

**Ministry of Public Health of Ukraine**  
**Higher State Educational Establishment of Ukraine**  
**“Ukrainian Medical Stomatological Academy”**  
**Microbiology, Virology and Immunology Department**

**GENERAL MICROBIOLOGY, VIROLOGY AND**  
**IMMUNOLOGY KROK -1 TESTS**

**Collection of tasks**

*for preparation for test examination in Microbiology, Virology  
and Immunology*

**Poltava - 2009**

*GENERAL MICROBIOLOGY, VIROLOGY AND IMMUNOLOGY KROK -1 TESTS. Collection of tasks for preparation for test examination in Microbiology, Virology and Immunology. - Poltava, HSEEU "UMSA", 2009. - 48 c.*

#### INSTRUCTION:

Each of the numbered questions or uncompleted assertions is accompanied by the variants of answers or completed assertion. Choose one answer (the completed assertion), that is the most correct in this case.

#### **Collection was prepared by:**

LOBAN G.A. is the manager of Microbiology, Virology and Immunology department, doctor of medical sciences, professor

HANCHO O.V. is the candidate of biological sciences, teacher

POLYANSCA V.P. is the candidate of biological sciences, associate professor

FEDORCHENCO V.I. is the candidate of biological sciences, associate professor

ZVYAGOLSCA I.M. is the candidate of biological sciences associate professor

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Collection contains to the test of task, which are intended for the current, intermediate and eventual control of knowledges of dental and medical faculty students.

ТЕСТИ «КРОК-1» З ЗАГАЛЬНОЇ МІКРОБІОЛОГІЇ, ВІРУСОЛОГІЇ ТА ІМУНОЛОГІЇ. Збірник завдань з мікробіології, вірусології та імунології для підготовки до тестового іспиту. - Полтава, ВДНЗУ «УМСА», 2009. – 50 с.

### ІНСТРУКЦІЯ:

Кожне із пронумерованих питань або незавершених тверджень супроводжується варіантами відповідей або завершеним ствердженням. Виберіть одну відповідь (завершене ствердження), що є найбільш правильною у даному випадку.

#### **Збірник підготували :**

ЛОБАНЬ Галина Андріївна - завідувачка кафедри мікробіології, вірусології та імунології, доктор медичних наук, професор

ГАНЧО Ольга Валеріївна – кандидат біологічних наук, викладач

ПОЛЯНСЬКА Валентина Павлівна - кандидат біологічних наук, доцент

ФЕДОРЧЕНКО Віра Іванівна – завуч кафедри, кандидат біологічних наук, доцент

ЗВЯГОЛЬСЬКА Ірина Миколаївна – кандидат біологічних наук, доцент

ЗАТВЕРДЖЕНО протоколом №3 ЦМК УМСА від 18 грудня 2008 р.

Збірник містить тестові завдання, які призначені для поточного, проміжного і кінцевого контролю знань студентів стоматологічного факультету.

**Organization of principles, equipment and operating mode of the  
microbiological laboratory. Methods of microscopic research. Bacterioscopic  
method of diagnostics of infectious diseases**

1. The outstanding scientific microbiologist and the epidemiologist was the president of the Ukrainian Academy of Sciences:
  - A. N. F. Gamaleya
  - B. L. S. Zinkovskiy
  - C. D. K. Zabolotniy
  - D. E. E. Mechnikov
  - E. V. V. Pidvisotskiy
2. An outstanding Russian scientist, who carried out researches in the Nikitsky Botanical Garden in Crimea, D. I. Ivanovskiy, is the founder of:
  - A. Immunology
  - B. Mycology
  - C. Protozoology
  - D. Bacteriology
  - E. Virology
3. A preparation has been made from the expectoration, which was taken from the patient U., aged 41, and a microscopy of it was carried out with the of using immersion microscope. What influences does the immersion oil put on the preparation have?
  - A. To a direction of a course of beams
  - B. To a preparation's transparency
  - C. To the size of objects in sight
  - D. To neutralises microorganisms
  - E. To the color of objects in sight
4. The essential drawback of the microscopy method of infection diagnostics is insufficient informativeness caused by morphologic similarity of many microorganisms. Which of the following can increase the informativeness?
  - A. Radio-immunologic analysis
  - B. Coombs' reaction
  - C. Enzyme immunoassay
  - D. Opsonization reaction
  - E. Immunofluorescence reaction
5. For microscopic research of smears of patients in laboratory an immersion microscope has been used. Optimum illumination of a field of vision is reached by using:
  - A. Concave mirror and an artificial source of light
  - B. Flat mirror and an artificial source of light
  - C. Flat mirror and natural source of light
  - D. Concave mirror and natural source of light

- E. Random choice is possible
6. In bacteriological laboratory with the help of an immersion microscope people study the preparations with bacteria. What must be done for optimum illumination of a field of vision?
- A. To establish a diaphragm in average position
  - B. To lower condenser in maximum bottom position
  - C. To establish condenser in average position
  - D. To close a diaphragm for as much as possible
  - E. To lift condenser in extreme top position
7. In bacteriological laboratory with the help of an immersion microscope some researches of the materials containing bacteria are carried out. What must be done for establishment of optimum illumination of a field of vision?
- A. To lower condenser in maximum bottom position
  - B. To open a diaphragm for as much as possible
  - C. To establish condenser in average position
  - D. To close a diaphragm for as much as possible
  - E. To establish a diaphragm in average position
8. From patient M, 34 years old, a material was taken from eruption for microscopic research in a colourless type. The used microscope has been completed with a paraboloid-condenser. What kind of microscopy will be applied?
- A. Luminescent
  - B. Phase-contrast
  - C. Immersion
  - D. Darkfield
  - E. Electron
9. Using immunofluorescence method, in a microscope it is possible to see the cells infected with a virus, but not viruses themselves. What factor does not allow to observe viruses by means of a luminescent microscope?
- A. Human's eye ability
  - B. Quality of lenses of a microscope
  - C. Chromatic aberrations
  - D. Length of a wave in the ultra-violet spectrum parts
  - E. Diffraction in thin membranes
10. Reaction of immunofluorescence is widely used for the express-diagnostics of many bacterial and virus infections. Choose a condition, without using of which it is impossible to define results of reaction:
- A. Presence of a light microscope
  - B. Presence of an electronic microscope
  - C. Presence of a luminescent microscope
  - D. Presence of a phase-contrast microscope
  - E. Presence of a light microscope with a darkfield attachment
11. The darkfield microscopy was applied for microscopic diagnostics of Syphilis.

What features of illumination are for this type of microscopy?

- A. Nigrosin used for background
- B. Preparation is lighted from below
- C. Light is set on the left
- D. Light is set on the right
- E. Preparation is lighted from every quarter

### **Morphology of microorganisms**

12. Furuncle pus smear showed spherical microbes arranged in grape-like clusters. Name these microorganisms.

- A. Staphylococci.
- B. Diplococci.
- C. Micrococci.
- D. Streptococci.
- E. Tetrads.

13. The catgut which is used at the operational intervention has been directed to the bacteriological laboratory for sterility checking. Bacilli have been revealed in it. What sign has allowed to include the isolated bacteria to bacilli?

- A. Capsules
- B. Spores
- C. Inclusions
- D. Flagellas
- E. Positive staining by Gram

14. The simple method of staining has been used to patient's sputum. It means, that:

- A. The acids are not used in a method
- B. The Gram's method was used
- C. The organic solvents are not applied in a method
- D. It has been stained by one dye
- E. The highly toxic flying substances are not applied in a method

15. The bacteria's microscopy on different stages of the allocation of pure cultures of pathogenic is performed in the bacteriological laboratory. These preparations as a rule fix. What must be done with a preparation before fixation?

- A. To unstain
- B. To stain.
- C. To microscopy
- D. To dry
- E. Sterilize in a high-temperature case

16. Plaque microscopy showed movable spiral bacteria. Which method was used for movability study?

- A. Luminescent
- B. Phase-contrast

- C. Immersion
- D. Darkfield
- E. Electron

17. In bacteriological laboratory bacteria's smears stain by Gram's method is used. The following reactants have been prepared for this purpose: gentcyanviolet, the Ljugol's solution, water solution of fuchsin. What reactant is necessary else?

- A. 96 % alcohol
- B. 5 % sulfuric acid
- C. The solution of methylen blue
- D. Carbol fuchsin
- E. 3 % hydrogen peroxide

18. Gram's method was used for staining of smear-preparation made from the pus of patient. What is the purpose of use of ethanol?

- A. For fixing of preparation
- B. For increasing of intensity of staining
- C. For selective decolouration of bacteria
- D. For disinfecting of bacteria
- E. For full decolouration of bacteria,

19. It is necessary to stain a mix of bacteria by Gram's method and to explain the mechanism of staining to students on practical lesson of Microbiology. What morphological structures of bacteria define grampositive and gramnegative staining of bacteria?

- A. Cytoplasmic membrane
- B. Cell wall
- C. Capsule
- D. Flagella
- E. Cytoplasm

20. During researching of smear from a pharynx of the patient with previous diagnosis "Diphtheria" the preparations have been stained by simple and complicated methods. What is the limitation for effective using of a microscopic method for microbiological diagnostics of bacterial infections?

- A. Morphological signs
- B. The limited quantity of staining methods
- C. Difficulty performance of method
- D. The big price of research
- E. The high toxicity of substances which are used at manufacturing of preparations

21. The following dyes and reactants have been used for staining of a smear of patient's sputum with the previous diagnosis "Pneumonia": a solution of gentcyanviolet, iodine solution, 96 % alcohol, water fuchsin. What way of staining is used in this case?

