FEDERAL STATE BUDGETARY EDUCATIONAL INSTITUTION OF HIGHER EDUCATION BASHKIR STATE MEDICAL UNIVERSITY OF THE MINISTRY OF HEALTHCARE OF RUSSIAN FEDERATION

Approved by vice rector on academic affairs

_____ A.A. Tsyglin

"09" June 2021

ASSESSMENT MATERIALS

Immunology

Developed by	DEPARTMENT REPRODUCTIVE HUMAN HEALTH WITH COURSE OF IMMUNOLOGY *Description of the department*
Field of education (specialty)	31.05.03 Dentistry *code and description*
Description of the principle educational program	31.05.03 Dentistry *code and title*
Qualification	General Dentistry
Federal state educational standards of higher education	Approved by the order № 988 dated 12.08.2020 of the Ministry of Science and Higher Education of Russian Federation

APPROVED by

Chairperson of the Academic Council of Dentistry faculty

_____(M.F. Kabirova)

«30» June 2021, protocol № 14

Approved at the meeting of the department of reproductive human health with course of immunology by protocol № 7 dated «02» February 2021.

Head of Education Quality and Monitoring

_____(A.A. Khusaenova)

«09» 06 2021.

Approved at the meeting of the Cyclic Educational Commission of natural disciplines by protocol № 8 dated «3» June 2021.

Aim and objectives of the Foundation for evaluation materials (FEM) or resources (FER)

Aim of FEM (FER) – to establish the level of competence formation among students of a specialist who have studied the discipline "Immunology".

Main objective of FEM (FER) of the discipline " Immunology" is to test the knowledge, skills and possessions of the student according to the matrix of competencies of the area of study under consideration.

Description of the test material for "Immunology".

№	Title	Value
1.	Faculty	Faculty of Dentistry
2.	Department	Department of reproductive human health with course of immunology
3.	Author-developer	Gaisina A.F. Gaisina A.R. Bogdanova A.V.
4.	Discipline	Immunology
5.	The total workload of the curriculum	72 hours / 2 credit units
6.	Folder name	Assessment materials
7.	Type of control	Test
8.	For specialty	31.05.03 Dentistry
9.	Number of tasks for the discipline	300
10.	Number of tasks for testing student	60
11.	out of these, the correct answers should be (%):	
12.	For rating "excellent" not less than	91 %
13.	For rating "good" not less than	81 %
14.	For rating "satisfactory" not less than	71 %
15.	Test time (in minutes)	100

Remarks:

- *not less than 300 in the credit test, not less than 500-1000 in the examination*
- *by decision of the department*

Competence assessment GPC-5 (GPC-5.1, GPC- 5.2, GPC-5.3), GPC-6 (GPC-6.1, GPC- 6.2, GPC-6.3)

№	Competence Code	Test questions
1.	GPC - 5 GPC - 6	IMMUNITY IS A STATE OF THE ORGANISM WHICH IS CHARACTERIZED BY: 1) Violation of the constancy of the internal environment of the body 2) Formation of immunological memory 3) The development of immunodeficiencies

2.	GPC - 5 GPC – 6	PROTECTION OF THE ORGANISM FROM FOREIGN AGENTS INCLUDES: 1) Formation of specific protection 2) A set of mechanisms to counteract extreme environmental conditions
3.	GPC - 5 GPC – 6	BY ORIGIN, IMMUNITY CAN BE: 1) Specific 2) Species 3) Active
4.	GPC - 5 GPC – 6	ACQUIRED IMMUNITY CAN BE: 1) Natural and artificial 2) Non-specific and specific 3) Anti-infective and specific
5.	GPC - 5 GPC – 6	ACCORDING TO THE DIRECTION OF THE ACTION, IMMUNITY CAN BE: 1) Antibacterial 2) Generalized 3) Antibiotic
6.	GPC - 5 GPC – 6	BY MANIFESTATION DIFFERENTIATED IMMUNITY: 1) Local 2) Generalized 3) Cellular 4) Humoral 5) System
7.	GPC - 5 GPC – 6	TYPES OF IMMUNE BY THE MECHANISM OF ACTION: 1) Local 2) Specific 3) Humoral 4) Nonspecific, humoral, cellular 5) Tissue
8.	GPC - 5 GPC – 6	WHAT FACTORS OF PROTECTION OF THE ORGANISM IS THE DIRECTION OF IMMUNE AGAINST FOREIGN AGENTS WITHOUT TAKING INTO ACCOUNT OF THEIR GENETIC ORIGIN AND ANTIGENIC STRUCTURE RELATED TO: 1) Cellular tissue 2) Functional 3) Specific 4) Non-specific 5) Cellular 6) Humoral
9.	GPC - 5 GPC – 6	CELL AND TISSUE NON-SPECIFIC PROTECTION FACTORS INCLUDED: 1) Chemotaxis 2) Barrier function of the skin and mucous membranes 3) Complement system 4) Cell lysis
10.	GPC - 5 GPC – 6	CELLS PERFORMING A PHAGOCYTE FUNCTION: 1) Eosinophils 2) Microphages 3) Lymphocytes
11.	GPC - 5 GPC – 6	NOTE PHAGOCYTE FUNCTIONS: 1) Phagocytosis 2) Formation of phagolysosome
12.	GPC - 5 GPC – 6	NOTE THE HUMORAL FACTORS OF INNIVE IMMUNE: 1) Complement 2) Ig E 3) Lymphocytes

13.	GPC - 5 GPC – 6	THE COMPLEMENT SYSTEM PERFORMS THE FOLLOWING FUNCTIONS: 1) Cell lysis 2) Adsorption of microbes on the surface of phagocytes 3) Cleavage of peptidoglycan in the bacterial cell wall
14.	GPC - 5 GPC – 6	PLEASE NOTE WAYS OF COMPLEMENT ACTIVATION: 1) Lectin 2) Lactoferin
15.	GPC - 5 GPC – 6	MARK PARTICIPANTS OF THE ALTERNATIVE PATHWAY OF COMPLEMENT ACTIVATION: 1) From 1 2) C 4 3) Properdin 4) Ig M
16.	GPC - 5 GPC – 6	TAG THE PARTICIPANTS OF THE CLASSIC COMPLEMENT ACTIVATION PATHWAY: 1) From 1 2) C 2 3) C4 4) Properdin
17.	GPC - 5 GPC – 6	MARK THE SPECIFIC SUBSTANCES RELEASED BY NORMAL MICROFLORA TO PROTECT THE ORGANISM: 1) Bacteriocins 2) Lysozyme 3) Leukins
18.	GPC - 5 GPC – 6	LIST THE MAIN FUNCTIONS OF INTERFERON: 1) Antivirus protection 2) Antifungal protection 3) Tolerogenic
19.	GPC - 5 GPC – 6	COMPLEMENT MEMBRANE ATTACK COMPLEX INCLUDES THE FOLLOWING COMPONENTS: 1) C1 - C9 2) C3 - C9 3) C1 - C5 4) Ag - C1 - C9
20.	GPC - 5 GPC – 6	NOTE FUNCTIONAL NON-SPECIFIC PROTECTION FACTORS: 1) Increase in body temperature 2) Lactoferrin
21.	GPC - 5 GPC – 6	ALTERNATIVE PATHWAY FOR COMPLEMENT ACTIVATION STARTS: 1) COMPLEX AG - AT 2) COMPLEX AG - IG M 3) COMPLEX AG - IG G 4) LIPOPOLYSACCHARIDES OF MICROBES
22.	GPC - 5 GPC – 6	INTERFERONS: 1) A variety of cytokines 2) Formed only with viral infections 3) Factors of acquired immunity
23.	GPC - 5 GPC – 6	ANTIGENS ARE... 1) Foreign infectious agents that enter the body and cause cellular and tissue lesions 2) Biologically active agents, when they enter the body, immunity to infections is formed 3) Biopolymers that carry signs of genetically alien information and, when ingested, cause the formation of antibodies 4) Biopolymers that carry signs of genetically alien information and, when ingested, cause immune responses

24.	GPC - 5 GPC – 6	ANTIGENS ARE CHARACTERIZED BY THE FOLLOWING FEATURES: 1) Molecular weight not less than 1000-5000 Da 2) Specificity
25.	GPC - 5 GPC – 6	THE SPECIFICITY OF ANTIGENS IS DETERMINED BY THE FOLLOWING FEATURES: 1) Composition and sequence of amino acids 2) Secondary and tertiary protein structure
26.	GPC - 5 GPC – 6	WHEN CLASSIFYING ANTIGENS, THE FOLLOWING SIGNS ARE USED: 1) Functional properties 2) Physical condition 3) Chemical nature
27.	GPC - 5 GPC – 6	MICROBIAL ANTIGENS ARE DIVIDED DEPENDING ON: 1) Localization in a microbial cell 2) Organ specificity
28.	GPC - 5 GPC – 6	VIRUS ANTIGENS ARE DIVIDED INTO: 1) Nucleoprotein 2) Capsule
29.	GPC - 5 GPC – 6	ANTIBODIES ARE... 1) Immunoglobulins that are involved in specific interaction with antigens 2) Proteins of the globulin fraction of human blood serum, which are formed when antigens enter the body and specifically interact with them 3) Serum gamma globulins, consisting of two heavy and two light polypeptide chains linked by disulfide bonds 4) Special soluble proteins synthesized by plasma cells
30.	GPC - 5 GPC – 6	THE STRUCTURE OF THE IMMUNOGLOBULIN MOLECULE INCLUDES: 1) Heavy and light polypeptide chains 2) H- and L- chains interconnected by disulfide bonds 3) Two heavy (H) and two light (L) chains connected by disulfide bonds 4) Two fragments: bivalent Fab and constant Fc
31.	GPC - 5 GPC – 6	FOR THE CHARACTERISTICS OF THE PROPERTIES OF IMMUNOGLOBULINS THE INDICATORS ARE USED: 1) Specificity, avidity, affinity, heterogeneity 2) Specificity, affinity, avidity, valency 3) Specificity, avidity, affinity, valency, heterogeneity 4) Specificity, affinity, avidity
32.	GPC - 5 GPC – 6	CHECK THE ANTIGEN PRESENTING CELLS (APC): 1) Dendritic cells 2) T-helpers
33.	GPC - 5 GPC – 6	THE MOST IMPORTANT FUNCTIONS OF THE MACROPHAGE ARE: 1) Phagocytosis 2) Antigen presentation
34.	GPC - 5 GPC – 6	MARK THE CELLS ON WHICH THE MHC CLASS 2 RECEPTOR IS EXPRESSED: 1) T-killers 2) Dendritic cells
35.	GPC - 5 GPC-6	PLEASE NOTE B-LYMPHOCYTE MARKERS: MNS 20th grade 1) CD40 2) CD 28
36.	GPC - 5 GPC-6	MARK THE RECEPTOR MOLECULES OF T-HELPERS: 1) CD4 2) CD 28
37.	GPC - 5 GPC-6	NAME THE CELLS AND MEDIATORS PARTICIPATED IN THE FORMATION OF T1-HELPERS:

