематомой называется скопление крови в:

- a. перикарде;
- b. брюшной полости;
- c. плевральной полости;
- d. тканях;
- e. суставной сумке.

33. Паронихия - это воспаление:

- a. всех тканей пальца;
- b. околоногтевого ложа;
- c. ногтевого ложа;
- d. межфалангового сустава;
- e. сухожильного влагалища.

34. Пандактилит – это гнойное воспаление:

- a. кожи пальца;
- b. подкожной клетчатки пальца;
- c. около ногтевого валика;
- d. сухожильного влагалища пальца;
- e. всех тканей пальца

35. По клиническому течению перитониты классифицируют как:

- a. аэробные и анаэробные;
- b. инфекционные и абактериальные;
- c. острые и хронические;
- d. желчные, мочевые и каловые;
- e. серозные, фибринозные, гнойные и гнилостные.

36. По степени распространенности воспалительного процесса перитонит классифицируют как:

- a. легкий, средний, тяжелый;
- b. осумкованный и генерализованный;
- c. местный, диффузный и общий;
- d. предбрюшинный, внутрибрюшинный, забрюшинный.

37. Какая тактика хирурга должна быть при перитоните:

- a. выжидательная и плановая операция;
- b. экстренная операция;
- c. консервативное лечение;
- d. применение гипербарической оксигенации и антибиотикотерапии;
- e. использование гемосорбции и антибиотикотерапии.

38. При газовой гангрене выполняют:

- a. некрэктомию;
- b. некротомию;
- c. прерывистые разрезы со вскрытием сухожильных влагалищ;
- d. ампутацию пальцев;

е. ампутацию либо экзартикуляцию конечности.

### **Questions for the exam in the discipline "General Surgery" - 5, 6 semesters**

1. The concept of surgery and surgical pathology. Surgical deontology.
2. History of surgery. History of Russian surgery. The current state of surgery. The organization of outpatient and inpatient surgical care.
3. The concept of asepsis. History of asepsis and antiseptics. Sources and pathways of surgical infection. Airborne, contact, implant pathways of infection. Nosocomial (hospital) infection in a surgical hospital.
4. Fighting microflora on the paths of airborne contamination. Prevention of nosocomial infections. Organization of work of the surgical department and the operational unit for the prevention of airborne infection. The layout of the operating unit.
5. Nosocomial infection, concept. Sources Ways of transmission. Prevention of contact and implantation microbial contamination. Sterilization methods.
6. Asepsis. The concept of asepsis. Sterilization of operating clothes, underwear, surgical gloves, drainages, dressing material, surgical instruments. Sterilization of suture material, metal structures, prostheses, transplants.
7. Modern means and methods of chemical sterilization and disinfection. Packaging and storage of sterile material. Prevention of infection in the sterilization process. Sterility control.
8. Aseptic. Prevention of contact contamination by microflora. Handling the surgeon's hands, processing the surgical field.

9. The concept of antiseptic. Types of antiseptics. Mechanical antiseptic. The concept of primary and secondary surgical treatment of wounds, principles and stages of implementation.

10. Physical antiseptic. Methods of physical antiseptics. Indications and technique.

11. Chemical antiseptics. The main groups of antiseptics. Ways of using various chemical antiseptics.

12. Biological antiseptic. Types of biological antiseptics. Basic pharmacological agents and methods of their use. Passive and active immunization in surgery. Immunocorrection and immunostimulation.

13. Local anesthesia. History of local anesthesia. Types of local anesthesia. Preparations for local anesthesia. Technique of certain types of local anesthesia. Possible complications and their prevention.

14. Conductive anesthesia (according to Oberst-Lukashevich, epidural anesthesia, spinal anesthesia). Indications for use, types and techniques of implementation, drugs.

15. Novocainic blockade. Indications for use, types and techniques of performing certain types of novocaine blockades.

16. General anesthesia. History of anesthesia. Modern ideas about the mechanisms of general anesthesia. Classification of anesthesia. Preparing patients for anesthesia, premedication and its implementation.