- A. Gram
- B. Ziehl-Nilsen

- C. Romanovsky
- D. Neisser
- E. Loeffler

22. Isolated culture smear showed spherical microbes arranged in chains. Name these microorganisms.

- A. Staphylococci
- B. Diplococci
- C. Micrococci
- D. Streptococci
- E. Vibrios

**Structure of bacterial cell: inclusion, capsule, flagellas. Methods of their revealing**

23. What structure of a bacterial cell protects it from destruction by macrophages?

- A. Inclusions
- B. A cell wall
- C. Flagellas
- D. Pili
- E. Capsula

24. What structure of a bacterial cell defines the possibility of microorganisms for attaching to macroorganism cytes?

- A. Capsule
- B. Flagella
- C. Pili
- D. Mesosomes
- E. Nothing from the listed

25. For determining of the infectious agent species, taken from an organism of the patient with previous diagnosis "Cholera" one of identification stages is its revealing of monotrichal mobility. What method of determining is used for this purpose?

- A. Method of the "hanging" or "crushed" drop
- B. Gram's method
- C. Loeffler's method
- D. Method of peptone water inoculation
- E. Method of peptone agar inoculation

26. During the examination of sick child with previous diagnosis "diphtheria" in a smear from a pharynx the bipolar stained inclusions were revealed bipolar. Which methods of staining were used?

- A. Gram
- B. Loeffler
- C. Ziehl-Nilsen
- D. Burri-Gins



E. Romanovsky-Giemza

27. Rods with the thickenings on ends similar to the diphtheria infectious were revealed during the microscoping of smears, stained with methylen blue. Which methods of staining are needed additional for diagnosis?

- A. Neisser
- B. Cozlovsky
- C. Ziehl-Nilsen
- D. Zdrodovsky
- E. Ozeshko

28. In a smear of the material taken from a patient with previous diagnosis “diphtheria”, the yellow rods with seeds on the ends were revealed. What method of staining was used in this case?

- A. Cozlovsky
- B. Loeffler
- C. Ziehl-Nilsen
- D. Neisser
- E. Romanovsky-Giemsa

29. The separated staggered mucosa of pharynx were taken for microscopic research in a sick child with previous diagnosis “diphtheria”. During the microscoping of preparation stained by Neisser’s method, yellow rods with the navy blue thickenings on ends were revealed. What structural element of microbe cell is determined in the revealed microorganisms?

- A. Spores
- B. Plasmids
- C. Capsula
- D. Granules of volutin
- E. Flagellas

30. In a smear, made from incrustation in a patient’s tonsils with previous diagnosis “diphtheria”, the rods of dark blue color are revealed with the violet thickenings on poles. What method of staining was used?

- A. Gram
- B. Burri
- C. Gins
- D. Loeffler
- E. Neisser

### **Structure of bacterial cell. Methods of spores and acid fast bacteria revealing**

31. A patient’s sputum with previous diagnosis “tuberculosis” was sent to a bacteriological laboratory. One of the following methods of staining is needed to use for tuberculosis bacilla revealing:

- A. Gram

- B. Gins - Burri
- C. Zdrodovsky
- D. Ziehl - Nilsen
- E. Romanovsky

32. The patient's sputum with tuberculosis was sent to a laboratory. What method of staining is used for the revealing of tuberculosis infectious agent?

- A. Ziehl-Nilsen
- B. Gram-Sinyov
- C. Romanovsky-Gimza
- D. Burri-Gins
- E. Neisser

33. In a patient with tuberculosis microscopic research of sputum is used with the purpose of the infectious agent revealing. What method of staining must be used?

- A. Ziehl-Nilsen
- B. Gram
- C. Burri-Gins
- D. Romanovsky-Gimza
- E. Neisser

34. In a bacteriological laboratory during the microscoping of the patient's sputum with the chronic pulmonary in disease smears stained by Ziehl-Nilsen red rods were revealed. What property of tuberculosis rod was revealed?

- A. Alcohol fast stability
- B. Alkali fast stability
- C. Acid fast stability
- D. Formation of capsula
- E. Formation of spores

35. During the studying of sputum, taken from a patient with suspicion on tuberculosis, the preparation was prepared and stained by Ziehl-Nilsen method. What is the microscopic picture for correct diagnosis?

- A. Thin red color bacteria on a blue background
- B. Microorganisms with red nucleus and blue cytoplasm
- C. Red color bacteria on a white background
- D. Violet streptobacilla
- E. Bacilla on a green background

36. We revealed the red rodshape microorganisms surrounded by a colourless area on black background at smear microscopy. What method of staining was used?

- A. Gram
- B. Buri-Gins
- C. Ozeshco
- D. Peshcov
- E. Fucsin

37. The micropreparat from a pharynx of patient C. was stained by Neisser. What

structural components of diphtheria agent can be revealed at the microscopy of slide?

- A. Flagellas
- B. Inclusions
- C. Capsules
- D. Pili
- E. Spores

38. We need to stain the slide with patient's sputum by Ziehl-Nilsen method for "tuberculosis" diagnosis confirmation. The following reactants were prepared for this purpose: carbolic fuchsin and methylen blue. Which reagent is needed too?

- A. 5% sulphuric acid
- B. 3% hydrogen peroxide
- C. 70% ethyl alcohol
- D. Iodine solution
- E. Vezuvin

39. A smear from a dental plaque was stained by Burri-Gins method. The microorganisms surrounded by a colourless area on black background were revealed at smear microscopy. What structure of microorganisms is colourless?

- A. Peptidoglican
- B. External membrane
- C. Capsule
- D. Exoenzymes
- E. Protoplast

40. The patient's sputum with tuberculosis was sent to a laboratory. Ziehl-Nilsen method was used. For this purpose carbolic fuchsin, 5% H<sub>2</sub>SO<sub>4</sub> and methylen blue were used. What purpose sulphuric acid is used for?

- A. Sputum solubilisation
- B. Disinfection
- C. Alkaline neutralisation
- D. Receptivity of mycobacteries increasing
- E. Decoloration of bacteria

**Morphology and structure of Spirochetes, Actinomycetes, Fungi and Protozoa.  
Methods of study of their morphology**

41. At microscopic research of smear of the pus, stained by Gram the druzes stained grampositive in a center and gramnegative in margins were revealed. The pathogen of what disease was revealed?

- A. Candidosis
- B. Actinomycosis
- C. Anaerobic infection
- D. Staphylococcal osteomyelitis

E. Fuzobacteriosis

42. A doctor revealed the comma shape Protozoa with blue protoplasm and red nucleus at the microscopy of the blood smear, stained by Romanovscy. What Protozoa were revealed?

A. Tripanosoma

B. Balantidii

C. Leishmanii

D. Lamblii

E. Toxoplazma

43. During darkfield microscopic research of material from shancer, which was located on the mucus membrane of vagina, the spirohetes were revealed. What group of microorganisms these bacteria belong to by their morphological signs?

A. Spiral

B. Clostridia

C. Cocci

D. Bacteria

E. Bacilla

44. Actinomycetes were revealed in the smear from the patient`s pus in the area of neck. What group of microorganisms these bacteria belong to by their morphological signs?

A. Cocci

B. Branching

C. Bacteria

D. Spiral

E. Clostridia

45. Thin spiral pinky microorganisms with 12-14 curles and sharp ends were revealed from a patient with oral cavity mucosa ulcer stained by Romanovscy-Giemza. What group of microorganisms these bacteria belong to by their morphological signs?

A. Leptospirosis agent

B. Typhus agent

C. Campilobacteriosis agent

D. Sodocu agent

E. Syphilis agent

46. The dark blue-purple color phlegmonal infiltrate with numerous fistulas, which excrete a pus with unpleasant smell, was revealed in a neck-jaw region of patient. For confirmation of diagnosis "actinomycosis" during microscopic research of pus the bacteriologist must reveals:

A. Druzes

B. Gram-positive streptococci

C. Gram-negative diplobacteria

D. Acid resistance bacilli

E. Gram-negative diplococcuss

**Cultivations of bacteria, nourishing media. Methods of sterilization, disinfection.  
Methods of pure cultures of bacteria isolation. Bacteriological method of  
diagnostics of infectious diseases**

47. With the purpose of acceleration sugar-containing media were sterilized by live, nonpressurized steam in one day: during 30 minutes in the morning, in the evening, and in the afternoon. In what way should the media have been sterilized?

- A. During 1 hour
- B. During 15 min., three days in succession
- C. During 30 min., two days in succession
- D. During 30 min., three days in succession
- E. During 15 sec. twice a day

48. After practical activity in a laboratory students must put in order and disinfect their working place. Choose the chemical agent, which should be used.

- A. Ether
- B. Chloric acid
- C. Alcohol
- D. Formalin
- E. Chloroform

49. In a laboratory Endo's media was prepared and poured out into Petri plates. 2 days later the media had a red color. What is the most credible error done in preparation of the media?

- A. Incorrectly chosen the method of sterilization
- B. Too much indicator
- C. Correlation of glucose and lactose is not observed
- D. At the overflow of environment bacteria from air got into it
- E. It was not tested pH of media

50. After practical activity in a laboratory students must put in order and disinfect their working place. Choose the chemical agent, which should be used.

- A. Ether
- B. Chloric acid
- C. Formalin
- D. Chloroform
- E. Chloramine

51. In a bacteriological laboratory meat-pepton broth was prepared for sterilization. What method of sterilization must be applied?

- A. Autoclaving at 120<sup>0</sup> C 30 min
- B. By a dry heat 160<sup>0</sup> C 2 h

- C. Boiling 1 h
- D. Filtration
- E. Autoclaving at 115<sup>0</sup> C 30 min

52. In a bacteriological laboratory it is necessary to conduct sterilization of nourishing, media which change at a temperature higher 100 C (urea, carbohydrates). What method of sterilization must be chosen by a laboratory assistant?

- A. By fluid steam, 3 days
- B. Autoclaving
- C. Boiling
- D. Tindalization
- E. Pasterization

53. Biological method was used for quality of sterilization of instrument in an autoclave control in a hospital. Which microorganisms were use as a test – control?

- A. Termophylic
- B. Capsulated
- C. Acid fast
- D. Patogenic
- E. Sporulated

54. At bacteriological research of dead experimental animal the examined material was placed into flack treated by antiseptic. Why it was impossible to isolate the agent?