		1) IL-12 2) Mast cell
38.	GPC - 5 GPC-6	NAME THE CELLS AND MEDIATORS PARTICIPATED IN THE FORMATION OF T2-HELPERS: 1) Basophils 2) T-killers 3) TNF
39.	GPC - 5 GPC-6	NAME THE RECEPTOR-LIGAND PAIR NECESSARY FOR COSTIMULATION OF APC T-HELPERS AND WITHOUT WHICH ANTIGEN PRESENTATION TO T-HELPER MAY LEAD TO ITS FUNCTIONAL INACTIVATION: 1) CD 80 / CD 28 2) MHC class 2 / CD 4 3) MHC class 1 / CD 8 4) MHC class 2 / 7 CR
40.	GPC - 5 GPC-6	NAME THE RECEPTOR-LIGAND PAIR REQUIRED FOR T-KILLER COSTIMULATION (CD8): 1) MHC class 2 / CD 4 2) MHC class 1 / CD 8 3) CD 40 / CD 40L 4) CD 80 / CD 28
41.	GPC - 5 GPC-6	NAME THE IG CLASS THAT PASSES THROUGH THE PLACENTA: 1) IgA 2) IgG 3) Ig M 4) Ig E
42.	GPC - 5 GPC-6	NAME THE IG CLASS THAT IS INDICATOR OF ACUTE INFECTION: 1) IgA 2) IgG 3) Ig M 4) Ig E
43.	GPC - 5 GPC-6	NAME THE IG CLASS THAT PROVIDES LOCAL IMMUNITY: 1) IgA 2) IgG 3) Ig M 4) Ig E
44.	GPC - 5 GPC-6	NOTE THE PROPERTIES SPECIFIC TO IG E: 1) Binds complement 2) Has cytophilicity to mast cells and basophils 3) Passes through the placenta
45.	GPC - 5 GPC-6	NAME THE IG CLASS WITH THE HIGHEST AVIDDITY: 1) IgA 2) IgG 3) Ig M 4) Ig E
46.	GPC - 5 GPC-6	NAME THE CELLS PROVIDING ADCC: 1) Blood EC 2) T-killers
47.	GPC - 5 GPC-6	NAME THE PROCESS THAT PROTECTS THE ORGANISM FROM REPEATED INTERVENTIONS OF INFECTIOUS AGENTS: 1) Immune tolerance 2) Immune memory 3) Hypersensitivity 4) Immune paralysis
48.	GPC - 5 GPC-6	THE IMMUNE SYSTEM HAS THE PROPERTIES: 1) Specificity 2) Signal propagation according to the principle of networks

49.	GPC - 5 GPC-6	THE FAMILY OF BIOLOGICALLY ACTIVE PEPTIDES PROVIDING INTERACTION OF CELLS OF THE IMMUNE, HEAT-MADE, NERVOUS AND ENDOCRINE SYSTEMS IS: 1) Immune system inhibitors 2) Hormones 3) Cytokines 4) Interleukins 5) Interferons 6) Lymphokines
50.	GPC - 5 GPC-6	CENTRAL ORGANS OF THE IMMUNE SYSTEM: 1) Spleen 2) Bone marrow 3) Blood 4) Tonsils
51.	GPC - 5 GPC-6	RECEPTORS - MARKERS OF T LYMPHOCYTES: 1) To FC - fragments of Ig 2) To mouse erythrocytes 3) To SZ - complement component 4) To ram erythrocytes
52.	GPC - 5 GPC-6	ANTIGENS - MARKER AND T-KILLER MARKERS: 1) HLA-A 2) HLA-DR 3) CD-3 4) CD - 8 5) CD-4
53.	GPC - 5 GPC-6	FOR IDENTIFICATION OF T - LYMPHOCYTES IS USED: 1) M - ROCK 2) EA - ROCK 3) EAC - ROCK 4) E – ROCK
54.	GPC - 5 GPC-6	THE CLASSIC COMPLEMENT ACTIVATION PATHWAY STARTED: 1) Complex AG - AT 2) Lipopolysaccharides of microbes 3) Through the properdin system
55.	GPC - 5 GPC-6	ON LYMPHOCYTES THERE ARE RECEPTORS FOR: 1) measles virus 2) Herpes virus 3) Epstein-Barr virus 4) Sheep erythrocytes
56.	GPC - 5 GPC-6	ACTIVATION OF T - LYMPHOCYTES CAUSES: 1) Lipopolysaccharide 2) Phytohemagglutinin 3) Dextran sulfate 4) Polyvinylpyrrolidone
57.	GPC - 5 GPC-6	Lymphoblast is: 1) Lymphocyte in the final phase of differentiation 2) Lymphocyte with cytotoxic effector properties 3) Predecessor of mature lymphocytes 4) Lymphocyte in the phase of intensive reproduction
58.	GPC - 5 GPC-6	ACTIVATION OF B-LYMPHOCYTES IS CAUSED BY: 1) Phytohemagglutinin 2) Cocanavalin A
59.	GPC - 5 GPC-6	COMPLETE ACTIVATED COMPONENTS: 1) Destroy cells 2) Stimulate antibody formation
60.	GPC - 5 GPC-6	COMPLEMENT SYSTEM COMPONENTS WITH OPSONIZING PROPERTIES: 1) C 5

		2) C 7 3) C 9 4) $C3_B$ $C4_B$
61.	GPC - 5 GPC-6	ALL CELLS HAVE ANTIGENOPRESSIVE PROPERTIES, EXCEPT: 1) Natural killers 2) Dentritic 3) Langerhans 4) Monocytes 5) B - lymphocytes
62.	GPC - 5 GPC-6	HLA 2 CLASS ANTIGENS: 1) Participate in the presentation of the peptide to T-helpers 2) Available in all cells 3) Available in erythrocytes
63.	GPC - 5 GPC-6	COMPLEMENT SYSTEM COMPONENTS PROVIDING LYTIC ACTION: 1) C2 2) C3B 3) C8, C9 4) C3A,C3B 5) C1
64.	GPC - 5 GPC-6	INCOMPLETE PHAGOCYTOSIS IS DUE TO: 1) C2 2) C3A, C3B 3) 5C1
65.	GPC - 5 GPC-6	THE MONOCYTE-MACROPHAGE SYSTEM IS ALL OF THESE EXCEPT: 1) Monocytes 2) Dendritic cells 3) Astrocytes 4) Kupffer cells 5) Langerhans cells 6) Natural killers
66.	GPC - 5 GPC-6	MACROPHAGES HAVE RECEPTORS FOR: 1) Fc - IgG 2) Fc - IgA 3) Red blood cells
67.	GPC - 5 GPC-6	THE ANTIBODY ACTIVE CENTER INCLUDES THE FOLLOWING DOMAIN: 1) Variable "H" and constant "L" - chains 2) Variable "L" and constant "H" - chains 3) Variable "H" and "L" - chains 4) Constant "H" and "L" – circuits
68.	GPC - 5 GPC-6	T-INDEPENDENT ANTIGENS ARE: 1) Anthrax Capsule Polysaccharide 2) Diphtheria toxin 3) Protein
69.	GPC - 5 GPC-6	ACTIVE CENTERS OF ANTIBODIES ARE FORMED DUE TO SITES: 1) Two "H" - chains 2) Two "L" - chains 3) One "H" - chain 4) One "L" - chain 5) One "H" and one "L" - chains
70.	GPC - 5 GPC-6	T - HELPERS: 1) They have an antigen-recognizing receptor 2) Responsible for the development of cellular immunity
71.	GPC - 5 GPC-6	PART OF THE ANTIBODY MOLECULE RESPONSIBLE FOR COMPLEMENT ACTIVATION: 1) "L" - chains 2) Fc– fragments 3) Fab fragments

		4) Active centers 5) H-chains
72.	GPC - 5 GPC-6	NAME THE CYTOKINE T - HELPER THAT STIMULATES THE PROLIFERATION AND DIFFERENTIATION OF OTHER T - CELL SUBPOPULATIONS: 1) Interleukins 2) Interleukin 2 3) Interleukin 3 4) ÌL - 6 5) ÌL - 5
73.	GPC - 5 GPC-6	T - ANTIGENS ARE RECOGNIZED BY CYTOTOXIC LYMPHOCYTES: 1. Free 2. In association with HLA class 2 hypertension 3. Denatured form 4. In association with HLA class 1 hypertension
74.	GPC - 5 GPC-6	CYTOKINES ARE: 1. Proteins formed by activated cells of the immune system 2. Leukins
75.	GPC - 5 GPC-6	ARTIFICIAL IMMUNOLOGICAL TOLERANCE IS POSSIBLE WITH: 1. Introduction of foreign antigens to the fetus 2. Administration of cytokines
76.	GPC - 5 GPC-6	IMMUNOGLOBULIN M -: 1) Pentomer 2) Dimer
77.	GPC - 5 GPC-6	WHEN THE PRIMARY IMMUNE RESPONSE IS PRODUCED: 1. Only Ig M 2. Only IgG 3. First IgM, then IgG
78.	GPC - 5 GPC-6	ANTIBODY VALENCE IS: 1) The number of active centers in the Ig molecule 2) The number of amino acid residues in the hypervariable region 3) The number of Ig molecules interacting with one antigenic determinant
79.	GPC - 5 GPC-6	A STEP-BY-STEP METHOD FOR ASSESSING THE IMMUNE SYSTEM INCLUDES: 1) The study of indicators of cellular and humoral immunity 2) Immunodiagnostics of primary and acquired immunodeficiencies 3) Tests of the first and second levels 4) Assessment of local and general immunity
80	GPC - 5 GPC-6	THE SYSTEM-FUNCTIONAL APPROACH TO THE ASSESSMENT OF THE IMMUNE SYSTEM PROVIDES: 1) A comprehensive assessment of cellular and humoral, innate immunity 2) Comprehensive assessment of cellular and humoral immunity
81.	GPC - 5 GPC-6	INDICATE FORMS OF IMMUNE IN WHICH COMPLEMENT PARTICIPATES: 1) Mucosal immunity 2) Antitoxic 3) Antibacterial humoral 4) Humoral antiviral
82.	GPC - 5 GPC-6	INDICATE FORMS OF IMMUNE IN WHICH T-KILLERS PARTICIPATE: 1) Transplant 2) Antibacterial 3) Humoral
83.	GPC - 5 GPC-6	INDICATE THE FORMS OF INFECTIONS ACCOMPANIED WITH THE DEVELOPMENT OF HRT: 1) Worm infestation 2) Fungal 3) Viral