17. Inhalation anesthesia. Equipment and types of inhalation anesthesia. Modern inhalation anesthetic agents, muscle relaxants. Stages of anesthesia.

18. Intravenous anesthesia. Basic drugs. Neuroleptanalgesia.

19. Modern combined intubation anesthesia. Indications for use. Preparations. The sequence of its conduct and its benefits.
20. The concept of anesthesia. Stages of anesthesia.
21. Complications of anesthesia and the immediate post-anesthetic period, their prevention and treatment.
22. Terminal States. The clinical picture of terminal states. Causes of circulatory arrest. Clinic for circulatory arrest. The simplest methods of artificial blood circulation, the rules of conducting and evaluating the effectiveness. Clinic stop breathing. The simplest methods of artificial ventilation of the lungs, justify the advantage of insufflation methods to manual ones.
23. Terminal states (predagonia, agony, clinical death). Clinical signs of biological death. Indications for the termination of resuscitation.
24. Methods of examination of the surgical patient. General clinical examination (examination, palpation, percussion, auscultation), thermometry, anthropometric measurements, laboratory research methods.
25. Instrumental methods of examination in surgery. Their types and sequence of application. The role and place of instrumental methods of examination in the diagnosis. Preparing the patient for instrumental examination methods.
26. Preoperative period. The main tasks of the preoperative period. Concepts of indications and contraindications to surgery. Preparing for emergency, urgent and planned operations.
27. Surgical operations. Classification of surgical interventions. Types of operations. Stages of surgical operations. Legal basis of the operation.
28. The postoperative period. The reaction of the patient to the operating injury. Describe the phases of the postoperative period.



29. Postoperative complications. Classification. Prevention and treatment of postoperative complications.

30. Bleeding and blood loss. Bleeding mechanisms. The reaction of the body to acute blood loss. Evaluation of the severity of blood loss. Clinical and laboratory diagnostics. Hemorrhagic shock.

31. Bleeding and blood loss. Bleeding classification. Local and general symptoms of bleeding. Diagnostics. Methods for determining the amount of blood loss. Outcomes of bleeding. Chronic blood loss.

32. Ways to temporarily stop bleeding. Indications and techniques for performing various ways to temporarily stop bleeding. Places finger pressing arteries. Advantages and disadvantages of the method. Rules and technique of applying a hemostat.

33. Ways to permanently stop bleeding. Mechanical, physical, chemical and biological methods to stop bleeding.

34. Blood groups classification. Immunological basis of blood transfusion. Iso-, heteroagglutination, panagglutination.

35. The group system of red blood cells ABO. Methods for the determination of blood groups in the ABO system. The concept of the cyclone.

36. Antigenic system of Rh factor. Determination of Rh factor. The concept of D-antigen. The concept of C, E, c, e, Du antigens. The concept of the cyclone. The concept of Rh-positive donor and Rh-negative recipient.

37. Meaning and methods for determining individual compatibility (ABO) and rhesus compatibility. The cyclones. Biological compatibility. The duties of a blood transfusion doctor.

38. Blood transfusion. Indications and contraindications for blood transfusion. Modern principles and rules of blood transfusion by groups of the ABO system and the Rhesus system. Methods and techniques of blood transfusion.
39. Blood transfusion reactions and complications, classification, their prevention, diagnosis, treatment principles. Prevention of hepatitis B, HIV - infection.
40. Organization of the donation service in Russia. Modern methods of preparation, conservation of blood and its components. Freshly stabilized and canned blood, determination of fitness for use. Principles of component therapy. Blood reinfusion, autohemotransfusion. The concept of quarantine blood components.
41. Blood-substituting solutions. Blood substitutes of hemodynamic action, detoxification solutions, blood substitutes for parenteral nutrition.
42. Blood replacement solutions. Regulators of water-salt metabolism and acid-base status, oxygen carriers, infusion antihypoxants.
43. Preparations and blood components (erythrocyte mass, leukocyte mass, platelet mass, fresh frozen plasma, albumin, protein, coagulation factors)
44. The concept of coagulation and anticoagulation system and fibrinolysis system. The main factors that ensure the balance of blood coagulation. Research methods. Disorders with impaired coagulation system. The impact of surgery and drugs on the SASS system. The main laboratory indicators of the SASS.
45. The concept of coagulation and anti-clotting system of blood. Disorders of the coagulation and anticoagulative system of blood in surgical patients and the principles of their correction. Prevention and treatment of thromboembolic complications, hemorrhagic syndrome.