- A. Examined material must not contact with dezinfectants
- B. Not enough material for inoculation
- C. There was no pathogen in the organism of animal
- D. Cultivation at a room temperature
- E. Need to use another method of research

55. After inoculation of feces specimen from a patient with typhoid fever onto Endo media colonies of different size and colour – big red and medium colourless – have grown. Name the functional type of this media.

- A. Special
- B. Elective
- C. Differential - diagnostic
- D. Universal
- E. Enriched

56. The correct choice of suspicious colony is the most important stage of bacteriological method of diagnostics. Wich media you will prefer for examined material inoculation on a nourishing media?

- A. Elective
- B. Simple (Universal)
- C. Conservative
- D. Special
- E. Differential-diagnostic

57. For growth and development of microorganisms nourishing media are needed. Choose a differential-diagnostic media:
- Endo
  - Citt-Tarozzi
  - Meat pepton agar
  - Levenshtein-Yensen
  - Hepatic broth
58. Material for bacteriological research was took in the induction centre of the hospitals. With what purpose it need to take material from a patient with previous diagnosis “gas gangren of lower extremity”?
- For establishment of etiology and determination of sensitiveness of pathogen to the antibiotics
  - For the revealing of pathogenic staphylococci and determination of antibioticogramms
  - For the revealing of pathogen, that to warn development of hospital infection
  - For anaerobic infection diagnosis confirmation
  - For the pathogen toxigenicity revealing
59. What method of sterilization need to use for dental instruments for elimination of viruses, vegetative and spore forms of microorganisms?
- Tindalization
  - Boiling
  - Pasterization
  - Autoclaving
  - Flame
60. Anthrax pathogen was inoculated into gelatin and “inverted fir-tree” liquifaction of gelatin was observed after incubation. What properties were studied in this case?
- Cultural
  - Sacharolytic
  - Fibrinolytic
  - Hemolytic
  - Proteolytic
61. A stomatology instrument was sterilized by boiling in a 1% sodium bicarbonat solution. However bacteriological research of this instrument showed the presence of living microorganisms. What microorganisms were on an instrument?
- Sporulated
  - Anaerobes
  - Acid fast
  - Conditionally-patogenic
  - Gramnegative
62. In a stomatological clinic the quality of sterilization of instruments in an autoclave is controlled by biological method. What microorganisms were used as a test-cultures?

- A. Fungi
- B. Staphylococci and Streptococci
- C. Mycobacterii and Corinebacterii
- D. Enterobacterii and Vibrios
- E. Bacilli and Clostridii

**Microbiological bases of antimicrobial chemotherapy. Principle of antimicrobial chemotherapy in stomatology. Antibiotics. Bacteriophages**

63. R-plasmides encode synthesis of:

- A. Agressines
- B. Sexual pili for the transfer of genetic information
- C. Constitutive enzymes
- D. Endotoxines
- E. Bacterial enzymes resistance to the antibiotics

64. Antibiotics are used for:

- A. Patogenetic therapy
- B. Specific therapy
- C. Unspecific therapy
- D. Symptomatic therapy
- E. Specific prophylaxis

65. In a laboratory the staphylococcus sensitiveness to antibiotics was defined. Diameter of growth delay areas were: Penicillin - 8 mm, Streptomycin - 8 mm, Lincomycin - 8 mm, Ampicillin - 25 mm, Gentamycin - 22 mm. What antibiotic will be use for treatment of patient?

- A. Lincomycin
- B. Penicillin
- C. Streptomycin
- D. Ampicillin
- E. Gentamycin

66. The culture of Stafhylococcus which caused the hospital infection showed high resistance to penicillin. Which factors of resistance of microorganisms to the antibiotic was connected with?

- A. With the synthesis of adeniltransferase
- B. With the synthesis of beta-lactamase
- C. With the change of cell wall components
- D. With change of ribosomal albumens
- E. With the synthesis of phosfotransferase

67. In a laboratory the staphylococcus sensitiveness to antibiotics was defined. Diameters of growth delay areas were: Penicillin - 8 mm, Streptomycin - 8 mm, Lincomycin - 8 mm, Ampicillin - 25 mm, Gentamycin - 22 mm. What method was



used?

- A. Biochemical
- B. Method of the serial dilutions
- C. Method of the paper disks
- D. Bacterioscopic
- E. Biometrical

68. It is known, that between different groups of microorganisms there are a few types of co-operations. How is the type of co-operation named, if there is strengthening of physiology functions of members of association?

- A. Metabiosis
- B. Sinergizm
- C. Mutualizm
- D. Sattelizm
- E. Commensalizm

69. To the 52-year-old woman with bronhopneumonia a doctor prescribed penicillin every 4 hours 500 IU. On the third day the state of patient did not become better. Isolated from sputum staphylococcus was resistant to penicillin, ampicillin, sensible to monomycin, eritromycin, lincomycin. The mechanism of medicinal resistance to penicillin is connect with:

- A. Production of enzyme, that destroys an antibiotic
- B. Change of cell wall of permeability bacteria
- C. Fast dezintegration of preparation
- D. Change ionic potential of membrane
- E. R-plasmid

70. The patient of urology department had the acute cystitis caused by colon bacilla. An agent is resistant to antibiotics. What factor is main for plural bacteria resistance to antibiotics?

- A. Absence of «targets» for antibiotics
- B. Mutations in genes
- C. Transfer of genes in the transduction process
- D. Lactamase production
- E. Transmission of R-plasmid

71. From a patient with pneumonia *Klebsiella pneumoniae* was isolated, which is resistant to antibiotics. Which methods are used for determination of minimal concentration of antibiotics which are planned to use for treatment of this patient?

- A. Method of the serial dilutions
- B. Method of cylinders
- C. Method of wells
- D. Method of standart disks
- E. Immunoenzyme method

72. There were cases of the hospital staphylococcal infection caused by cultures which had plural antibiotic resistance in the surgical department of stomatology clinic. Such sign is determined by a presence of:
- Exotoxins
  - F-plasmid
  - temporal bacteriophages
  - R-plasmid
  - Virulent bacteriophages
73. A patient long time used the wide spectrum action antibiotics, that caused the appetite decreasing, nausea, diarrhea with a putrid smell. What indirect action it testify about?
- Hepatotoxic action
  - Allergic reaction
  - Disbacteriosis
  - Nefrotoxic action
  - Direct irritating action
74. There was an episode of the hospital infection caused by S.aureus in the surgical department. In this connection, the liquid polyvalent staphylococcal bacteriophage was used. Name the purpose of preparation using.
- Specific prevention
  - Phagotyping
  - For indication of staphylococcus in reaction of phage title growth
  - Nonspecific prevention
  - For treatment of patients with chronic forms of staphylococcosis
75. Bacteriological researches was conducted with the purpose of source of shigellosis infection revealing. Research did not give a result. Phagodiagnosics need to use. Such research provides by:
- Phagocytosis activity of blood study
  - Bacteriophages revealing in path.material
  - Phage typing of isolated cultures of pathogens
  - Growth of bacteriophage title test use
  - Digestive system functional activity study
76. The group of students which contacted with patients need to shigellosis phagoprevention. What mechanism will provide their defence?
- Phagotyping
  - Phagocytosis
  - Phagolysis
  - Pinocytosis
  - Diffusion
77. There are cases of purulent postoperative complications of the staphylococcal infection in a surgical hospital. How can you determine a source of a staphylococcal infection in a hospital?

- A. Determination of phagovaries
  - B. Determination of hemotoxin
  - C. Determination of enzymes
  - D. Determination of biovaries
  - E. Determination of sensitiveness to antibiotics
78. The toxigenic culture of pathogen is isolated from patient S. with a previous diagnosis «diphtheria». It is known, that such activity is connected with the diphtheria bacteria lysogenicity. What factor determines lysogenicity of bacteria?
- A. Antibodies
  - B. Antibiotics
  - C. Phagocytes
  - D. Factors of autolysis
  - E. Temporal phages
79. The reaction of bacteriophages title growth was put with standard choleraic bacteriophages for estimation of quality of sea water. The reaction was positive. Such result is the certificate:
- A. Presence of cholera pathogens in the samples
  - B. Absence of cholera pathogens in the samples
  - C. Presence of organic substanses in the samples
  - D. Absence of organic contamination in water
  - E. Presence of BGCB in the samples
80. What method allows to choose an antibiotic for treatment of infection?
- A. Method of disks
  - B. Method of wells
  - C. Method of cylinders
  - D. Immune enzyme method
  - E. Immune ferritin method

### **Study about an infectious process. Biological method of research**

81. Bacteriological examination of the feces of a 38-year-old woman, who had been ill with typhoid fever 1.5 year ago, revealed Salmonella typhi. Name the form of the infectious process.
- A. Disbacteriozis
  - B. Bacteria carrying
  - C. Reinfection
  - D. Superinfection
  - E. Recidivation
82. Persistence of viruses in the human organism has forms of infections exclude:
- A. Acute
  - B. Latent

C. Chronic

D. Delay

83. A patient with diagnosis "Syphilis" was treated with antibiotics and was healthy. He was infected by *T. pallidum* again. How is such infection called?

A. Reinfection

B. Recidivation

C. Superinfection

D. Secondary infection

E. Complication

84. The ulcer named shancer was revealed on genitalies at patient who had the Syphilis

2 years ago. How is such infection called?

A. Reinfection

B. Recidivation

C. Superinfection

D. Secondary infection

E. Auto-infection

85. Recurrent typhus, caused *B. caucasica*, meets in the definite areas only. Transmitter is *Alectorobius*. How is such infection called?

A. Reinfection

B. Endemic infection

C. Superinfection

D. Secondary infection

E. Mixt-infection

86. Inflammatory process of parodont as a result of own microflora activating was revealed at a patient oral cavity mucosa. What form of infection this disease belong to?

A. Reinfection

B. Recidivation

C. Superinfection

D. Secondary infection

E. Auto-infection

87. The chemical structure of the endotoxin is:

A. Lipopolisacharid

B. Protein

C. Lipid

D. Peptidoglican

E. Lipoprotein

88. Chemical structure of the exotoxin is:

A. Lipopolisacharid

B. Protein

C. Lipid

D. Peptidoglican

E. Lipoprotein

89. The pathogens of infectious diseases product exotoxines with different effects of biological action. Which toxins are activated in a digestive tract?