84.	GPC - 5 GPC-6	PLEASE NOTE THE TYPES OF HYPERSENSITIVITY CLASSIFIED BY JEL AND COOMBS IN WHICH COMPLEMENT PARTICIPATES: 1) 1 type (anaphylactic) 2) type 2 (cytotoxic) 3) 4 type (DH)
85.	GPC - 5 GPC-6	IN WHAT HUMAN DISEASES CELLULAR IMMUNE REACTIONS DEVELOP PREFERENTIALLY: 1) Acquired immunodeficiency syndrome 2) rheumatoid arthritis 3) angioedema 4) Tuberculosis 5) Monoclonal haemopathy
86.	GPC - 5 GPC-6	MECHANISM OF ANTI-VIRAL ACTIVITY OF T-KILLERS: 1. Cytolysis of virus-infected cells 2. Antibody-dependent cellular cytotoxicity
87.	GPC - 5 GPC-6	MARK THE DRUGS THAT CREATE ACTIVE IMMUNE IN THE ORGANISM: 1) Probiotics 2) Vaccines 3) Immunomodulators 4) Monoclonal antibodies
88.	GPC - 5 PC – 1	ANTITOXIC THERAPEUTIC AND PREVENTIVE SERUM ARE NOT: 1) Antibotulinum 2) Antileptospirosis 3) Tetanus toxoid 4) Antidiphtheria
89.	GPC - 5 PC – 1	ANTITOXIC THERAPEUTIC AND PREVENTIVE SERUM ARE: 1) anti-botulinum 2) antileptospirosis 3) anti-influenza
90.	GPC - 5 PC – 1	BCG VACCINE IS A TYPE OF: 1) live attenuated 2) inactivated corpuscular 3) chemical 4) Genetic engineering
91.	GPC - 5 PC – 1	THE HEPATITIS B VACCINE IS: 1) live cultured virus vaccine 2) inactivated cultural viral vaccine 3) genetically engineered yeast vaccine
92.	GPC - 5 PC – 1	WHAT IS THE BASIS FOR OBTAINING MONOCLONAL ANTIBODY PREPARATIONS? 1) Chemical synthesis of blood 2) Purification and fractionation of immune blood 3) Obtaining hybridoma cells 4) Selection of B-lymphocytes
93.	GPC - 5 PC – 1	MEANS OF ACTIVE SPECIFIC PREVENTION OF INFECTIOUS 1) diseases are: 2) Vaccines 3) Preparations of specific immunoglobulins 4) Interferons 5) Thymus preparations
94.	GPC - 5 PC – 1	THE MOST EFFECTIVE MEANS OF PREVENTION OF COMPLICATIONS IN PATIENTS WITH A B-LINK DEFICIENCY OF THE IMMUNE SYSTEM IS THE INTRODUCTION OF: 1) Thymogen 2) Leukocyte mass 3. Immunoglobulins 3) Interferon
95.	GPC - 5	NAME WAYS OF VIRULENCE REDUCTION:

	PC – 1	1) rare transfers on artificial nutrient media 2) the action of a bacteriophage
96.	GPC - 5 PC – 1	DRUGS USED FOR OBTAINING PASSIVE IMMUNE: 1) Anatoxin 2) Immunoglobulins 3) Vaccines 4) Antibiotics
97.	GPC - 5 PC – 1	IMMUNOLOGICAL ESSENCE OF VACCINATION: 1) Creation of passive immunity 2) Strengthening innate immunity 3) Formation of immunological memory 4) Prevention of infection
98.	GPC - 5 PC – 1	KILLED VACCINES: 1) Prepared from attenuated strains 2) Check for immunogenicity and reactivity 3) create passive immunity 4) Do not leave immunological memory 5) Do not cause an immune response
99.	GPC - 5 PC – 1	ANATOXINS: 1) Weakened bacterial endotoxins 2) Derived protein toxins 3) Cause passive immunity 4) Antiviral drugs
100.	GPC - 5 PC – 1	CORRECTION OF THE IMMUNOGENICITY OF T-INDEPENDENT ANTIGENS IS ACHIEVED IN THE FOLLOWING TYPES OF VACCINES: 1) DNA vaccines 2) Adsorbed vaccines 3) Conjugated vaccines 4) Autovaccines 5) Associated vaccines 6) Mucosal vaccines
101.	GPC - 5 GPC-6	List the features of immunology as a science: 1. Intensity of development 2. The presence of independent objects of study 3. Availability of numerous research methods 4. Genetic and molecular-cellular level of research 5. Close integration with other sciences 6. Relationship with modern biotechnology 7. Wide access to practical healthcare 8. All of the above
102.	GPC - 5 GPC-6	Immunology includes the following sections 1. Infectious immunology 2. Immunomorphology 3. Immunochemistry 4. Immunogenetics 5. Transplantation immunology 6. Immunohematology 7. Clinical immunology 8. All
103.	GPC - 5 GPC-6	Modern achievements in immunology 1. Vaccines against many infectious diseases have been received 2. Solved the problem of blood transfusion 3. Treatment of Rh hemolytic disease of the newborn 4. The phenomenon of immunological tolerance was discovered 5. Immunological methods for diagnosing many infectious and non-infectious diseases have been developed 6. All

104.	GPC - 5 GPC-6	Immunity is a state of the body characterized by: 1. The presence of sensitized lymphocytes 2. Violation of the constancy of the internal environment of the body 3. The development of immunodeficiencies
105.	GPC - 5 GPC-6	Protecting the body from foreign agents includes: 1. Formation of non-specific protection 2. A set of mechanisms to counteract extreme environmental conditions
106.	GPC - 5 GPC-6	The main function of the immune system: 1. Control of proliferation processes 2. Maintaining the molecular constancy of the body 3. Maintaining the body's genetic homeostasis 4. Providing optimal conditions for tissue exchange 5. Ensuring cell recycling
107.	GPC - 5 GPC-6	By origin, immunity can be 1. Specific 2. Active 3. Acquired
108.	GPC - 5 GPC-6	Acquired immunity can be 1. Active and passive 2. Non-specific and specific 3. Anti-infective and species
109.	GPC - 5 GPC-6	According to the direction of action, immunity can be 1. Antibacterial 2. Antitoxic 3. Antiviral 4. Antifungal 5. Antibiotic 6. All
110.	GPC - 5 GPC-6	According to the manifestation, immunity is distinguished 1. General 2. Generalized 3. Cellular 4. Systemic
111.	GPC - 5 GPC-6	Types of immunity according to the mechanism of action 1. Cellular 2. Local 3. Specific 4. Nonspecific, humoral, cellular 5. All
112.	GPC - 5 GPC-6	What factors of the body's defense include the direction of immunity against foreign agents without taking into account their genetic origin and antigenic structure 1. Cellular tissue 2. Functional 3. Specific 4. Non-specific 5. Cellular 6. Humoral
113.	GPC - 5 GPC-6	In inflammation, as a non-specific factor in the protection of the body, the following is observed: 1. Lowering the pH in the area of inflammation 2. Isolation of interleukins
114.	GPC - 5 GPC-6	Cellular tissue nonspecific protective factors include 1. Chemotaxis 2. Barrier function of the skin and mucous membranes 3. Complement system 4. Cell lysis
115.	GPC - 5	Cells that perform a phagocytic function

	GPC-6	1. Eosinophils 2. Lymphocytes 3. Macrophages
116.	GPC - 5 GPC-6	List the functions of a phagocyte 1. Phagocytosis 2. Antigen presentation to the immune system 3. Isolation of immune mediators (interleukins) 4. All
117.	GPC - 5 GPC-6	Note the humoral factors of innate immunity 1. 1. Complement 2. Interferon 3. Lysozyme 4. Acute phase proteins 5. All
118.	GPC - 5 GPC-6	The complement system performs the following functions 1. Cell lysis 2. Adsorption of microbes on the surface of phagocytes 3. Cleavage of peptidoglycan in the bacterial cell wall
119.	GPC - 5 GPC-6	Check the complement components that are anaphylotoxins 1. C3a 2. C1q 3. C2
120.	GPC - 5 GPC-6	Label the pathways for complement activation. 1. Lectin 2. Classic 3. Alternative 4. All
121.	GPC - 5 GPC-6	Label participants in the alternative pathway of complement activation 1. C1 2. C4 3. C3 4. Ig M
122.	GPC - 5 GPC-6	Label participants in the classical complement pathway 1. C1 2. C2 3. C4 4. Properdin
123.	GPC - 5 GPC-6	Mark the specific substances secreted by normal microflora to protect the body 1. Bacteriocins 2. Enzymes 3. Toxins 4. Antibiotics 5. All
124.	GPC - 5 GPC-6	List the main functions of interferon 1. Antiviral protection 2. Signal-regulatory 3. Immunomodulating 4. Antitumor protection 5. All
125.	GPC - 5 GPC-6	The membrane attacking complement complex includes the following components 1. C1 - C9 2. C3 - C9 3. C1 - C5 4. Ag - C1 - C9
126.	GPC - 5 GPC-6	Mark functional non-specific protective factors 1. Increase in body temperature 2. Excretory reflex reactions

		3. Antagonistic action of resident microflora 4. All
127.	GPC - 5 GPC-6	Alternative pathway for complement activation is triggered 1. Complex AG - AT 2. Complex AG - Ig M 3. Complex AG - Ig G 4. Lipopolysaccharides of microbes
128.	GPC - 5 GPC-6	Interferons: 1. Variety of cytokines 2. Formed only with viral infections 3. Factors of acquired immunity
129.	GPC - 5 GPC-6	Antigens are... 1. Foreign infectious agents that enter the body and cause cellular and tissue lesions 2. Biologically active agents, when they enter the body, immunity to infections is formed 3. Biopolymers that carry signs of genetically alien information and, when ingested, cause the formation of antibodies 4. Biopolymers that carry signs of genetically alien information and, when ingested, cause immune responses
130.	GPC - 5 GPC-6	Antigens are characterized by the following features 1. Molecular weight not less than 1000-5000 Da 2. Stability of the molecular structure 3. Foreignness 4. The ability to participate in the metabolic processes of the body 5. All
131.	GPC - 5 GPC-6	Properties of antigens: 1. Immunogenicity, heterogeneity, valence 2. Specificity, antigenicity, immunogenicity 3. Foreignness, antigenicity, immunogenicity 4. Macromolecular, specificity, antigenicity
132.	GPC - 5 GPC-6	The specificity of antigens is determined by the following features 1. Composition and sequence of amino acids 2. Features of the spatial configuration of terminal amino acids 3. Secondary and tertiary protein structure 4. The presence of radicals of glyco-, lipo- and nucleoprotein nature 5. All
133.	GPC - 5 GPC-6	An epitope is... 1. Antigenic determinant, which is characterized by valence, immunogenicity 2. Part of the antigen molecule, which is located on its surface, complementarily interacts with the active center of antibodies 3. Specific site of the antigen, characterized by high heterogeneity
134.	GPC - 5 GPC-6	Mark the types of antigenic specificity 1. Generic, specific, typical 2. Species, typical, organ, tissue, cellular 3. Specific, group, typical, organ, heterogeneous, functional
135.	GPC - 5 GPC-6	When classifying antigens, the following features are used 1. Functional properties 2. Origin 3. Genetic relationships 4. Physical condition 5. Chemical nature 6. All
136.	GPC - 5 GPC-6	Microbial antigens are classified according to: 1. Localization in a microbial cell 2. Chemical structure 3.Practical value 4. All