46. DIC - syndrome. Definition, causes, pathogenesis, clinical manifestations, stages, prevention, treatment.
47. Endogenous intoxication in surgery, causes, major toxic substances. Principles of treatment.
48. Water-electrolyte disorders in surgical patients, causes, classification. Clinical and laboratory diagnostics. Indications, dangers and complications. Solutions for infusion therapy. Principles of infusion therapy Treatment of complications of infusion therapy.
49. Critical disability in surgical patients. Fainting. Collapse. Shock.
50. Wounds. The mechanism of the origin of wounds. Classification of wounds. Pathological anatomy of the wound, tissue damage zones. Clinical picture. General and local reaction of the body. Diagnosis of injuries.
51. Types of wound healing. Morphological and biochemical changes in the wound. Wound healing mechanisms (granulation, intercalary growth, contraction, epithelialization).
52. Phases of the wound process. Phase I, periods. Principles of treatment in the first phase of the wound process.
53. Phases of the wound process. Phase II Principles of treatment in the second phase of the course of the wound process.
54. The concept of a gunshot wound, its difference from incised, zone of the wound channel. Features of surgical treatment of gunshot wounds.
55. The concept of the wound process, the phase of the wound process. Principles of treatment of "fresh" wounds. Types and technology of treatment of wounds (PHO, WMO). The purpose of the performance technique. Types of stitches (primary, primary - delayed, primary late, secondary early, secondary late).

56. The principles of local treatment of wounds, depending on the phase of the wound process. Features of the III phase of the wound process. Features of the scar during wound healing by primary and secondary tension.

57. Infectious complications of wounds. Causes of festering wounds. Purulent wounds. The clinical picture of purulent wounds. Causative agents of wound infection. Conditions for the development of wound infections (local and general). Mechanisms of cleansing wounds from purulent, necrotic tissues, from wound microflora. Principles of general and local treatment of purulent wounds.

58. General questions of traumatology. Injuries, types. Classification of injuries. General principles for the diagnosis of traumatic injuries, determination of the severity of injury. Stages of assistance. **Закрытые повреждения мягких тканей.** Ушибы, растяжения, разрывы. Клиника, диагностика, лечение.

59. Traumatic disease, pathogenesis, clinic, diagnosis, treatment.

60. Syndrome of prolonged crushing of tissues (crash syndrome, positional compression syndrome), pathogenesis, clinic, diagnostics, treatment principles.

61. Damage to the skull. Concussion, contusion, compression. First aid, transportation. Principles of treatment.

62. Breast injury. Classification. Pneumothorax, its types. Principles of first aid. Hemothorax. Clinic. Diagnostics. First aid. Transportation of injured with a chest injury.

63. Abdominal trauma. Damage to the abdominal and retroperitoneal space. Clinical picture. Modern methods of diagnosis and treatment. Features of the combined abdominal trauma.

64. Dislocate. Definition The clinical picture, classification, diagnosis. First aid, treatment of dislocations. Shoulder dislocation.

65. Fractures. Definition Classification, clinical picture. Absolute signs of fractures. Complicated fractures (intraarticular, fractures). Diagnosis of fractures. Types of displacement of bone fragments. Complications of fractures. First aid for fractures.

66. Methods of examination of the trauma patient. General clinical examination (examination, palpation, percussion, auscultation), anthropometric measurements.