A. Botulotoxin

B. Hemotoxin

C. Histotoxin

D. Tetanospazmin

E. Cholero-gen

90. Rodents are the reservoir of many diseases pathogens. Why?

A. Rodents belong to the important components of ground biocenosis

B. Rodents can quickly multiply

C. Rodents have ectoparasites

D. Rodents are the most numerous class of mammals

E. Biological features of rodents, that are used in an exchange by parasites and pathogens with a human

91. Purulent endometriitis with fatal outcome was progressing in the woman after criminal abortion. On autopsy multiple lung abscesses, subcapsular pus ulcers in the kidneys, spleen hyperplasia were revealed. What form of sepsis developed in the patient?

A. Chroniosepsis

B. Pulmonary sepsis

C. Septicemia

D. Septicopyemia

E. Urosepsis

92. A doctor-bacteriologist isolated the Flexneri dysentery - type 2, Sonnei - type I and E.coli - 055/B5 from a sick child. How is such type of infection called?

A. The mixed infection

B. The secondary infection

C. Superinfection

D. Reinfection

93. An acute gonorrhea has diagnosed at patient M. It is known, that the patient had gonorrhea before, but was cured completely. Name the form of this infection.

A. Secondary infection.

B. Superinfection

C. Recidivation

D. Reinfection

E. Autoinfection

94. A patient had acute gonorrhea. It is known, that the patient was ill with gonorrhea before, but was cured completely. Name the form of this infection.

A. Secondary infection.

B. Superinfection

C. Recidivation

D. Reinfection

E. Autoinfection

95. A child, who is recovering after meningitis, has developed pneumonia caused by opportunists. What is the most probable form of this infection?

A. Reinfection.

B. Secondary infection

C. Superinfection

D. Persistence infection

E. Mixed infection

96. A patient recovered completely after Sonne shigellosis and was repeatedly infected by this causative agent. How is such form of infection called?

A. Superinfection.

B. Recidivation.

C. Reinfection.

D. Persistent infection.

E. Chronic infection.

97. A man which lived in an endemic region and had a 3-daily malaria. 1,5 year after migration to other region a malaria repeats again. Which is most possible form of this disease?

A. Superinfection

B. Recidivation

C. Reinfection

D. Persistent infection

E. Secondary infection

98. A 12 yeared boy had a head pain, nausea, chill, periodic pain in muscles, loss of appetite, sickliness after school. For what period of illness such symptoms belong to?

A. Prodromal

B. Incubative

C. Reconvalescence

D. Latent

E. Acute disease

99. A child, who is recovering after measles, has developed pneumonia caused by opportunists. What is the most probable form of this infection?

A. Reinfection

B. Secondary infection

C. Superinfection

D. Persistence infection

E. Mixed infection

100. Microbial exotoxins transfer with blood at diphtheria. Consequently, in this case it is possible to speak about:

A. Septicopyemia

- B. Bacteriemia
- C. Septicemia
- D. Toxinemia
- E. Intoxications

101. The symptoms of osteomyelitis of lower jaw appeared repeatedly at a patient after the two months treatment. What term needs to be used during description of this form of infection in a hospital chart?

- A. Recidivation
- B. Reinfection
- C. Superinfection
- D. Bacteriemia
- E. Septic state

102. A patient had acute cystitis, caused by *P.aeruginosa*. The manifestation of cystitis at a patient increased after catheterization in an urologic clinic. How infection is named?

- A. Yatrogenic infection
- B. Secondary infection
- C. Opportunistic infection
- D. Antroponosis
- E. Superinfection

103. A patient's temperature increase to 38<sup>0</sup> in few hours after surgical tooth extraction. These phenomena disappeared without treatment. What pathological process is the reason of the phenomena?

- A. Intoxication
- B. Sepsis
- C. Allergic reaction
- D. Bacteriemia
- E. Infectious shock

104. *P. aeruginosa* and *Staphylococcus* were revealed at a patient's pus. What form of infection takes place?

- A. Secondary
- B. Mixed
- C. Primary
- D. Recidivation
- E. Superinfection

**Types of immunity. Factors of unspecific resistance of organism and methods of their research. Factors of unspecific resistance of oral cavity**

105. An alternative pathway of early stages complement activating of a human organism resistance to infectious agent is important for antibodies production. Activating of what component of complement need to C5-convertase?

- A. C1
- B. C3
- C. C2
- D. C4
- E. C1q

106. Acquired defect of immune system of a patient is diagnosed - a disorder of complement system activation by the classical pathway against the background of the sufficient content of system components. Defect of antibody production is suspected. Decrease in number of what antibodies can be expected first of all?

- A. IgM, IgA
- B. IgA, IgG.
- C. IgD, IgG.
- D. IgE, IgG.
- E. IgM, IgG.

107. 7 years old child often has respiratory and intestinal infections. What cells provide unspecific resistance of organism to infection?

- A. Macrophages, neutrophiles, natural killers.
- B. Macrophages, T-lymphocytes.
- C. Macrophages, B-lymphocytes.
- D. T-helpers, T-killers.
- E. T-lymphocytes, B-lymphocytes

108. The basic function of interferon is:

- A. Immunomodulating
- B. Antiviral
- C. Antiprotozoal
- D. Antiproliferative
- E. Antibacterial

109. In order to speed up healing of oral mucosa wound a patient was prescribed a drug that is a thermostable protein occurring in human`s tears, saliva, mother`s milk as well as in a new-laid hen`s egg. It is known, that this protein is a factor of natural resistance of an organism. What is it called?

- A. Lysozyme
- B. Complement
- C. Interferon
- D. Interleukin
- E. Imanine

110. What version of response characterizes the acquired artificially passive immunity?

- A. APDT vaccine



- B. Immunization by BCG vaccine
- C. Immunization by tetanus anatoxin
- D. Placenta`s passing of antibodies
- E. Diphtherial antitoxic serum

111. Artificial active immunity develops after injection of:

- A. Vaccines
- B. Serum
- C. Donor`s plasma
- D. Antibiotics
- E. Immunoglobulins

112. 1,5 years old boy, who did not get the planned vaccine inoculations, contacted with a patient with a measles. With the purpose of urgent specific prevention the child was injected by donor`s gammaglobulin. What type of immunity was created in this case?

- A. Natural
- B. Antitoxic
- C. Aftervaccinal
- D. Local
- E. Passive

113. The complement system is an important component of a human organism resistance to the infectious agents. What is the last component of the complement system activating?

- A. C 3
- B. Properdin
- C. Cascade reaction
- D. C 9
- E. Membrane-atac complex

114. After BCG vaccination of infants immunity to tuberculosis is preserved until there are live bacteria of vaccine strain in the body. Name this kind of immunity.

- A. Non-sterile
- B. Humoral
- C. Type specific
- D. Innate
- E. Crossed

115. At the laboratory the leukocyte culture was mixed with staphylococci. Neutrophile leukocytes engulfed and digested bacterial cells. This process are termed:

- A. Faciliated diffusion
- B. Diffusion
- C. Osmosis
- D. Phagocytosis
- E. Pinocytosis

116. Antibodies to the virus of measles were revealed in the baby`s serum. About

what immunity it can be testify?

- A. Inherited
- B. Natural active
- C. Artificial passive
- D. Artificial active
- E. Natural passive

117. During the microscopy of the purulent secreta of the patient`s urethra there were found bacteria, which according to Gram were gramnegatively staining, looked like coffee beans. These bacteria were located inside the leucocytes in pairs. The results of what process are observed in the slide?

- A. Metabolism
- B. Phagocytosis
- C. Capsula formation
- D. Sporulation
- E. Malignization

118. Such preparations are offered for your work: 1. Brucellosis skin vaccine. 2. Leptospirosis vaccine. 3. Vaccine BCG. 4. APDT vaccine. 5. Adsorbed tetanus anatoxin. What immunity they provide?

- A. Antibacterial
- B. Unsterile
- C. Artificial active
- D. Artificial passive
- E. Antitoxic

119. The unspecific factors of oral cavity resistance to pathogenic microorganisms act an important role in the general physiology resistance system of organism. Which oral cavity components are the most important factor of unspecific resistance?

- A. Complement
- B. Lysozyme
- C. Properdin
- D. Beta-lyzines
- E. Phagocytosis

120. Unspecific resistance indexes of patient saliva were studied by parodontologist. Which unspecific resistance factors will be examined in the material?

- A. Interferon
- B. Secretory Ig A
- C. Properdin
- D. Lysozyme
- E. Complement

122. Stomatologist proposed to patient with diagnosis “ulcerative stomatitis” to examine the saliva lysozyme title. It was 1:5 (norm is1:25) at this patient. This index change testifies about which factor of resistance decreasing?

- A. Specific resistance factor

- B. Unspecific resistance factor
- C. Specific immune response resistance factor
- D. Temporal resistance factor
- E. Permanent resistance factor

123. Immunogram analysis of patient N. showed the NK-cells activity decreasing. NK-cells (natural killers) are:

- A. Natural killers provide cytotoxicity
- B. Subpopulation of T-killers
- C. Subpopulation of B-cells
- D. Phagocytes
- E. Subpopulation of T-helpers

124. A lecturer explains to the students-stomatologists the role of saliva as a factor of unspecific resistance of organism in the development of caries. What assertion is correct?

- A. All answers are correct
- B. Saliva regulates the solubility of calcium and phosphorus in an enamel
- C. Saliva is the buffer of acid production in the plaque
- D. Saliva contains a secretory immunoglobulin A
- E. Saliva contains a lysozyme

**Acquired immunity. Antigens and Antibodies. Serological method of infectious diseases microbiological diagnostics. Reactions of precipitation and neutralisation**

125. The samples of meat stuffing were delivered to the laboratory of State regional sanitary inspection from the market. A buyer had doubts in quality of stuffing. He considers that stuffing is made from a dog's meat. What immunological reaction allows to check up a quality of the delivered product?