137.	GPC - 5 GPC-6	Select the most significant bacterial antigens 1. Somatic 2. Capsid 3. Capsule 4. Protective 5. Flagella 6. Enzymes 7. Toxins 8. All
138.	GPC - 5 GPC-6	Virus antigens are divided into: 1. Nucleoprotein 2. Supercapsid 3. Capsid 4. All
139.	GPC - 5 GPC-6	Antibodies are... 1. Immunoglobulins that are involved in specific interaction with antigens 2. Proteins of the globulin fraction of human blood serum, which are formed when antigens enter the body and specifically interact with them 3. Serum gamma globulins, consisting of two heavy and two light polypeptide chains linked by disulfide bonds 4. Special soluble proteins synthesized by plasma cells
140.	GPC - 5 GPC-6	Mark the main functions of antibodies 1. Interact with appropriate antigens 2. Complement fixation 3. Cell lysis 4. Neutralization of viruses and toxins 5. Opsonization 6. Penetration through physiological barriers 7. All
141.	GPC - 5 GPC-6	The structure of the immunoglobulin molecule includes 1. Heavy and light polypeptide chains 2. H- and L- chains interconnected by disulfide bonds 3. Two heavy (H) and two light (L) chains linked by disulfide bonds 4. Two fragments: bivalent Fab and constant Fc
142.	GPC - 5 GPC-6	To characterize the properties of immunoglobulins, indicators are used: 1. Specificity, avidity, affinity, heterogeneity 2. Specificity, affinity, avidity, valence 3. Specificity, avidity, affinity, valency, heterogeneity 4. Specificity, affinity, avidity
143.	GPC - 5 GPC-6	List the types of immune responses 1. Immune response 2. Immunological tolerance 3. Immunological memory 4. Hypersensitivity 5. All
144.	GPC - 5 GPC-6	Label the effector cells of the immune system 1. B-lymphocytes 2. T-helpers 3. T-killers 4. All
145.	GPC - 5 GPC-6	Label antigen presenting cells (APCs) 1. Dendritic cells 2. B-lymphocytes 3. Macrophages 4. All
146.	GPC - 5 GPC-6	The most important functions of a macrophage are 1. Phagocytosis

		2. Antigen processing and presentation to lymphocytes 3. Synthesis of cytokines 4. Synthesis of components of the complement system 5. Synthesis of lysosomal enzymes 6. All
147.	GPC - 5 GPC-6	Mark the cells expressing the MHC class 2 receptor 1. Dendritic cells 2. Macrophages 3. B-lymphocytes 4. All
148.	GPC - 5 GPC-6	Mark B-lymphocyte markers 1. MNS 20th grade 2.CD40 3.CD80 4. All
149.	GPC - 5 GPC-6	Mark T-helper receptor molecules 1.CD4 2.CD3 3.CD28 4.CD 40L 5. All
150.	GPC - 5 GPC-6	Name the cells and mediators involved in the formation of T1 helpers 1. IL-12 2. T-helpers 3. γ-Interferon 4. Activated macrophage 5. All
151.	GPC - 5 GPC-6	Name the cells and mediators involved in the formation of T2 helpers 1. Basophils 2. Mast cells 3. IL-4 4. All
152.	GPC - 5 GPC-6	Name the receptor-ligand pair necessary for costimulation of APC T-helpers and without which antigen presentation to T-helper can lead to its functional inactivation 1. CD 80 / CD 28 2. MHC class 2 / CD 4 3. MHC class 1 / CD 8 4. MHC class 2 / 7 CR
153.	GPC - 5 GPC-6	Name the receptor-ligand pair required for costimulation of the T-killer (CD 8) 1. MHC class 2 / CD 4 2. MHC class 1 / CD 8 3. CD 40 / CD 40L 4. CD 80 / CD 28
154.	GPC - 5 GPC-6	Name the Ig class that crosses the placenta 1. IgA 2. IgG 3. Ig M 4. Ig E
155.	GPC - 5 GPC-6	Name the Ig class that is an indicator of acute infection 1. IgA 2. IgG 3. Ig M 4. Ig E
156.	GPC - 5 GPC-6	Name the Ig class that provides local immunity 1. IgA 2. IgG 3. Ig M

		4. Ig E
157.	GPC - 5 GPC-6	Note the properties characteristic of Ig E 1. Binds Complement 2. Has cytophilicity to mast cells and basophils 3. Passes through the placenta
158.	GPC - 5 GPC-6	Name the Ig class with the highest avidity 1. IgA 2. IgG 3. Ig M 4. Ig E
159.	GPC - 5 GPC-6	Name the cells providing ADCC 1. Blood EC 2. Eosinophils 3. Activated macrophages 4. All
160.	GPC - 5 GPC-6	Name the process that protects the body from repeated interventions of infectious agents. 1. Immune tolerance 2. Immune memory 3. Hypersensitivity 4. Immune paralysis
161.	GPC - 5 GPC-6	The immune system has properties: 1. Specificity 2. The ability to recognize "one's" "alien" 3. Memory 4. Signal propagation according to the principle of networks 5. The ability of immunocompetent cells to act autonomously 6. All
162.	GPC - 5 GPC-6	The family of biologically active peptides that ensure the interaction of cells of the immune, hematopoietic, nervous and endocrine systems is 1. Immune system inhibitors 2. Hormones 3. Cytokines 4. Interleukins 5. Interferons 6. Lymphokines
163.	GPC - 5 GPC-6	Cells that determine the specific nature of the response of the immune system: 1. Macrophages 2. Lymphocytes 3. Monocytes 4. Granulocytes 5. Mast cells
164.	GPC - 5 GPC-6	Cells that are not related to accessory (auxiliary) cells of the immune response: 1. Monocytes 2. Macrophages 3. Plasma cells 4. Dendritic cells 5. A - cells
165.	GPC - 5 GPC-6	Central organs of the immune system: 1. Spleen 2. Bone marrow 3. Blood 4. Tonsils
166.	GPC - 5 GPC-6	The main tasks of immunodiagnostics are: 1. Identification of disorders in the functioning of the immune system 2. Analysis of the etiology, pathogenesis of the disease 3. Establishing a clinical diagnosis

		4. Choice of means of immunocorrection 5. Evaluation of the effectiveness of treatment 6. All
167.	GPC - 5 GPC-6	To make a diagnosis of an immunopathological condition, the following methods are used: 1. Collection of immunological history 2. Setting up diagnostic tests directly on the patient (in vivo) 3. Setting up immunological tests in vitro 4. All
168.	GPC - 5 GPC-6	The main methods for detecting antibodies and antigens are 1. Methods based on the agglutination reaction 2. Methods based on the precipitation reaction 3. Methods based on the use of labels 4. Methods involving complement 5. All
169.	GPC - 5 GPC-6	Methods based on the precipitation reaction include: 1. Vidal reaction 2. Ouchterlony reaction 3. Burne reaction 4. Wright reaction 5. Heddelson reaction
170.	GPC - 5 GPC-6	Methods based on the agglutination reaction include: 1. Vidal reaction 2. Ouchterlony reaction 3. Ascoli reaction 4. Burne reaction 5. Mancini reaction
171.	GPC - 5 GPC-6	THE STRUCTURE OF THE IMMUNOGLOBULIN MOLECULE INCLUDES: 1) Heavy and light polypeptide chains 2) H- and L- chains interconnected by disulfide bonds 3) Two heavy (H) and two light (L) chains connected by disulfide bonds 4) Two fragments: bivalent Fab and constant Fc
172.	GPC - 5 GPC-6	FOR THE CHARACTERISTICS OF THE PROPERTIES OF IMMUNOGLOBULINS THE INDICATORS ARE USED: 1) Specificity, avidity, affinity, heterogeneity 2) Specificity, affinity, avidity, valency 3) Specificity, avidity, affinity, valence, heterogeneity 4) Specificity, affinity, avidity
173.	GPC - 5 GPC-6	CHECK THE ANTIGEN PRESENTING CELLS (APC): 1) Dendritic cells 2) T-helpers
174.	GPC - 5 GPC-6	THE MOST IMPORTANT FUNCTIONS OF THE MACROPHAGE ARE: 1) Phagocytosis 2) Antigen presentation
175.	GPC - 5 GPC-6	MARK THE CELLS ON WHICH THE MHC CLASS 2 RECEPTOR IS EXPRESSED: 1) T-killers 2) Dendritic cells
176.	GPC - 5 GPC-6	PLEASE NOTE B-LYMPHOCYTE MARKERS: MNS 20th grade 1) CD40 2) CD 28
177.	GPC - 5 GPC-6	MARK THE RECEPTOR MOLECULES OF T-HELPERS: 1) CD4 2) CD 28
178.	GPC - 5 GPC-6	NAME THE CELLS AND MEDIATORS PARTICIPATED IN THE FORMATION OF T1-HELPERS:

		1) IL-12 2) Mast cell
179.	GPC - 5 GPC-6	NAME THE CELLS AND MEDIATORS PARTICIPATED IN THE FORMATION OF T2-HELPERS: 1) Basophils 2) T-killers 3) TNF
180.	GPC - 5 GPC-6	NAME THE RECEPTOR-LIGAND PAIR NECESSARY FOR COSTIMULATION OF APC T-HELPERS AND WITHOUT WHICH ANTIGEN PRESENTATION TO T-HELPER MAY LEAD TO ITS FUNCTIONAL INACTIVATION: 1) CD 80 / CD 28 2) MHC class 2 / CD 4 3) MHC class 1 / CD 8 4) MHC class 2 / 7 CR
181.	GPC - 5 GPC-6	The Coombs reaction is used to detect: 1. Opsonins 2. Incomplete antibodies 3. Type of microorganism 4. Microorganism serovar 5. Antitoxins
182.	GPC - 5 GPC-6	Name the methods of setting the agglutination reaction: 1. In special tubes with a diameter of 0.5 cm 2. On glass 3. In gel 4. Immunoelectrophoresis
183.	GPC - 5 GPC-6	The CFR diagnostic system includes: 1. Complement 2. Diagnosticum 3. Patient's blood serum 4. All
184.	GPC - 5 GPC-6	The CFR indicator system includes: 1. Complement 2. Sheep erythrocytes 3. Hemolytic serum 4. All
185.	GPC - 5 GPC-6	For setting skin-allergic tests, the following type of allergic reactions is used: 1. Anaphylactic 2. Cytotoxic 3. Immunocomplex 4. Cell mediated
186.	GPC - 5 GPC-6	To set up an agglutination reaction for the purpose of serodiagnosis, you need: 1. Diagnosticum 2. Test serum 3. Saline solution 4. All
187.	GPC - 5 GPC-6	To set up an agglutination reaction for the purpose of serological identification, you need: 1. Culture of bacteria 2. Saline solution 3. Diagnostic serum 4. All
188.	GPC - 5 GPC-6	Antigens involved in the agglutination reaction are: 1. Soluble 2. Corpuscular 3. Any
189.	GPC - 5 GPC-6	Describe the delayed-type hypersensitivity reaction: 1. Not earlier than 6 hours