67. Fractures. Classification. Fracture healing. The concept of callus, osteogenesis. Conservative and surgical treatment methods. Methods of reposition and fixation of fragments. Types of immobilizing medical dressings. The concept of osteosynthesis.

68. Fractures. Fracture healing. The concept of bone marrow, osteogenesis. Compression-distraction treatment of bone fractures. Principles of treatment of fractures with delayed consolidation of bone fragments. False joints.

69. Burns. Definition The classification of burns by the depth of damage, by reason of occurrence. Pathogenesis of changes in the burn wound, the time of healing of burns depending on the degree, clinical criteria. First aid for burns. Principles of local and general treatment of thermal burns.

70. Thermal burns. Pathogenesis. Classification and clinical picture. Methods for determining the area of burn wounds in adults, adolescents and children. First and first aid. Forecast.

71. Burn disease. Stage, clinical picture, criteria for the transition stages of burn disease. Principles of treatment of burn disease.

72. Chemical burns of the skin and internal organs. Radiation burns. Pathogenesis, clinical picture, first and emergency care, treatment.

73. Frostbite. Etiology. Pathogenesis. Clinical picture. First aid. Principles of general and local treatment.

74. Electric shock. Pathogenesis. Clinical picture. Local changes due to electric shock. Principles of general and local treatment.

75. General issues of purulent infection. Etiology and pathogenesis. Pathogens. Sources of surgical infection. Nosocomial infection. Local and general reaction to infection. Prevention. Principles of general and local treatment.

76. Primary uncomplicated infection of the skin and subcutaneous tissue: furuncle, furunculosis, carbuncle, erysipelas, lymphangitis, lymphadenitis, hydradenitis, cellulitis, abscesses. Etiology, pathogenesis, clinic, general and local treatment.

77. Primary complicated infection of the skin and subcutaneous tissue: necrotizing cellulitis, necrotizing fasciitis. Etiology, pathogenesis, clinic, general and local treatment.

78. Acute paraproctitis, rectal fistula. Clinic, diagnosis, treatment. Acute purulent diseases of the glandular organs. Mastitis, purulent parotiditis. Гнойные заболевания кисти. Панариции. Флегмоны кисти. Классификация. клиническая картина. Принципы хирургического лечения.

79. Peritonitis. Etiology, pathogenesis, classification, clinic, diagnosis. Basic principles and methods of treatment.

80. Pleurisy. Etiology, pathogenesis, classification, clinic, diagnosis. Basic principles and methods of treatment.

81. Sepsis. Definition Classification. Etiology and pathogenesis. The idea of the entrance gate, the role of macro - and microorganisms in the development of sepsis. The clinical picture, diagnosis, treatment principles.

82. Acute purulent diseases of bones and joints. Acute hematogenous osteomyelitis, acute traumatic osteomyelitis. Etiology and pathogenesis. Clinical picture. Medical tactics.
83. Acute purulent arthritis. Etiology, pathogenesis. Clinical picture. Medical tactics.
84. Chronic osteomyelitis. Etiology, pathogenesis. Clinical picture. Medical tactics.
85. Specific surgical infection. Tuberculosis of bones and joints. Tuberculous spondylitis. Principles of general and local treatment. Syphilis of bones and joints. Actinomycosis.
86. Primary complicated muscle infection and deep fascial structures. Pyomyositis, mononecrosis (gas gangrene). Etiology, clinic, diagnosis, principles of treatment. Prevention.
87. Tetanus. Etiology, pathogenesis, treatment. Prevention (tetanus toxoid, tetanus toxoid serum).
88. Tumors. Definition Epidemiology. Etiology of tumors. Classification. differences benign and malignant tumors.
89. Benign tumors. The clinical picture, diagnosis. Indications for surgical treatment. Pre-cancerous conditions.
90. Malignant tumors. Clinical picture. Classification. Modern types of early diagnosis. Modern methods of treatment. Combined and complex treatment. Evaluation of the effectiveness of treatment.
91. Fundamentals of surgery for circulatory disorders. Arterial blood flow disorders (acute and chronic). Clinic, diagnosis, treatment.