- A. Reaction of precipitation
- B. Coomb's reaction
- C. Reaction of agglutination
- D. Reaction of opsonization
- E. Reaction of immunofluorescence

126. To determine the toxigenicity of diphtheria causative agents isolated from patients, cultures are inoculated onto a Petri dish with nutrient agar on both sides of the centrally located filter paper strip sodden with antidiphtheric antitoxic serum. After cultures incubation in the agar between separate cultures and filter paper strip the sites of medium opacity are revealed. Which serological reaction has been carried out?

- A. Agglutination

- B. Coombs reaction
- C. Precipitation in gel
- D. Ring-precipitation
- E. Opsonization

127. Bone marrow has been transplanted to the liquidator of Chernobyl atomic power station accident which was irradiated. The reaction “a transplant against a host” development was diagnosed at the patient after operation. Which antigens are the reason of this reaction?

- A. Antigens of HLA system in the cells of liquidator’s organism
- B. Antigens of Rh system in the erythrocytes of liquidator
- C. Antigens HBs, HBc, HBe
- D. Antigens of ABO system in the erythrocytes of liquidator
- E. Antigens of HLA system in the cells of donor’s spinal cord

128. Frequency of occurrence of certain diseases at the person associates with presence of certain antigens in MHC histio-combination complex. Which antigens provide it more often?

- A. Rh+
- B. B O
- C. HLA-B
- D. HLA-DR A
- E. HLA-A

129. Antibodies react with antigens in immune response process. What area of immunoglobulin molecule reacts with an antigen?

- A. L-chain
- B. Joint area
- C. H-chain
- D. Constant areas of H and L chains
- E. Variable areas of H and L chains

130. To determine the toxigenicity of diphtheria causative agents isolated from patients, cultures are inoculated onto a Petri dish with nutrient agar on both sides of the centrally located filter paper strip sodden with antidiphtheric antitoxic serum. What must be revealed after cultures incubation in the agar between separate cultures and filter paper strip?

- A. Merging precipitation lines
- B. Crossing precipitation lines
- C. Zones of diffusion opacification
- D. Precipitation lines absence
- E. Precipitation ring

131. With what class of antibodies the development of atopic allergic reactions is connected?

- A. Ig E
- B. Ig G

C. Ig M

D. Ig A

E. Ig D

132. The person was selling “homemade pork” sausages on the market. State sanitary inspector suspected falsification of the sausages. With help of what serological immune reaction can food substance be identified?

A. Agglutination

B. Precipitation

C. CBT

D. Immunofluorescence

E. IHAT

133. Donor skin has been transplanted to a patient with extensive burn. In 4-5 days the skin transplant adapted, but it became swollen and changed color on the eighth day. Ten days later it started to reject. Which cells take part in this process?

A. Eosinophils.

B. Erythrocytes

C. Basophiles

D. B-lymphocytes

E. T-lymphocytes

134. Passive specific transplacental immunity provides by:

A. Immunoglobulins G

B. Immunoglobulins A

C. Immunoglobulins M

D. Immunoglobulins D

E. Immunoglobulins E

135. Organism's response to antigens is synthesis of antibodies production. Which antibodies can go through a placenta and to provide the development of natural passive immunity in newborns?

A. Ig A

B. Ig M

C. Ig E

D. Ig D

E. Ig G

136. It is known that some immunoglobulins can activate the complement. Choose these classes:

A. Ig G, Ig M

B. Ig A, Ig G

C. Ig D, Ig A

D. Ig E, Ig M

E. Ig E, Ig D

137. Production of antibodies is the main type of the immune response. What cells cooperate for their synthesis?

- A. Macrophages, T-effectors, B-lymphocytes
  - B. Macrophages, T-helpers, B-lymphocytes
  - C. Dendritic cells, T-helpers, B-lymphocytes
  - D. Antigen presenting cells, T-helpers, B-lymphocytes
  - E. Langerance's cells, T-effectors, B-lymphocytes
138. New synthetic material was found for mitral valve's prosthetic repair. How to prove that this material is not antigenic?
- A. Laboratory animals must be immunized
  - B. Reaction of agglutination
  - C. Reaction of precipitation
  - D. Use the reaction of complement's fixation (CFT)
  - E. Use the reaction of neutralization
139. It was found that colon bacilla strain doesn't have the H-antigen. What structure component is absent in this strain's cells?
- A. Cell wall
  - B. Capsule
  - C. Outer membrane
  - D. Flagellas
  - E. Mesosome
140. For proving that stains on the murder suspect's clothes are human blood stains, these stains were extracted by isotonic solution and used for the reaction of precipitation with the extract (as unknown antigen). What could be used as antibodies?
- A. Complement
  - B. Human blood sera
  - C. Horse sera
  - D. Human normal immunoglobulin
  - E. Antispecies serum
141. A skin greasing with a iodine alcohol solution was used for child's chronic bronchitis curing. A child became allergic to iodine after the second using. What role does the iodine play in this case?
- A. Hapten
  - B. High-grade antigen
  - C. Agent
  - D. Antibody
  - E. Unspecific irritant
142. A 54-year-old woman referred to a doctor with complaints of hen's eggs intolerance, which appeared recently. Antihistamines prescribed by the doctor slightly improved the status of the patient. What antibodies could provide the development of this reaction?
- A. Ig A
  - B. Ig E

- C. Ig D
- D. Ig G
- E. Ig M

143. Clothes of the recently disappeared citizen B were delivered into the laboratory of the medical expertise. Clothes with brown stains on it were found in the shed. What test can prove that the blood stains are human?

- A. Ring-precipitation
- B. Complement fixation
- C. Flocculation
- D. Enzyme immunoassay
- E. Agglutination

144. Bloodstains are revealed on the clothes of a person accused of a murder. What test can prove that the blood is human?

- A. Neutralization.
- B. Immunofluorescence test.
- C. Complement fixation test.
- D. Agglutination.
- E. Precipitation.

145. In a laboratory the precipitation test is used (Askoly test) for the examination of animal skins. An albescent ring formed in some minutes after adding of the skin extract to the immune serum. What does this result indicate?

- A. Presence of Bacillus anthracis antigens
- B. Presence of Clostridium perfringens toxin
- C. Presence of brucellosis causative agent
- D. Presence of Escherichia surface antigen
- E. Presence of Salmonella Vi-antigen

146. A patient with the previous diagnosis of botulism has been hospitalized. What serological reaction should be used to determine botulinum toxin in test specimens?

- A. Complement fixation test.
- B. Agglutination.
- C. Neutralization.
- D. Precipitation.
- E. Immunofluorescence test.

147. Local immunity is provided by such antibodies:

- A. Ig A
- B. Ig M
- C. Ig E
- D. Ig D
- E. Ig G

148. The meat tinned goods were examined in the bacteriological laboratory for botulinic toxin revealing. Laboratory mice were inoculated with extract of the

examined material and antitoxic anti-botulinic serum type A, B, E; control group of mice were given an extract without anti-botulinic serum. What serological test is used?

- A. Neutralization
- B. Precipitation
- C. Complement's
- D. Opsono-phagocytal
- E. Doubled immune diffusion

149. For the purpose of checking animal raw materials (skin, wool) on presence of siberia a soluble thermostable antigene in a hydrogen-salt extract from raw materials was found. What reaction is used for this purpose?

- A. Agglutination
- B. Precipitation in agar
- C. Circle-precipitation
- D. Passive hemagglutination
- E. Neutralization

150. Serologic diagnostics of infectious diseases is based on specific antigen-antibody interaction. How is the antigen sedimentation from solution reaction under the influence of immune serum in the presence of electrolyte called?

- A. Neutralization.
- B. Agglutination.
- C. Complement fixation.
- D. Hemadsorption.
- E. Precipitation

151. Serologic diagnostics of infectious diseases is based on specific antigen-antibody interaction. Name the serological reaction, during which homologic antibodies and soluble antigens interact in an agar media?

- A. Precipitation in gel
- B. Ring precipitation
- C. Complement fixation test.
- D. Agglutination.
- E. Neutralization.

152. Production of antibodies is one of the most important parts of immune response of an organism. Which type of cells actually secretes antibodies?

- A. T-lymphocytes
- B. Plasma cells.
- C. T-helpers.
- D. Macrophages.
- E. Microphages.

153. Patient was hospitalized with a diagnosis of botulism. What serologic reaction can be used for the botulinic toxin revealing in the examined material?

- A. Complement's



B. Agglutination

C. Neutralization

D. Precipitation

E. Immunofluorescence

154. Humoral immunity is one of the most important parts of immune response of an organism to many infectious diseases. What action is not peculiar for antibodies?

A. Phagocytic

B. Opsonic

C. Complement's activation by classic way

D. Neutralization

E. Activation of cytotoxicity

155. Convalescence of organism from an infectious disease is accompanied by neutralization of antigens by specific antibodies. What cells product them?

A. Bazophiles

B. Plasmocytes

C. Fibroblasts

D. Eozinophiles

E. T-lymphocytes

156. The various cells of mucosa and antimicrobial matters which are synthesized by them are important in local immunity of oral cavity. Indicate, which factors have a main in the providing of local immunity:

A. Secretory Ig

B. B-lymphocytes

C. Ig G

D. Macrophages

E. Eozinophiles

157. Qnink`s edema was developed at 40-yearred man after novocaine injection for tooth deleting. What types of antibodies take part in development of this reaction?

A. IgG1, IgG2, IgG3

B. Ig M

C. Ig A, Ig D

D. Ig E

E. IgM, IgG1

### **Reaction of agglutination**

158. For defying the level of the antidiphtherial immunity in a child it was decided to use a reaction of passive hemagglutination. What must erythrocytes be sensitized by for solving this task?

A. Hemolytic serum

- B. Diphtheritic antitoxin
- C. Antigens of the diphtherial bacilla
- D. Antidiphtherial serum
- E. Diphtherial antitoxin

159. Bacteria are phagocyted by macrophages after the organism penetration. What is the role of macrophages during the immune response in cooperation of the immunocomplement cells?