		2. Not associated with antibodies 3. Mediated by T-lymphocytes 4. All
190.	GPC - 5 GPC-6	Allergic reactions caused by Ig E cause the following clinical manifestations: 1. Anaphylactic shock 2. Serum sickness 3. Graft rejection 4. Hemolytic disease of the newborn
191.	GPC - 5 GPC-6	Name the components Reaction of indirect hemagglutination: 1. erythrocyte diagnosticum 2. physiological saline 3. patient serum 4. all
192.	GPC - 5 GPC-6	What class of immunoglobulins are skin-sensitizing antibodies? 1. IG G 2. IGM 3 IGA 4. IGE
193.	GPC - 5 GPC-6	What antibodies are found in the blood during anaphylactic shock? 1. IG G 2. IGM 3. IGA 4. IGE
194.	GPC - 5 GPC-6	What are the terms of manifestation of hypersensitivity of immediate type (ITH) to the allergen. 1. A few minutes 2. After 24 hours 3. After 72 hours 4. Not earlier than 6-8 hours
195.	GPC - 5 GPC-6	What are the terms of manifestation of delayed-type hypersensitivity (DTH) to the allergen: 1. A few minutes 2. After 24 hours 3. After 72 hours 4. After 12 hours 5. Not earlier than 6 hours
196.	GPC - 5 GPC-6	WHICH OF THE LISTED COMPONENTS OF THE COMPLEMENT SYSTEM HAVE ANAPHILATOXIC ACTION 1. C1, C2 2. C8, C9 3. C3A, C5A
197.	GPC - 5 GPC-6	What class of antibodies is most associated with the development of humoral allergy? 1. I GM 2.IGA 3.IGD
198.	GPC - 5 GPC-6	One of the signs confirming the reaginic nature of the allergy can be an increased content in the blood: 1. IgG 2. IgM 3. IgE 4. IgA
199.	GPC - 5 GPC-6	What are the main clinical manifestations of ITH reactions? 1 Anaphylaxis 2. Tuberculosis 3. Brucellosis

		4. Tularemia
200.	GPC - 5 GPC-6	Name the main clinical manifestations of ITH reactions: 1. Tuberculosis 2. Brucellosis 3. Tularemia 4. All
201.	GPC - 5 GPC-6	Name the allergens of ITH reactions: 1. Bacteria 2. Transplant antigens 3. Mushrooms 4. Soluble antigens 5. Viruses
202.	GPC - 5 GPC-6	Name the allergens of ITH reactions: 1. Bacteria 2. Transplant antigens 3. Mushrooms 4. All
203.	GPC - 5 GPC-6	Name the presence of antibodies in the blood during ITH reactions: 1. None 2. They don't play a role 3. IgA present 4. IgE present
204.	GPC - 5 GPC-6	Name the presence of antibodies in the blood during DTH reactions: 1. None 2. Present 4. IgA present 5. IgE present
205.	GPC - 5 GPC-6	Name the stages of a hypersensitivity reaction: 1. Immunological 2. Pathological 3. Pathophysiological 4. All
206.	GPC - 5 GPC-6	Which lymphocytes play a major role in hypersensitivity reactions: 1. B1-lymphocytes 2. T-helpers 3. Sensitized T-lymphocytes 4. T1-lymphocytes
207.	GPC - 5 GPC-6	Define infectious allergy: hypersensitivity to: 1. Allergens of microorganisms 2. Serum allergens 3. Plant pollen 4. Food allergens
208.	GPC - 5 GPC-6	Define infectious allergy: hypersensitivity to: 1. Allergens of microorganisms 2. Serum allergens 3. Mushrooms 4. Plant pollen 5. Food allergens 6. All
209.	GPC - 5 GPC-6	A stepwise method for assessing the immune system includes 1. Study of indicators of cellular and humoral immunity 2. Immunodiagnostics of primary and acquired immunodeficiencies 3. Tests of the first and second levels 4. Assessment of local and general immunity
210.	GPC - 5 GPC-6	The system-functional approach to the assessment of the immune system provides for: 1. Comprehensive assessment of cellular and humoral, innate immunity

		2. Quantitative indicators of the parameters of the immune system 3. Indicators of functional activity 4. Adaptive reserves of immunocompetent cells
211.	GPC - 5 GPC-6	Specify the forms of immunity in which complement takes part 1. Mucosal immunity 2. Antitoxic 3. Antibacterial humoral 4. Humoral antiviral
212.	GPC - 5 GPC-6	Specify the forms of immunity i[illegible]t 1. Transplant 2. Antitumor 3. Antiviral 4. Antibacterial hum 5. All
213.	GPC - 5 GPC-6	Specify the for[illegible]ne development of DTH 1 1. Fungal 2. Parasitic 3. Bacterial 4. All
214.	GPC - 5 GPC-6	Mark the types of hy[illegible]lassified by Gel and Coombs in which complement is involved. 1. 1 type (anaphylactic) 2. type 2 (cytotoxic) 3. 4 type (DTH)
215.	GPC - 5 GPC-6	The mechanism of antiviral activity of T-killers: 1. Cytolysis of virus-infected cells 2. Apoptosis of infected cells 3. Production of gamma-interferon 4. All
216.	GPC - 5 PC – 1	Check the drugs that create active immunity in the body 1. Probiotics 2. Vaccines 3. Immunomodulators 4. Monoclonal antibodies
217.	GPC - 5 PC – 1	Antitoxic therapeutic and prophylactic sera are not 1. Antibotulinum 2. Anti-influenza 3. Tetanus toxoid 4. Antidiphtheria
218.	GPC - 5 PC – 1	Check the drugs that create active immunity in the body 1. Probiotics 2. Vaccines 3. Immunomodulators 4. Monoclonal antibodies
219.	GPC - 5 PC – 1	For the prevention and treatment of diphtheria use: 1. DTP vaccine 2. antibiotics 3. BCG vaccine 4. actinolysate
220.	GPC - 5 PC – 1	Diphtheria toxoid is used: 1. for medicinal purposes 2. for the purpose of diagnosis 3. to create active anti-toxic immunity 4. for identification of bacteria 5. to create passive immunity
221.	GPC - 5 PC – 1	Antitoxic therapeutic and prophylactic sera are: 1. anti-botulinum

		2. tetanus 3. anti-diphtheria 4. All
222.	GPC - 5 PC – 1	The BCG vaccine is of the type: 1) live attenuated 2) inactivated corpuscular 3) chemical 4) genetic engineering
223.	GPC - 5 PC – 1	The meningococcal vaccine is of the type: 1) live attenuated 2) inactivated corpuscular 3) chemical 4) genetic engineering
224.	GPC - 5 PC – 1	The hepatitis B vaccine is: 1) live cultured virus vaccine 2) inactivated cultural viral vaccine 3) genetically engineered yeast vaccine
225.	GPC - 5 PC – 1	What is the basis for obtaining preparations of monoclonal antibodies? 1) Chemical synthesis of blood 2) Purification and fractionation of immune blood 3) Obtaining hybridoma cells 4) Selection of B-lymphocytes
226.	GPC - 5 PC – 1	IN WHICH OF THE NAMED DRUGS THE ANTIBODIES DO NOT HAVE MOLECULAR HETEROGENEITY? 1) ANTITOXIC SERUM 2) ANTIMICB GAMMA GLOBULIN 3) MONOCLONAL ANTIBODIES 4) ANTIGLOBULIN SERUM
227.	GPC - 5 PC – 1	Means of active specific prevention of infectious diseases are: 1) Vaccines 2) Preparations of specific immunoglobulins 3) Interferons 4) Thymus preparations
228.	GPC - 5 PC – 1	The most effective means of preventing complications in patients with deficiency of the B-link of the immune system is the introduction of: 1) Thymogen 2.) Leukocyte mass 3) Immunoglobulins 4) Interferon
229.	GPC - 5 PC – 1	Name the ways to reduce virulence: 1) rare transfers on artificial nutrient media 2) long-term cultivation of the microbe on unfavorable media 3) the passage of a pathogenic microbe through an immune organism 4) all
230.	GPC - 5 PC – 1	Drugs used to obtain passive immunity: 1. Anatoxin 2. Immunoglobulins 3. Vaccines 4. Antibiotics
231.	GPC - 5 PC – 1	Therapeutic and prophylactic antitoxic serums: 1) Tested for immunogenicity 2) Create passive immunity 3) Increase innate immunity 4) Create active immunity
232.	GPC - 5 PC – 1	Immunological essence of vaccination: 1. Building passive immunity

		2. Strengthening innate immunity 3. Formation of immunological memory 4. Prevention of infection
233.	GPC - 5 PC – 1	Infection for which live vaccination was first used: 1. Anthrax 2 Rabies 3. Tuberculosis 4. Diphtheria 5. Smallpox 6 Polio 7 Whooping Cough 8. Measles 9. Tetanus 10. Hepatitis B
234.	GPC - 5 PC – 1	Killed Vaccines: 1. Prepared from attenuated strains 2. Check for immunogenicity and reactivity 3. create passive immunity 4. Leave no immunological memory 5. Do not cause an immune response
235.	GPC - 5 PC – 1	Anatoxins: 1. Weakened bacterial endotoxins 2. Derived protein toxins 3. Induce passive immunity 4. Antivirals
236.	GPC - 5 PC – 1	The most stable (long-term) immunity provides the following drugs: 1. Antitoxic heterologous sera 2. Preparations of homologous immunoglobulins 3. Subunit vaccines 4. Live vaccines
237.	GPC - 5 PC – 1	Attenuation of microbial virulence: 1. Method for obtaining killed vaccines 2. Stage of obtaining subunit vaccines 3. Method for obtaining anatoxins 4. Stage of obtaining recombinant vaccines 5. Stage of obtaining live vaccines
238.	GPC - 5 PC – 1	Substrates and techniques used to prepare subcomponent/subunit vaccines: 1. Anatoxins 2. Capsular polysaccharides 3. Recombinant proteins 4. Conjugation 5. Adjuvants 6. All
239.	GPC - 5 PC – 1	Prospects for genetically engineered vaccines: 1. Recombinant antigens 2. Transgenic bacteria 3. Recombinant viruses 4. Transgenic plants 5 "Naked" DNA 6. All
240.	GPC - 5 PC – 1	The following can be used as vector DNA vaccines: 1. Carrier proteins 2. Recombinant (transgenic) bacteria 3. Adjuvants
241.	GPC - 5 PC – 1	Carriers of antigens in conjugated vaccines: 1. Polysaccharides 2. Sorbents