92. Violations of the venous circulation (acute thrombosis and chronic venous insufficiency). Violations of lymph circulation (lymphostasis). Main reasons. Prevention of complications. Principles of diagnosis and treatment.

93. Necrosis. Dry and wet gangrene. Causes of occurrence. Prevention. Methods of local and general treatment.

94. Ulcers, fistulas, bedsores. Causes of occurrence. Classification. Prevention. Methods of local and general treatment.

95. Parasitic surgical diseases. Etiology, clinical presentation, diagnosis, treatment.

96. General issues of plastic surgery. Skin, bone, vascular plastics, plastics filatovskim stalk.

97. General issues of transplantology. Free transplantation of tissues and organs. Tissue incompatibility and methods to overcome it.

98. Endoscopy. The history of development. The place of endoscopy in surgical practice. Areas of use. Video endoscopic methods of diagnosis and treatment. Indications, contraindications, possible complications.

### **Radiotherapy**

1. Definition and methods of radiation diagnosis.
2. Discovery and basic properties of x-rays.
3. Discovery of natural and artificial radioactivity.
4. Types of radiation used in radiation diagnosis.
5. Tasks, methods and magnitude of clinical dosimetry.
6. Methods of protection against ionizing radiation.
7. Definition and basic methods of X-ray examination.
8. Principles of image acquisition in analog and digital X-ray machines.
9. Characteristics of images on radiographs.



10. Principles of image acquisition on a computer tomograph.
11. Requirements for radiopharmaceuticals (radiopharmaceuticals) with PET.
12. Characteristics of scintigraphic images.
13. Definition and basic methods of positional emission tomography.
14. Definition and basic methods of electron-optical conversion.
15. Determination of X-ray computed tomography (CT), device. Principles of image acquisition, principles of image analysis.
16. Characteristics of images on computer tomograms.
17. Definition and principles of magnetic resonance imaging.
18. Characteristics of images on the MRI.
19. Definition and main methods of ultrasound diagnostics.
20. Characterization of images on sonograms.
21. Radiation symptoms and syndromes of lung lesions on radiographs.
22. Radiation symptoms of damage to the lungs and diaphragm.
23. Radiation symptoms of inflammatory diseases of the lungs.
24. Methods of radiological examination of the cardiovascular system.
25. Radiation symptoms of major heart diseases.
26. Radiation picture of gastric ulcer and duodenal ulcer.
27. Radiation methods for detecting malignant neoplasms (principles).
28. Radiation symptoms of acute diseases and injuries of the abdominal cavity.
29. Radiation studies and radiation symptoms of diseases of the liver and pancreas.
30. Radiation picture of injuries and degenerative diseases of bones and joints, and fracture healing process.
31. Radiation symptoms of inflammatory diseases of bones and joints.
32. Methods of radiological examination of the urinary organs.
33. Radiation symptoms of urolithiasis, tumors, renal cysts.
34. Radiation symptoms of spinal diseases.

### **Situational tasks for the exam**

#### **Section 1 General Surgery**

### **Task 1**

Situation. When crossing the street, a 34-year-old man was hit by a passing car. An ambulance doctor, when examining a patient, discovered an open fracture of his left leg.

Questions:

1. What kind of medical care should a doctor provide to a victim?
2. What is this medical care?
3. In what medical institution is it necessary to transport the patient?
4. What kind of surgical care should be given to a patient in a medical facility in terms of urgency?

### **Task 2**

Situation. An unknown unconscious patient was brought to the emergency department of the emergency hospital. He was picked up on the street by passersby and taken to hospital. Upon admission, the condition is severe, consciousness is absent. In the region of the occiput there is a ragged wound 5x4 cm with dried blood. Arterial pressure is 100/60 mm Hg. Art., heart rate 100 per minute.