- A. Activate T-helpers
- B. Provide processing
- C. Activate B-lymphocytes
- D. Produce immunoglobulins and provide presentation of the antigen to T-helpers
- E. Provide processing and antigen presentation to T-helpers

160. Immuno-competent cells are important in human's immune system. Characterize B-lymphocytes.

- A. They are differentiated to the antibody-producers cells
- B. They are differentiated in thymus
- C. Their source is a lymphoid tissue of the intestine
- D. They provide cell immunity
- E. They are differentiated to neutrophils

161. Immuno-competent cells are important in human's immune system. Characterize T-lymphocytes.

- A. They are differentiated to neutrophils
- B. They are differentiated to plasmocytes
- C. Their source is a lymphoid tissue of the intestine
- D. They are differentiated to macrophages
- E. They provide cell immunity

162. What cells provide the immediate type of hyper-sensitive reactions?

- A. T-suppressors
- B. B-lymphocytes
- C. T-helpers
- D. T-lymphocytes of delayed type
- E. T-killers

163. T-lymphocytes produce:

- A. Beta-interferon
- B. Interleikin-1
- C. Immunoglobulins
- D. Alfa-interferon
- E. Interleikin-2

164. Specific cell immunity is mainly provided by:

- A. Immunoglobulins
- B. Phagocytes
- C. Complement

D. T-lymphocytes

E. B-lymphocytes

165. For serologic diagnostics of infectious disease patient's blood was delivered for analysis. Blood sera was dissolved by isotonic solution. Patient's serum was used for reaction in dilutions from 1:10 to 1:1280 and erythrocytes, which were sensitized by microbe antigen. What serologic reaction was used?

A. Direct agglutination

B. Precipitation

C. Passive hemagglutination

D. Coomb's

E. Opsonization

166. The pathogen was isolated from patient's organism (patient suffers from acute gastroenteritis). It must be identified by antigen structure. What serologic reaction must be used?

A. Reaction of agglutination

B. Reaction of complement's binding

C. Reaction of neutralization

D. Reaction of precipitation

E. Reaction of opsonization

167. The most important organ of human's central immune system is thymus, where some blood cells proliferate. What cells of human's immune system are differentiated in this organ?

A. Macrophages

B. Plasmocytes

C. T-lymphocytes

D. B-lymphocytes

E. Microphages

168. Effective diagnostics of the intestinal infections agents is based on antibodies to bacteria antigens revealing in indirect hemagglutination test. What standard preparation must be used in this reaction?

A. Erythrocyte diagnosticum with adsorbed antigens of bacteria

B. Antibodies against immunoglobulins of the main classes

C. Monoclonal antibodies

D. Mono-receptor diagnostic serums

E. Ram's erythrocytes and hemolytic serum

169. *Shigella sonnei* were revealed from patient's feces at bacteriological research for an intestinal infection diagnostics. What reaction was used for identifying of pure culture?

A. Reaction of lysis

B. Reaction of precipitation

C. Reaction of complement's fixation

D. Reaction of neutralization

E. Reaction of agglutination

170. The pure culture of bacteria was isolated from a pathological material. It was partially identified by morphological, tinctorial, cultural and biochemical properties. Was chosen in bacteriological laboratory of bacteria. For definitive The type-specific adsorbed agglutinative serum was chosen for final identification. What type of agglutination test should be used?

- A. Reaction of slide agglutination
- B. Reaction of agglutination (variant of Vidal)
- C. Reaction of agglutination (variant of Gruber)
- D. Reaction of hemagglutination
- E. Reaction of passive hemagglutination

171. Serological diagnostics of infectious diseases is found on specific interaction of antigens and antibodies. How reaction is called when of electrolyte's presence microorganisms are stuck together under a specific antibodies' influence?

- A. Reaction of precipitation
- B. Reaction of agglutination
- C. Reaction of complement's linkage
- D. Reaction of hemadsorption
- E. Reaction of neutralization

172. Serological diagnostics of infectious diseases is found on specific interaction of antigens and antibodies. How reaction is called when highly dispersive antigens are adsorbed on erythrocytes?

- A. Reaction of neutralization
- B. Reaction of precipitation
- C. Reaction of complement's linkage
- D. Reaction of hemadsorption
- E. Reaction of indirect (passive) hemagglutination

173. Patient's condition has lowered 2 months after a kidney's transplantation. It is known, that a reaction of transplant's alienation began. What factor of the immune system played a major role in this reaction?

- A. T-helpers
- B. Interleukin-1
- C. Natural killers (NK-killers)
- D. B-lymphocytes
- E. T-killers

174. In purpose of serologic diagnostics of infectious disease the doctor must do an indirect (passive) hemagglutination. What must be used for this reaction (except patient's serum)?

- A. Erythrocyte diagnosticum
- B. Anatoxin
- C. Interferon
- D. Diagnosed serum

E. Hemolytic serum

175. Agglutination test was used for serologic diagnostics of infectious disease. What component need to be used for this reaction except patient serum?

A. Anatoxin

B. Diagnostic serum

C. Complement

D. Hemolytic system

E. Diagnosticum

176. It is known, that plasmatic cells produce specific antibodies to antigen. What blood cells are proliferate to plasmatic cells?

A. B-lymphocytes

B. Eozinophyles

C. Neitrophyles

D. Bazophyles

E. T-lymphocytes

177. B-lymphocytes system provides the humoral immunity against majority bacterial infections. In the human organism B-lymphocytes mature in:

A. Spleen

B. Marrow

C. Liver

D. Lymphocytes

E. Thymus

### **Reaction of immune lysis (bacteriolysis, hemolysis). Reaction of complement's fixation (CFT)**

178. Serological diagnostics of infectious diseases is based on the specific interaction of antibodies with anti-genes. Name the serological reaction, which includes 5 components: an anti-gene, an antibody and complement (the first system), erythrocytes of a ram and the hemolytic serum (the second system)?

A. Reaction of complement's fixation

B. Reaction of the passive (indirect) hemagglutination

C. Reaction of precipitation

D. Reaction of passive hemagglutination

E. Reaction of neutralization

179. Complement's fixation test was used for the serological diagnostics of ornithosis. Patient's serum was not warmed up enough and it's own complement was not inactivated. The result of the reaction is negative (erythrocytes hemolysis). Why we can't pay attention to the results of the reaction?

A. Patient's complement's overflow from it's own serum provokes hemolysis

B. There is a antibodies' titer decrease because of action complement's activity

C. Complement blocks the anti-gene

- D. Complement blocks the reaction  
 E. Complement's fixation is not happening
180. What reaction requires a complement?  
 A. Agglutination  
 B. Precipitation  
 C. Hemolysis  
 D. Neutralization  
 E. Hemagglutination
181. The hemolytic serum against ram's erythrocytes is needed for work in the laboratory, where serological diagnostics of the infectious diseases are held. For what purpose it is used?  
 A. Like the component of the hemolytic system in the reaction of complement's fixation  
 B. For indirect reaction of hemagglutination  
 C. For diagnostics of baby's hemolytic disease in rhesus-conflict  
 D. For the reaction of passive hemagglutination's  
 E. For establishment of the erythrocytes' kind accessory in the medical expertise
182. A patient had delivered to the hospital with previous diagnosis "chronic gonorrhoea". What type of the double-system serological reaction can be used for specific antibodies revealing in the serum?  
 A. Agglutination  
 B. Neutralization  
 C. Complement's binding  
 D. Radio-immune analysis  
 E. Immunoenzyme analysis
183. For serological diagnostics of the syphilis with Vasserman's reaction usage the doctor-laboratorian prepared the following reactants: cardio-lipid anti-gene, alcohol extract of lipids from the bull's cardiac muscle with cholesterol, anti-gene with treponemas inactivated by the ultrasound, hemolytic system, isotonic solution of sodium chloridum, examined serum. What component must be added?  
 A. Alive treponemas  
 B. Complement  
 C. Ram's erythrocytes  
 D. Diagnostic precipitation serum  
 E. Antiglobulin serum
184. In purpose of the serological diagnostics of the infectious disease the doctor used the complement's fixation reaction. What must be used for this reaction, despite the patient's serum?  
 A. Diagnosticum, complement, hemolytic system  
 B. Diagnostic serum  
 C. Interferon  
 D. Erythrocytic diagnosticum

E. Anatoxin (toxoid)

### **Reactions with marked anti-genes and antibodies using**

185. Indirect immunofluorescence test has been used to detect toxoplasmas antibodies in the blood serum of a pregnant woman. At first, the fixed smear of toxoplasmas was processed with the investigated serum. With what should the specimen be processed at the following stage?

- A. Luminescent serum against human immunoglobulins.
- B. Fluorescent solution.
- C. Human normal immunoglobulin.
- D. Diagnostic serum containing toxoplasmas antibodies.
- E. Serum containing fluorescent-labeled toxoplasmas antibodies.

186. In case of many infectious diseases patient's serum may contain antigens of causative agents. What reaction should be used provided that the level of antigenemia is low?

- A. Solid-phase ELISA
- B. Agglutination
- C. Indirect hemagglutination
- D. Latex-agglutination
- E. Immunoelectrophoresis

187. Serologic diagnostics of infectious diseases is based on specific antigen-antibody interaction. Name the serological reaction, during which antibodies need to be marked by the fluorochromes?

- A. Reaction of complement's fixation
- B. Reaction of enzyme-marked antibodies
- C. Chain polymerase reaction
- D. Reaction of immunofluorescence
- E. Reaction of molecular hybridization

188. A patient is hospitalized with the previous diagnosis "hepatitis B". To diagnose the disease a serological reaction based on interaction of antigen and antibody, chemically linked to peroxidase or alkaline phosphatase, was carried out. Name this reaction.

- A. Immobilization
- B. Radio-immune assay
- C. Immunofluorescence test
- D. Complement fixation test
- E. Enzyme immunoassay

189. The essential drawback of the microscopy method of infection diagnostics is insufficient informativeness caused by morphologic similarity of many microorganisms. Which of the following can increase the informativeness?