		3. Liposomes 4. Proteins 5. Adjuvants
242.	GPC - 5 PC – 1	Correction of the immunogenicity of T-independent antigens is achieved in the following types of vaccines: 1. DNA vaccines 2. Adsorbed vaccines 3. Conjugated vaccines 4. Autovaccines 5. Associated vaccines 6. Mucosal vaccines
243.	GPC - 5 PC – 1	"Naked" DNA refers to the following types of vaccines: 1. Recombinant vaccines 2. Genetically engineered vaccines 3. Replicating vaccines 4. All
244.	GPC - 5 PC – 1	Substrates that can be used to obtain recombinant DNA in the production of vaccine preparations: 1. Plasmids 2. Bacteriophages 3. Viruses 4. All
245.	GPC - 5 PC – 1	For the prevention and treatment of diphtheria use: 1. DTP vaccine 2. antibiotics 3. BCG vaccine 4. actinolysate
246.	GPC - 5 PC – 1	Diphtheria toxoid is used: 1) for medicinal purposes 2) for the purpose of diagnosis 3) to create active antitoxic immunity 4) for identification of bacteria 5) to create passive immunity
247.	GPC - 5 PC – 1	Antitoxic therapeutic and prophylactic sera are: 1) anti-botulinum 2) antileptospirosis 3) anti-influenza
248.	GPC - 5 PC – 1	The BCG vaccine is of the type: 1) live attenuated 2) inactivated corpuscular 3) chemical 4) genetic engineering
249.	GPC - 5 PC – 1	The meningococcal vaccine is of the type: 1) live attenuated 2) inactivated corpuscular 3) chemical 4) genetic engineering
250.	GPC - 5 PC – 1	The hepatitis B vaccine is: 1) live cultured virus vaccine 2) inactivated cultural viral vaccine 3) genetically engineered yeast vaccine
251.	GPC - 5 PC – 1	What is the basis for obtaining preparations of monoclonal antibodies? 1) Chemical synthesis of blood 2) Purification and fractionation of immune blood 3) Obtaining hybridoma cells 4) Selection of B-lymphocytes
252.	GPC - 5	IN WHICH OF THE NAMED DRUGS THE ANTIBODIES DO NOT HAVE

	PC – 1	MOLECULAR HETEROGENEITY? 1) ANTITOXIC SERUM 2) ANTI-MYCUBE GAMMA GLOBULIN 3) MONOCLONAL ANTIBODIES 4) ANTIGLOBULIN SERUM
253.	GPC - 5 PC – 1	Means of active specific prevention of infectious diseases are: 1) Vaccines 2) Preparations of specific immunoglobulins 3) Interferons 4) Thymus preparations
254.	GPC - 5 PC – 1	The most effective means of preventing complications in patients with deficiency of the B-link of the immune system is the introduction of: 1) Thymogen 2.) Leukocyte mass 3) Immunoglobulins 4) Interferon
255.	GPC - 5 PC – 1	Name the ways to reduce virulence: 1) rare transfers on artificial nutrient media 2) the action of a bacteriophage
256.	GPC - 5 PC – 1	Drugs used to obtain passive immunity: 1) Immunoglobulins 2) Antitoxic serums 3) All
257.	GPC - 5 PC – 1	Therapeutic and prophylactic antitoxic serums: 1. Tested for immunogenicity 2. Contain specific antibodies 3. Increase innate immunity 4. Create active immunity
258.	GPC - 5 PC – 1	Immunological essence of vaccination: 1. Building passive immunity 2. Strengthening innate immunity 3. Prevention of infection 4. Creation of conditions for an advanced immune response
259.	GPC - 5 PC – 1	Infection for which live vaccination was first used: 1. Anthrax 2 Rabies 3. Tuberculosis 4. Diphtheria 5. Smallpox 6 Polio 7 Whooping Cough 8. Measles 9. Tetanus 10. Hepatitis B
260.	GPC - 5 PC – 1	Killed Vaccines: 1. Prepared from attenuated strains 2. Check for immunogenicity and reactivity 3. create passive immunity 4. Leave no immunological memory 5. Do not cause an immune response
261.	GPC - 5 PC – 1	Anatoxins: 1. Weakened bacterial endotoxins 2. Cause passive immunity 3. Variety of subunit vaccines (vaccines based on protective antigens) 4. Antivirals
262.	GPC - 5	The most stable (long-term) immunity provides the following drugs:

	PC – 1	1. Preparations of homologous immunoglobulins 2. Subunit vaccines 3. Live vaccines 4. Replicating vaccines
263.	GPC - 5 PC – 1	Attenuation of microbial virulence: 1. Method for obtaining killed vaccines 2. Stage of obtaining subunit vaccines 3. Method for obtaining anatoxins 4. Stage of obtaining recombinant vaccines 5. Stage of obtaining live vaccines
264.	GPC - 5 PC – 1	Substrates and techniques used to prepare subcomponent/subunit vaccines: 1. Anatoxins 2. Capsular polysaccharides 3. Recombinant proteins 4. Conjugation 5. Adjuvants 6. All
265.	GPC - 5 PC – 1	Prospects for genetically engineered vaccines: 1. Recombinant antigens 2. Transgenic bacteria 3. Recombinant viruses 4. Transgenic plants 5 "Naked" DNA 6. All
266.	GPC - 5 PC – 1	The following can be used as vector DNA vaccines: 1. Carrier proteins 2. Adjuvants 3. Recombinant (transgenic) plants
267.	GPC - 5 PC – 1	Carriers of antigens in conjugated vaccines: 1. Polysaccharides 2. Sorbents 3. Liposomes 4. Proteins 5. Adjuvants
268.	GPC - 5 PC – 1	Correction of the immunogenicity of T-independent antigens is achieved in the following types of vaccines: 1. DNA vaccines 2. Adsorbed vaccines 3. Conjugated vaccines 4. Autovaccines 5. Associated vaccines 6. Mucosal vaccines
269.	GPC - 5 PC – 1	"Naked" DNA refers to the following types of vaccines: 1. Conjugated vaccines 2. Genetically engineered vaccines 3. Vector vaccines
270.	GPC - 5 PC – 1	Substrates that can be used to obtain recombinant DNA in the production of vaccine preparations: 1. Adjuvants 2. Viruses 3. Carrier proteins
271.	GPC - 5 GPC-6	Note the humoral factors of innate immunity 1. Complement 2. Interferon 3. Lysozyme 4. Acute phase proteins 5. All

272.	GPC - 5 GPC-6	The complement system performs the following functions 1. Cell lysis 2. Adsorption of microbes on the surface of phagocytes 3. Cleavage of peptidoglycan in the bacterial cell wall
273.	GPC - 5 GPC-6	Check the complement components that are anaphylotoxins 1. C3a 2. C1q 3. C2
274.	GPC - 5 GPC-6	Label the pathways for complement activation. 1. Lectin 2. Classic 3. Alternative 4. All
275.	GPC - 5 GPC-6	Label participants in the alternative pathway of complement activation 1. C1 2. C4 3. C3 4. Ig M
276.	GPC - 5 GPC-6	Label participants in the classical complement pathway 1. C1 2. C2 3. C4 4. Properdin
277.	GPC - 5 GPC-6	Mark the specific substances secreted by normal microflora to protect the body 1. Bacteriocins 2. Enzymes 3. Toxins 4. Antibiotics 5. All
278.	GPC - 5 GPC-6	List the main functions of interferon 1. Antiviral protection 2. Signal-regulatory 3. Immunomodulating 4. Antitumor protection 5. All
279.	GPC - 5 GPC-6	The membrane attacking complement complex includes the following components 1. C1 - C9 2. C3 - C9 3. C1 - C5 4. Ag - C1 - C9
280.	GPC - 5 GPC-6	Mark functional non-specific protective factors 1. Increase in body temperature 2. Excretory reflex reactions 3. Antagonistic action of resident microflora 4. All
281.	GPC - 5 GPC-6	Specify the forms of immunity in which complement takes part 1. Mucosal immunity 2. Antitoxic 3. Antibacterial humoral 4. Humoral antiviral
282.	GPC - 5 GPC-6	Specify the forms of immunity in which T-killers take part 1. Transplant 2. Antitumor 3. Antiviral 4. Antibacterial humoral 5. All
283.	GPC - 5	Specify the forms of infections accompanied by the development of DTH 1

	GPC-6	1. Fungal 2. Parasitic 3. Bacterial 4. All
284.	GPC - 5 GPC-6	Mark the types of hypersensitivity classified by Gel and Coombs in which complement is involved. 1. 1 type (anaphylactic) 2. type 2 (cytotoxic) 3. 4 type (DTH)
285.	GPC - 5 GPC-6	The mechanism of antiviral activity of T-killers: 1. Cytolysis of virus-infected cells 2. Apoptosis of infected cells 3. Production of gamma-interferon 4. All
286.	GPC - 5 PC – 1	Check the drugs that create active immunity in the body 1. Probiotics 2. Vaccines 3. Immunomodulators 4. Monoclonal antibodies
287.	GPC - 5 PC – 1	Antitoxic therapeutic and prophylactic sera are not 1. Antibotulinum 2. Anti-influenza 3. Tetanus toxoid 4. Antidiphtheria
288.	GPC - 5 PC – 1	Check the drugs that create active immunity in the body 1. Probiotics 2. Vaccines 3. Immunomodulators 4. Monoclonal antibodies
289.	GPC - 5 PC – 1	For the prevention and treatment of diphtheria use: 1. DTP vaccine 2. antibiotics 3. BCG vaccine 4. actinolysate
290.	GPC - 5 PC – 1	Diphtheria toxoid is used: 1. for medicinal purposes 2. for the purpose of diagnosis 3. to create active anti-toxic immunity 4. for identification of bacteria 5. to create passive immunity
291.	GPC - 5 PC – 1	Antitoxic therapeutic and prophylactic sera are: 1. anti-botulinum 2. tetanus 3. anti-diphtheria 4. All
292.	GPC - 5 GPC-6	What class of antibodies is most associated with the development of humoral allergy? 1.1GM 2.IGA 3.IGD
293.	GPC - 5 GPC-6	One of the signs confirming the reaginic nature of the allergy can be an increased content in the blood: 1. IgG 2. IgM 3. IgE 4. IgA
294.	GPC - 5	What are the main clinical manifestations of ITH reactions?