Questions:

1. Which specialist should assist the patient?
2. What is the main type of instrumental diagnosis should be used for diagnosis?
3. What is the sanitary treatment of this patient?
4. Where should the patient be transported and how?
5. In which department should this patient be treated?

### **Task 3**

Situation. As part of the ambulance crew you arrived at the scene of a traffic accident. Patient K. in a collision with a car hit his head. On examination, it was revealed that there is a 10 to 6 cm wound in the right parietal region, with severe pain, swelling and slight bleeding. Signs of deformity and pathological mobility

in the area of the skull was not detected. Indicators of blood pressure and pulse in the normal range.

Questions:

1. What caused the patient's condition?
2. Does the victim need a ligation?
3. If needed, what types of dressings can I apply?
4. Does the patient need qualified medical assistance?
5. If you need, in what medical institution will you deliver the victim?

#### **Task 4**

Situation. Patient V., wearing glasses, received a blow with a blunt object in the face area. On examination, it was revealed that the area of the right eye has multiple abrasions, is swollen, hyperemic, sharply painful on palpation. The eyelid of the right eye is closed. An attempt to open it causes a pronounced pain in the victim. The sclera of the right eye is hyperemic with areas of hemorrhage.

Questions:

1. What caused the patient's condition?
2. Does the victim need a ligation?
3. If needed, what types of dressings can I use?
4. Does the patient need hospital care?
5. If you need, which hospital will you refer the patient to?

#### **Task 5**

Situation. Three days ago, on Friday, patient B., 78 years old, had an amputation of the lower leg for diabetic gangrene of the foot. On Saturday and Sunday, the

patient was not bandaged (weekends). On Monday, there was a sharp deterioration: the temperature rose to 40 ° C, there were arching pains, sharp edema, and soft tissue crepitus in the lower leg cult.

Questions:

1. What infection has complicated the postoperative period?
2. What mistake did the attending physician make?
3. What is the cause of the complication?
4. What should be done with the patient?

**Criteria for setting the assessment of "test" at the end of the academic semester**

1. Lack of passes for lectures and practical classes
2. Active work in the classroom.
3. Preparation of the message and presentation on the proposed topic.
4. Test credit test

Criteria for evaluating the oral response, colloquiums

“5 points” is given to a student, if he gives the right answers to the questions discussed, which are distinguished by the depth and completeness of the topic, can draw conclusions and summarize, give reasoned answers that are logical and consistent.

“4 points” is given to a student, if he gives the right answers to the questions discussed, which differs in the depth and completeness of the topic, knows how to draw conclusions and generalizations, but one or two mistakes are allowed in the answers.

“3 points” is given to a student, if he gives answers to the questions discussed, which do not fully reveal him, there is no logical structure of the answer, it makes several mistakes.

“2 points” is given to a student, if he gives answers to the questions discussed, which show that he does not own the material of the topic, cannot give reasoned answers, serious mistakes are made in the content of the answer.

### **Valuation tools for current certification**

#### **Control tests are designed for students studying the course "General Surgery".**

Tests are necessary both for the control of knowledge in the process of the current intermediate certification, and for the assessment of knowledge, the result of which can be the setting of credit.

When working with tests, the student is invited to choose one answer from three to four proposed. At the same time, tests are unequal in complexity. Among the proposed there are tests that contain several options for correct answers. The student needs to specify all the correct answers.

Tests are designed for both individual and collective decision. They can be used in the process and classroom, and independent work. The selection of tests necessary for the control of knowledge in the process of intermediate certification is done by each teacher individually.

The results of the test tasks are assessed by the teacher on a five-point scale for issuing attestation or according to the “test” system - “no test”. The mark "excellent" is set with the correct answer to more than 90% of the tests proposed by the teacher. A rating of "good" - with the correct answer to more than 70% of tests. A rating of "satisfactory" - with the correct answer to 50% of the tests proposed by the undergraduate.