- A. Coombs' test
- B. Immunofluorescence testing
- C. Enzyme immunoassay

D. Reaction of opsonization

E. Radio-immune assay

190. Recently the method of gene indication for nucleic acids fragments revealing in examined samples are used. Name this reaction.

A. Polymerase chain reaction

B. Phage titration

C. Radio-immune assay

D. Reaction of precipitation

E. Enzyme immunoassay

191. The microbiological laboratory had the task to be ready to examine a material with anthrax spores. What diagnostic preparations will allow to reveal spores quickly?

A. Luminescent anti-anthrax serum

B. Antibodies against anthrax

C. Standard antigen of anthrax

D. Enzyme-marked immunoglobulin

E. Monoclonal antibodies agent

192. The blood serum is examined for specific antibodies revealing by the solid-phase method for HIV-infection diagnostics. What type of enzyme-marked antibodies are used?

A. Against human's immunoglobulin

B. Against HIV anti-genes

C. Against gp120

D. Against gp17

E. Against gp 41

193. Immunofluorescence reaction is widely used for express-diagnostics of many bacterial and viral infections. What properties of the bacteria are studied for their identification?

A. Morphological and antigenic

B. Morphological and tinctorial

C. Antigenic and immunogenic

D. Cultural and antigenic

E. Cultural and enzymatic

194. A man referred to the reception ward of an infectious disease hospital, having received by mail an envelope with suspicious powder. The man was isolated, and the powder was sent to the laboratory for detecting the presence of anthrax causative agent's spores. Which is the fastest method of these microorganisms detecting?

A. Isolation of pure culture.

B. Complement fixation test.

C. Precipitation in gel.

D. Immunofluorescence test.

E. Neutralisation test



## **Human's immune status and methods of it's estimation. Natural and acquired states of immunodeficiency**

195. A patient with clinical symptoms of immunodeficiency with invariable quantity and functional activity of T- and B-cells is found to have a molecular level defect. This defect is accompanied by the disorder of antigen-presenting function of immunocompetent cells. Name these cells.

- A. 0-lymphocytes
- B. T-lymphocytes and B-lymphocytes
- C. NK-cells
- D. Fibroblasts, T- and B-lymphocytes
- E. Macrophages, monocytes

196. A patient with symptoms of primary immunodeficiency is found to have a defect of antigen-presenting function of immunocompetent cells. The structure defect of what cells is possible?

- A. T-lymphocytes
- B. Macrophages, monocytes
- C. B-lymphocytes
- D. Fibroblasts
- E. 0-lymphocytes

197. Immunological tests of a patient with clinical symptoms of immunodeficiency have been carried out. Significant decrease of cells, forming rosettes with sheep erythrocytes, has been revealed. What conclusion should be made on the basis of analysis data?

- A. Decrease of T-cells level
- B. Decrease of B-cells level
- C. Decrease of natural killers level (NK-cells)
- D. Decrease of complement system level
- E. Insufficiency of the effector-cells

198. An atopic dermatitis was diagnosed at patient. An allergic gene could be:

- A. Hapten, semi-hapten
- B. Antigene, hapten
- C. Any non-organic material
- D. Hapten
- E. Antigene

199. Acquired defect of immune system of a patient is diagnosed - a disorder of complement system activation by the classical pathway against the background of the sufficient content of system components. Defect of antibody production is suspected. Decrease in number of what antibodies can be expected first of all?

- A. IgM, IgG
- B. IgM, IgA

- C. IgA, IgG
- D. IgD, IgG
- E. IgE, IgG

200. The parasitogenic invasion was diagnosed at 10 year old patient B. After an immunologic examination some interrupted interrelations in different types of immunoglobulins were revealed. Increase of what classes of immunoglobulins can be dominant?

- A. Ig G, Ig A
- B. Ig M, Ig G
- C. Ig A, Ig D
- D. Ig A, Ig M
- E. Ig E, Ig M

201. The patient has problems with different aromatic materials inhaling (house dust or pet's wool). It's a periodical disease. An atopy bronchial asthma was diagnosed. The increase of Ig E was revealed. What types of reaction is it typical for?

- A. Primary immune response
- B. Secondary immune response
- C. Allergic reactions
- D. Reactions of complement's binding
- E. Bacteria neutralization

202. Inheritable angioneurotic edema is the hardest clinical sign of the complement's function disorder and is connected with the lack of:

- A. Complement's component C3
- B. Complement's component C2
- C. Complement's component C4
- D. C1 inhibitor
- E. Complement's component C5

203. During the patient's immunological examination hypogammaglobulinemia was revealed. What cells produce immunoglobulins?

- A. CD8+ cells
- B. CD4+ cells
- C. Plasmatic
- D. NK-cells
- E. T-killers

204. Immunological tests of a patient with clinical symptoms of immunodeficiency have been carried out. Significant decrease of cells, forming rosettes with sheep erythrocytes, has been revealed. What conclusion should be made on the basis of analysis data?

- A. Decrease of B-lymphocytes level
- B. Decrease of T-lymphocytes level
- C. Decrease of complement system level
- D. Decrease of natural killers (NK-cells) level

E. Total defect of the immune system

205. Due to baby's cytomegalovirus infection diagnostics, the serum of blood was diagnosed and specific G-class immunoglobulins were revealed. The same antibodies were found in mother's organism. There were no other classes of antibodies in both organisms. How can results of the reaction be explained?

A. The immune response of infected fetus

B. Fetus' transplacental infection

C. Transplacental exchange of antibodies

D. Infestation during the childbirth

E. Baby's B-system immune defect

206. The doctor suspected aplasia of thymus at the 5 monthed child with the respiratory virus infection recidivation. What defects can be in the child's immune system with the highest probability?

A. Decrease of the humoral immunity

B. Decrease of the cell immunity

C. Decrease of the complement's quantity in the serum

D. Autoimmune processes

E. Decrease of phagocytosis

207. The decrease of blood's complementary activity was revealed during immune status examination of the 1 yeared child, who often had catarrhal and intestinal infections,. Defect of what fraction of complement's system can lead to the hardest complications?

A. C1

B. C3

C. C5

D. C7

E. C9

208. Due to the data of the medico-genetic examination the newborn boy has inheritable immunodeficiency (Bruton's disease). Such patients are susceptible to purulent bacterial infections. At what age the boy's complications will appear?

A. 5 years

B. 1 year

C. 6 months

D. Right after his birth

E. In puberty

209. In 2-year old child's organism no afterbreast glands were found. This child was permanently suffering from virus and fungal infections. What stage of forming the immunocompetent cells was disturbed because of this?

A. Proliferation and macrophage differentiation

B. Proliferation of the founder cells of the red bone marrow

C. Transformation of precursor-cells into T-lymphocytes

D. Generation of the immune-memory cells

- E. Differentiation of T- and B-cells inside peripheric organs of the immune system
210. A skin transplantation was done to a patient after the combustion. Transplant was not resisted. This can be explained by the fact:
- A. An artificial immunologic tolerance was formed
  - B. Genes, that code synthesis of auto-antibodies, are not inherited
  - C. The state of immunologic imperfection came after the combustion disease
  - D. The materials of the skin cells are not the anti-genes
  - E. Natural immunologic tolerance exists
211. Morphological researches of the spleen have revealed the activization of immune reactions inside the organism. In which structures of the given organs does the antigene-dependent proliferation of T-lymphocytes begin?
- A. Central zone of the white pulp
  - B. The red pulp
  - C. Mantle zone of the white pulp
  - D. Periarterial zone of the white pulp
  - E. Marginal zone of the white pulp
212. Very often reason of acquired immunodeficiency is infectious lesion of an organism where agents directly multiply in cells of immune system and destroy them. Choose those diseases where all aforementioned takes place:
- A. Infectious mononucleosis, AIDS
  - B. Tuberculosis, mycobacteriosis
  - C. Poliomyelitis, hepatitis-A
  - D. Dysentery, cholera
  - E. Q fever, typhus
213. The woman aged 37 throughout a year periodically had infectious diseases of bacterial genesis, runtime was long, remissions were short. Hypogammaglobulinemia was revealed after the examination. What infringement of functions of cells became the occurrence reason of hypogammaglobulinemia?
- A. Macrophages
  - B. Phagocytes
  - C. Neutrophiles
  - D. Plasmatic cells
  - E. Lymphocytes
214. During his first year of life child B is having virus-bacterial infections which do not come under therapy. The absence of the lymphocytes that provide cell-immunity was discovered after an immunologic status research. What is the form of immunodeficiency and by what system it was discovered in this child?
- A. Primary immunodeficiency by the T-system
  - B. Secondary immunodeficiency, by the T-system
  - C. Primary immunodeficiency, by the B-system
  - D. Primary immunodeficiency, by the macrophage system
  - E. Primary immunodeficiency, by the microphage system

215. Quantitative methods of T-lymphocytes' finding:

- A. Antibodies
- B. RBTL to LPS
- C. E-RFC
- D. Lysozime
- E. RBTL to PHA

216. Qualitative methods of T-lymphocytes' finding:

- A. Antibodies
- B. RBTL to LPS
- C. RBTL to PHA
- D. Lysozime
- E. M-RFC

217. The interruption of the anti-gene presentation of the immunocompetent cells was revealed at the patient with clinical signs. What structures could possibly be defected?

- A. Macrophages, monocytes
- B. T-lymphocytes
- C. B-lymphocytes
- D. Fibroblasts
- E. Neutrophyles

218. The lack of immunoglobulins was revealed after diagnosing the patient. What immune-system cells product them?

- A. T-killers
- B. T-helpers
- C. T-suppressors
- D. Plasmatic
- E. Plasmablasts

### **Immune prophylactics and immune therapy of infectious diseases**

219. Vaccination is done by means of toxin that had been neutralised by a formaldehyde (0.4 %) at 37°-40°C for 4 weeks. Ramond was the first to apply this preparation for diphtheria prevention. What preparation is it?