	GPC-6	1 Anaphylaxis 2. Tuberculosis 3. Brucellosis 4. Tularemia
295.	GPC - 5 GPC-6	Name the main clinical manifestations of DTH reactions: 1. Tuberculosis 2. Brucellosis 3. Tularemia 4. All
296.	GPC - 5 GPC-6	Name the allergens of ITH reactions: 1. Bacteria 2. Transplant antigens 3. Mushrooms 4. Soluble antigens 5. Viruses
297.	GPC - 5 GPC-6	Name the allergens of ITH reactions: 1. Bacteria 2. Transplant antigens 3. Mushrooms 4. All
298.	GPC - 5 GPC-6	Name the presence of antibodies in the blood during ITH reactions: 1. None 2. They don't play a role 3. IgA present 4. IgE present
299.	GPC - 5 GPC-6	Name the presence of antibodies in the blood during DTH reactions: 1. None 2. Present 3. IgA present 4. IgE present
300.	GPC - 5 GPC-6	Name the stages of a hypersensitivity reaction: 1. Immunological 2. Pathological 3. Pathophysiological 4. All

TEMPLATE OF ANSWERS TO TEST MATERIAL

Test number	answer	Test number	Answer	Test number	answer	Test number	answer
1	2	26	1	51	4	76	1
2	1	27	1	52	4	77	3
3	2	28	1	53	4	78	3
4	1	29	2	54	1	79	3
5	1	30	3	55	3	80	1
6	1	31	3	56	3	81	3
7	3	32	1	57	4	82	1
8	4	33	1	58	2	83	2
9	2	34	2	59	1	84	2
10	2	35	1	60	4	85	4
11	1	36	1	61	1	86	1
12	1	37	1	62	1	87	2
13	1	38	1	63	3	88	2
14	1	39	1	64	1	89	1
15	3	40	2	65	6	90	1

16	1	41	2	66	1	91	3
17	1	42	3	67	3	92	3
18	1	43	1	68	1	93	1
19	3	44	2	69	5	94	3
20	1	45	3	70	1	95	1
21	4	46	1	71	2	96	2
22	1	47	2	72	2	97	3
23	4	48	1	73	4	98	2
24	1	49	3	74	1	99	2
25	1	50	2	75	1	100	3
101	8	126	4	151	4	176	1
102	8	127	4	152	1	177	5
103	6	128	1	153	2	178	7
104	1	129	4	154	2	179	3
105	1	130	5	155	3	180	3
106	3	131	6	156	1	181	2
107	3	132	5	157	2	182	2
108	1	133	2	158	3	183	4
109	6	134	3	159	4	184	4
110	1	135	6	160	2	185	4
111	1	136	4	161	6	186	4
112	4	137	8	162	3	187	4
113	1	138	4	163	2	188	2
114	2	139	2	164	3	189	4
115	3	140	7	165	2	190	1
116	4	141	3	166	6	191	4
117	5	142	3	167	4	192	4
118	1	143	5	168	5	193	4
119	1	144	4	169	2	194	1
120	4	145	4	170	1	195	5
121	3	146	6	171	1	196	3
122	1	147	4	172	6	197	1
123	5	148	4	173	4	198	3
124	5	149	5	174	2	199	1
125	3	150	5	175	2	200	4
201	4	226	3	251	3	276	1
202	4	227	1	252	3	277	5
203	4	228	3	253	1	278	5
204	1	229	2	254	3	279	3
205	4	230	2	255	1	280	4
206	3	231	3	256	3	281	4
207	1	232	5	257	2	282	1
208	6	233	2	258	4	283	3
209	4	234	2	259	5	284	3
210	3	235	2	260	2	285	3
211	3	236	1	261	3	286	3
212	5	237	5	262	4	287	1
213	4	238	6	263	5	288	3
214	2	239	6	264	6	289	2
215	4	240	2	265	6	290	2
216	2	241	4	266	3	291	3
217	2	242	3	267	4	292	1
218	2	243	4	268	3	293	3
219	1	244	4	269	2	294	1
220	3	245	1	270	2	295	4
221	4	246	3	271	5	296	4
222	1	247	1	272	1	297	4
223	3	248	1	273	1	298	1
224	3	249	3	274	4	299	4
225	3	250	3	275	3	300	3

№	Competence Code	Examination (credit) questions for subject (practical training)
1	GPC - 5 GPC-6	Definition of the concept of "immunity". Types of immunity, their mai differences.
2	GPC - 5 GPC-6	Factors of nonspecific resistance: mechanical, physiological, cellular and humoral.
3	GPC - 5 GPC-6	Phagocytosis, phagocytes, stages of phagocytosis.
4	GPC - 5 GPC-6	Complement, pathways of activation. The protective role of complement: th formation of the membrane attack complex (MAC), the role of opsonins anaphylatoxin, chemoattractant. immunological effects.
5	GPC - 5 GPC-6	Interferons, classification, immunobiological significance.
6	GPC - 5 GPC-6	Acquired immunity, types (active, passive, natural, artificial, antibacterial antitoxic, antiviral, sterile, non-sterile, topical, etc.)
7	GPC - 5 GPC-6	Antigens, properties (foreignness, antigenicity, immunogenicity, specificity, etc.)
8	GPC - 5 GPC-6	Antigenic determinants, their structure. The manifestation of antigenic specificity species, group, organ, heterospecific.
9	GPC - 5 GPC-6	Major histocompatibility complex, class I, II and III histocompatibility antigens.
10	GPC - 5 GPC-6	Characterization of antigen-antibody reactions. Mechanism, stages, components application. Diagnostic immune sera, diagnosticums.
11	GPC - 5 GPC-6	Dynamics of antibody formation, primary and secondary immune response.
12	GPC - 5 GPC-6	Killer function of cells: T-killers, T-killers-inducers of cell apoptosis, B-killers etc.
13	GPC - 5 GPC-6	The main stages of the immune response to thymus-dependent and thymus independent antigens.
14	GPC - 5 GPC-6	Serological diagnosis of infectious diseases (agglutination reactions of Vidal Wright, Weigl, etc.) Criteria for serodiagnosis: diagnostic titer, increase i antibody titer. Difference between true and anamnestic reaction. Determination o the period of illness.
15	GPC - 5 GPC-6	Allergic reactions, classification according to Gel and Coombs. The concept o sensitization.
16	GPC - 5 GPC-6	Allergic reactions of humoral type (I-III), mechanism, manifestations.
17	GPC - 5 GPC-6	Allergic reactions of cell type (type IV), mechanism, forms, manifestations.
18	GPC - 5 GPC-6	Skin-allergic methods, their essence, diagnostic value.
19	GPC - 5 GPC-6	Vaccines (live, killed, toxoids, chemical, synthetic, subunit, geneticall engineered, associated, combined). The principle of obtaining, mechanism o action, advantages, disadvantages. Adjuvants.
20	GPC - 5 GPC-6	Therapeutic and prophylactic sera (antibacterial, antitoxic, antiviral, monoclonal monoreceptor), mechanism of action, methods of preparation, titration.

№	Competence Code	Situational tasks
1	GPC - 5 GPC-6	A 3-year-old girl was admitted to the intensive care unit with fever and rapi breathing. She had pneumonia before the age of 2 years, as well as otitis media (1 cases), which was successfully treated with antibiotics. According to chest X-ray inflammation of the left lower lobe of the lung was diagnosed. Sputum cultur revealed Streptococcus pneumoniae. The number of leukocytes reached 13500/m neutrophils accounted for 81%, lymphocytes 14%. The content of Ig in bloo serum (mg/100) was: IgM -470, IgG -40, IgA and IgE were not detected. 1) What diagnosis can you suggest? 2) What clinical and laboratory parameters suggested this diagnosis? 3) What treatment would you recommend? 4) What would you tell parents about the prognosis of this disease in a child?
2	GPC - 5 GPC-6	H. suffered from diabetes, as a result, her kidneys were affected. The patient wa treated with hemodialysis, but this did not lead to improvement. Diabeti nephropathy is one of the main indications for transplantation. There was n suitable cadaveric kidney for Mrs. H., but it remained possible to use one of he family members as a donor. Consent was given by all people close to her - he husband, five children and two brothers. The results of HLA typing an determination of blood groups in family members are presented in the table According to the study, a suitable donor was selected and transplantation wa performed. During the operation, a few minutes after the restoration of blood flow the transplanted kidney darkened and swelled, and it had to be removed. Four years later, it was decided to repeat the kidney transplant of a relative Another family member became a donor, and after transplantation, the kidne began to function well. The patient received complex therapy of thre immunosuppressants. She had only one rejection episode 3 weeks after transplan which was successfully treated with therapy. No other complications wer observed. The kidney continued to function for 8 years, but its function graduall deteriorated starting from the 4th year after transplantation. It was no longe possible to restore the function of the organ, and had to return to dialysis. 1. Why is it so difficult to choose an organ for transplantation? 2. Comment on the ratio of HLA genotypes in Mrs. H. and her brothers. 3. Comment on the ratio of HLA genotypes in Mrs. H. and her children. 4. Which family member is the most suitable donor for Mrs X based on HL compatibility only? 5. Who was the kidney donor? Who turned out to be unsuitable for this purpose? I you take only the blood group. 6. The outcome of the first transplant was disappointing. What mechanism determined kidney rejection? 7. Why was Mrs. H. at increased risk for an adverse reaction?
3	GPC - 5 GPC-6	Blood was taken from a patient with suspicion of an acute form of brucellosis an inoculated into a nutrient broth, Wright's reaction was performed. A day later, th nutrient medium remained sterile, Wright's reaction was negative. On this basis the diagnosis of brucellosis was withdrawn. 1. What research methods were used? 2. Are the doctor's conclusions substantiated enough?
4	GPC - 5 GPC-6	A man who was engaged in hunting in the zone of a natural focus of the plagu developed a headache, a fever, and lymph nodes in the neck became painful. Whe microscopy of smears from the patient's blood, the causative agent of plague wa not detected. Is there enough evidence to reject the diagnosis of plague?

5	GPC - 5 GPC-6	A person who had been ill with typhoid fever was discharged from the infectiou diseases department of the hospital after a three-time negative bacteriologica examination of feces. A month later, the same disease was registered in his family. 1) Could the ill person be the source of the infection? 2) What research should be done to test this assumption?
6	GPC - 5 GPC-6	Rh-antibodies (titer 1:8) were found in a 32-year-old pregnant woman with Rh negative blood at the antenatal clinic at 10 weeks of pregnancy. There was n history of blood transfusion. The first pregnancy ended in timely delivery. Th child is alive and well, the 2nd, 3rd pregnancies ended in induced abortions at period of 7-8 weeks. This pregnancy is the 4th. What is your forecast?
7	GPC - 5 GPC-6	In the children's group there is an outbreak of acute intestinal disease corresponding to the clinical picture of dysentery. The disease is associated in tim with the arrival of a new nanny. 1) How to establish the source of infection? 2) What microbiological studies should be carried out for this purpose?
8	GPC - 5 GPC-6	When sowing the feces of a sick child on Endo's medium, bright red colonie characteristic of Escherichia coli grew. 1) How to continue research in order to prove that it is colienteritis? 2) What microorganisms cause colienteritis? 3) What drugs should be used for therapeutic purposes?
9	GPC - 5 GPC-6	The patient was admitted to the hospital with suspicion of cholera. 1) What material should be taken for research? 2) What diagnostic method should be used? 3) By what main features is it necessary to identify a culture?
10	GPC - 5 GPC-6	After eating home-canned mushrooms, two cases of acute poisoning wit neurological symptoms were noted in the family. 1) With the help of what laboratory research can the etiology of this disease b clarified? 2) What express methods should be applied? 3) What drug should be urgently prescribed to the patient?
11	GPC - 5 GPC-6	In a patient after a clean elective operation, a culture of staphylococcus wa isolated from the discharge of a postoperative wound. 1) Can this microorganism be considered a causative agent of suppuration tha complicates wound healing? 2) How to check it? 3) What drugs should be used for treatment?
12	GPC - 5 GPC-6	The patient went to the doctor with complaints of pain in the hand, enlarge axillary lymph nodes. On examination, a panaritium of the distal phalanx of th second finger of the left hand was found. 1) Name the alleged causative agents of this disease. 2) What material should be taken for research, what diagnostic method should b used? 3) What drugs should be prescribed?
13	GPC - 5 GPC-6	In the children's department of the maternity hospital, cases of pustular skin lesion in newborns were revealed. 1) Among whom should we look for the source of infection? 2) What methods of examination should be used? 3) How to establish the identity of staphylococcus cultures isolated from differen sources?
14	GPC - 5 GPC-6	A patient weakened by previous diseases developed a sluggish form o furunculosis.

		1) What is the possible cause of this disease? 2) How to establish the identity of staphylococcus cultures isolated from differen sources?
15	GPC - 5 GPC-6	Green pus was sent to the microbiological laboratory. Bacteriological examinatio revealed small gram-negative motile rods in it. 1) Name the alleged pathogen. 2) What diagnostic method should be used to resolve the issue of the type o pathogen? 3) What media to sow? 4) By what properties to identify a culture? 5) What drugs should be prescribed for treatment?
16	GPC - 5 GPC-6	A material from the wound discharge was taken for analysis from a wounded ma with symptoms of gas gangrene. On the basis of microscopic examination, positive preliminary answer was given. 1) What morphological forms of bacteria can be found in this study? 2) What methods should be used to continue the research? 3) What drugs should the doctor prescribe for treatment?
17	GPC - 5 GPC-6	An experimental animal (intact guinea pig) was intradermally injected with guine pig blood serum with sensitized horse serum. After 6–12 hours, the guinea pig wa intravenously injected with horse serum along with Evans blue. A few minute later, an inflammatory infiltrate appeared in the area of intradermal injectior painted in blue. 1. Explain the reason for the development of inflammation in the skin in an intac animal. 2. What is active and passive sensitization? Describe the mechanisms. 3. What type of antibodies contributes to the formation of an inflammator infiltrate in this reaction? 4. What type of hypersensitivity is the reaction that occurred in a guinea pig: ITH or DTH? 5. What is the role of target cells in the formation of inflammatory infiltrate, wh does it turn blue when Evans stain is injected?
18	GPC - 5 GPC-6	Patient K., aged 36, was admitted to the surgical department with extensiv wounds of the lower extremities. Made an injection of 0.5 ml of undiluted tetanu toxoid. A few minutes later, the patient developed agitation, lacrimatior rhinorrhea, increased respiration (up to 34 per minute), pulse 85 beats. per minute A/D 150/100 mm Hg. The severity of the patient's condition increased. Appeare spastic dry cough, expiratory dyspnea, vomiting. The skin became cyanotic, th pulse was threadlike, the number of heartbeats decreased to 55 beats. per minute muffled heart sounds, A / D dropped to 65/40 mm Hg. The patient was covere with a cold sticky sweat and lost consciousness. Involuntary defecation an urination occurred. There were convulsions in the form of fibrillar twitches o individual muscle groups. Diagnosis: Anaphylactic shock. 1. What type of hypersensitivity (ITH or DTH) is anaphylactic shock? 2. Name the antibodies involved in the development of anaphylaxis. 3. Name the phases of allergic reactions. 4. What are the stages in the clinical picture of anaphylactic shock? 5. Name the method of specific desensitization of anaphylaxis.
19	GPC - 5 GPC-6	During the initial contact of the skin with latex gloves, a medical worker develope severe erythema on the hands, accompanied by the formation of blisters an vesicles. An application test with a piece of latex glove on the skin of the inne surface of the forearm was positive after 72 hours. The use of histamine recepto

		blockers did not reduce the severity of the reaction. Inflammation was removed b topical application of glucocorticoids. 1. What type of allergic reaction did the healthcare worker have? Describe it mechanism. 2. Why do glucocorticoids have an anti-inflammatory effect in this type of allergy' 3. Explain why the use of histamine receptor blockers did not reduce the severit of the reaction? 4. Explain why the inflammatory infiltrate appeared only 72 hours after contac with latex. 5. Is it possible to cause a similar reaction on the skin with the help of blood serur or lymphocytes in an unsensitized person?
20	GPC - 5 GPC-6	Patient F., 55 years old, took tetracycline for 10 days as prescribed by a doctor. A the end of the antibiotic course, he developed headaches, fatigue, weakness, an drowsiness. A clinical blood test showed a decrease in the number of erythrocyte and hemoglobin content. The addition of tetracycline to whole blood resulted i hemolysis of erythrocytes. 1. As a result of what immune reaction did the patient develop anemia? Describ its mechanism. 2. What type of antibodies mediates this pathology? 3. What role does the complement system play in the development of hemolysis? 4. What type of cell death is hemolysis? Apoptosis or necrosis? 5. Explain the pathogenesis of the development of clinical signs of the develope pathology.

CRITERIA FOR THE EVALUATION OF STUDENT'S KNOWLEDGE OF THE DISCIPLINE

«Immunology»

Conducting a test in the discipline "Immunology" as the main form of testing the knowledge of students requires the observance of a number of conditions that ensure the pedagogical effectiveness of the assessment procedure. The most important among them:

1. ensure the independence of the student's response to tickets of the same complexity required by the level program;
2. determine the depth of knowledge of the program in the subject;
3. determine the level of proficiency in scientific language and terminology;
4. determine the ability to logically, correctly and reasonably state the answer to the test;
5. determine the ability to perform the tasks provided for by the program.

An "excellent" rating deserves a response containing:
- deep and systematic knowledge of all program material;
- fluency in scientific language and terminology;
- logically correct and reasoned presentation of the answer;
- ability to perform the tasks provided by the program.

A good answer deserves a response that contains:
- knowledge of the most important sections and main content of the program;
- ability to use scientific language and terminology;
- in general, logically correct, but not always reasoned presentation of the answer;
- ability to perform the tasks provided by the program.

A "satisfactory" rating deserves a response containing:
- fragmentary, superficial knowledge of the most important sections and the main content of the program;
- difficulties in using scientific language and terminology;
- the desire to logically, consistently and reasonably state the answer;
- Difficulties in fulfilling the tasks envisaged by the program.

The rating "unsatisfactory" deserves the answer containing:
- ignorance of the issues of the main content of the program;
- inability to perform the tasks provided by the program.

A "passed" rating should be given to a response that contains:
- knowledge of the most important sections and main content of the program;
- ability to use scientific language and terminology;
- in general, logically correct, but not always reasoned presentation;
- ability to perform the tasks provided by the program.

A "failed" rating deserves a response containing:
- ignorance of the issues of the main content of the program;
- inability to perform the tasks provided by the program.

PROTOCOL
examination of the assessment material

City of Ufa «09» 06 2021

Immunology,
name of the discipline
31.05.03 Dentistry,
Code and name of the specialty

Foundation for evaluation material FEM or resources (FER) are developed in accordance with Regulations on the development, preparation and execution of evaluation materials FSBEI HE BSMU MOH Russia,
details of a local regulatory act
approved by the decision of the academic council of FSBEI HE BSMU MOH Russia protocol №7 dated 29.08.2017.

During the examination following was established:

1. The list of the competencies that students should develop in the course of the learning the principle educational program is compliant with the Federal state educational standards.
2. Criteria and indicators for the assessment of competencies and assessment scales provide a comprehensive assessment of outcomes of education and the level of the development of competencies.
3. Materials for assessing outcomes of learning the principle educational program developed on the basis of the principles of assessment: validity, certainty, uniqueness, reliability; Comply with the requirements for the composition and coordination of evaluation resources and allow for an objective assessment of the outcomes of education and levels of competence development.
4. The content of FEM (FER) is compliant with the curriculum of the field of study (specialty) 31.05.03 Dentistry.
5. The content of FEM (FER) is compliant with the objectives of the principle educational program of the field of study (specialty) 31.05.03 Dentistry, professional standards (if available) and future professional practice of students.
6. The quality of the Funds for assessment material ensures objectivity and reliability of results when assessing learning outcomes.
7. The quality of FEM (FER) is confirmed by the following expert opinions:

- Head of the Laboratory of Molecular Biotechnology and Genetic Engineering. Federal State Autonomous Educational Institution of Higher Education "South Ural State University (National Research University). MD, Professor A.V. Zurochka.
- Head of the Laboratory of Immunochemistry of Physiologically active substances. Institute of Physiologically Active Substances of the Russian Academy of Sciences. Doctor of Biological Sciences, Professor, M.A. Myagkova.

Conclusions:

On the basis of the examination of assessment materials, it can be concluded that FEM (FER) of the principle educational program for 31.05.03 Dentistry allows to establish the compliance of the level of education of students to the results of the mastering of the principle educational program, namely:

- evaluate the results of learning the principle educational program both in individual subjects (modules), practices, stages of scientific research, and in the whole of the educational program;
- identify the level of formation of universal / general cultural / general professional / professional competencies defined in the Federal state educational standards at each stage of the formation of competences: GPC-5, GPC-6.

Head of Cyclic Educational Commission of natural disciplines _____ *Signature* *T.V. Viktorova*

Protocol №8 dated «03» June 2021.

Chairperson of the Academic Council of Dentistry faculty _____ *Signature* *M.F. Kabirova*

Protocol №14 dated «30» June 2021.

date

stamp