- A. Anatoxin (toxoid)
- B. Immunoglobulin
- C. Antitoxic serum
- D. Adjuvant
- E. Killed vaccine

220. Immune diagnostic serums are used for:

- A. Serological identification
- B. Treatment of the virus infections
- C. Serological diagnostics
- D. Antitoxic therapy

E. Sepsis prophylactics

221. The patient with diphtheria needs to be inoculated urgently with the antitoxic serum. How to prevent an anaphylactic shock, if the allergic test to the serum is positive?

- A. Serum should be inoculated by Bezredko
- B. Serum cannot be inoculated
- C. Serum needs to be inoculated only intra-venously
- D. Serum needs to be inoculated only inwardly-muscular
- E. Serum needs to be inoculated with diphtheritic anatoxin

222. Which vaccine is used for tuberculosis prevention?

- A. AD
- B. CTI
- C. BCG
- D. EV
- E. Smallpox vaccine

223. Which vaccine is used for tetanus prevention?

- A. Chemical vaccine
- B. Attenuated vaccine
- C. Anatoxin
- D. Inactivated vaccine
- E. Gene engineering vaccine

224. What medications can be used for therapy of several bacterial infections?

- A. Chemical vaccines
- B. Autovaccines
- C. Anatoxins
- D. Attenuated vaccines
- E. Inactivated vaccines

225. Inactivated typhoid vaccine was checked on rabbits and shows such results: antibodies titer before immunization was 1: 5 and after immunization was 1: 5. How it is possible to explain it?

- A. Titer of antibodies considerably increases only at the secondary immune response
- B. Input of a typhoid vaccine forms the cellular immunity, instead of humoral one
- C. Presence of natural specific immunity interferes with formation of postvaccinal immunity
- D. During the course of preparation the vaccine has lost immunogenic properties
- E. It is necessary to inoculate a vaccine together with adjuvant for more active immunity formation

226. For anatoxin-vaccines preparing at first is necessary to save up exotoxin at cultivation of toxigenic bacteria in a liquid nutrient media and after that to isolate media from bacteria. Which methods of sterilisation are the best?

- A. Autoclaving
- B. Pasteurization

- C. Tindalization
- D. Filtrating
- E. Boiling

227. A horse antitoxic serum was inoculated to a 9 year old child with the hard toxic form of diphtheria. The condition of the child has improved, but in 10 days a rash on a skin, an itch, turgidities and a pain in joints were appeared and protein was revealed in urine. What are the reasons of these phenomena?

- A. Secondary infection
- B. Infectious allergy
- C. Medical allergy
- D. Anaphylactic shock
- E. Serum disease

228. Antitetanus serum was used for 27 year old man treatment which was traumatised in accident and had tetanus symptoms. The patient has started to recover, but in 2 weeks the temperature has raised to 38.5 degrees, lymph nodes have increased, tumors on joints, an urticaria rash, infringements of cardiovascular system were appeared. What are the reasons of these phenomena?

- A. Secondary infection
- B. Therapeutic shock
- C. Medical allergy
- D. Serum disease
- E. Anaphylactic shock

229. The 42 year old man with open crisis of the right anklebone had spasms of chewing and mimic muscles after special preparation inoculation. In some minutes after preparation inoculation an asthma, frequent pulse, falling of arterial pressure, breath complication were appeared. What preparation was used?

- A. Sulfanilamides
- B. Antibiotic
- C. Anatoxin
- D. Donor gammaglobulin
- E. Antitoxic serum

230. The gene of hepatitis B virus which is responsible for HBsAg creation has been integrated into genome of variolovaccine. Recombinant virus is planned to be used as a preparation for vaccination. What is the type of the vaccine?

- A. Associated
- B. Combined
- C. Gene-engineering
- D. Synthetic
- E. Chemical

231. The patient should be injected with 3000 IU antitetanus serum by Bezredko's method for tetanus prevention after a trauma. The mechanism of deallergization action of a heterologic (horse) serum is explained by:

- A. The fixation of antibodies which are in the organism with horse protein without allergic reaction
  - B. Accumulation of antibodies to horse protein after the crushed introduction of an antigen
  - C. Formation of artificial immunologic tolerances to horse protein
  - D. Formation of unsusceptibility to horse protein after immunization
  - E. Development of the immune paralysis
232. The following preparations are offered to you for a work: 1. Brucellosis skin vaccine. 2. Leptospirosis vaccine. 3. BCG vaccine. 4. Absorbed pertussis-diphtheria-tetanus vaccine APDT. 5. Absorbed tetanus anatoxin. What type of immunity will be formed?
- A. Artificial active
  - B. Infectious
  - C. Antibacterial
  - D. Artificial passive
  - E. Antitoxic
233. Agglutinative serum was prepared after a crawl immunization by bacteria with antigen structure 1, 3, 4. How to prepare a one-receptor serum against an antigen?
- A. By the reaction of immobilization
  - B. By the reaction of precipitation
  - C. By the reaction of neutralization
  - D. By the adsorption of agglutinins with the antigens 1, 4
  - E. By the reaction of opsonization
234. For human's active immunity creation many vaccines are used. What preparation is presented by live attenuated bacteria?
- A. APDT vaccine
  - B. BCG vaccine
  - C. Solk's vaccine
  - D. TABte vaccine
  - E. Vaccine against hepatitis A
235. A choke, frequent pulse, low arterial pressure were appeared in few minutes after the medication injection to a patient with tetanus. What preparation may be the reason of all this symptoms?
- A. Antitoxic serum
  - B. Sulfanilamides
  - C. Antibiotics
  - D. Anatoxins
  - E. Donor's gammaglobulin
236. The patients usually receive accurately-calculated doses of antitoxic serum. In what activity units the antitoxic antidiphtherial serum is defined?
- A. Lethal
  - B. Flocculating



- C. International
- D. Bacteriostatic
- E. Hemolytic

237. One of the serologic diagnostics criteria is the diagnostic antibodies titer increase in the pair serums. The pair serums are:

- A. The serums are taken at patient with an interval in 2-3 weeks
- B. The serums are taken at patient simultaneously
- C. The serums which are analysed parallel with a control serum
- D. Serums, one of which was got from a vein and other from arterial blood of patient
- E. The serums were got by the division of one standard serum to two parts

238. Calmet and Geren were used the special media with an unfavorable factors for vaccine strain of tuberculosis bacilla cultivation. The changes of what properties of microbes they wanted to obtain in this case?

- A. Virulent
- B. Antigenic
- C. Morphologic
- D. Tinctorial
- E. Cultural

239. The immune status of the child, which permanently has respiratory infections, must be examined. Which class of immunoglobulins near 75 % Ig at normal and immunized persons serum belong to?

- A. IgD
- B. IgA
- C. IgM
- D. IgG
- E. IgE

240. The immune state of a patient with oral cavity recidivate candidosis must be examined. Indicate, which tests must be done for immunodeficiency state examine at this disease.

- A. Phagocytosis
- B. Humoral immunity
- C. Complement
- D. Cell immunity
- E. B-lymphocytes

### **Allergy**

241. An antitoxic antidiphtherial serum was inoculated to a child with diphtheria. A rash on a skin, an itch, turgidities and a pain in joints were appeared in 10 days after injection and protein was revealed in urine. What are the reasons of these phenomena?

- A. Serum disease

- B. Anaphylactic reaction
- C. Atopy
- D. Hypersensitivity of the delayed type
- E. Contact allergy

242. Antitetanus serum was used for 27 year old man treatment which was traumatised in accident and had tetanus symptoms. The patient has started to recover, but in 2 weeks the temperature has raised to 38.5 degrees, lymph nodes have increased, tumors on joints, an urticaria rash, infringements of cardiovascular system were appeared. What are the reasons of these phenomena? How the state of the patient is called?

- A. Acute anaphylaxis
- B. Urticaria
- C. Serum disease
- D. Dysbacteriosis
- E. Quinke's edema

243. At patients with brucellosis positive Burne's skin test is observed. What factor of immune system is a main in the development of inflammatory reaction after brucellin injection to these patients?

- A. Ig A
- B. Sensitized T-lymphocytes
- C. Ig E
- D. Ig G
- E. Ig D

244. A 54-year-old woman referred to a doctor with complaints of hen's eggs intolerance, which appeared recently. Antihistamines prescribed by the doctor slightly improved the status of the patient. What antibodies could provide the development of this reaction?

- A. Ig A
- B. Ig E
- C. Ig D
- D. Ig G
- E. Ig M

245. The patient has problems with different aromatic materials inhaling (house dust or pet's wool). It's a periodical disease. An atopy bronchial asthma was diagnosed. The increase of Ig E was revealed. What types of reaction is it typical for?

- A. Delayed type of hypersensitivity
- B. Cytotoxic reactions
- C. Immune complex reactions
- D. Anaphylactic reactions
- E. Autoimmune reactions

246. The state of the patient has worsened in two months after kidney transplantation. On the basis of laboratory examine it was ascertained, that a transplant alienation reaction has begun. What factor of immune system is a main in this reaction?
- B-lymphocytes
  - Interleikin-1
  - Natural killers
  - T-killers
  - T-helpers 2
247. By means of skin allergic tests the sensibilization with allergen of poplar down was revealed at the patient with a bronchial asthma. What factor of immune system is a main in this immunopathology development?
- Ig D
  - Ig E
  - Ig A
  - Sensibilized T-lymphocytes
  - Ig A
248. A local reaction to a bee sting which has arisen in few minutes is observed at the patient M. What types of reaction is it typical for?
- Anaphylactic
  - Cytotoxic
  - Immune complex
  - Delayed type
  - Idiotype - anti-idiotype
249. A bronchospasm and the blood pressure decreasing appeared at the patient after lidocaine injection. Doctor-stomatologist has applied means of the immediate help. What mechanism underlies such phenomena?
- Idiosyncrasy
  - Allergic cytotoxic reactions
  - Allergic reaction with Ig E
  - Hyper-sensitivity, conditioned by T-lymphocytes
  - Effects, conditioned by T-killers
250. A 27- year-old woman has dropped penicillin containing eye drops. In few minutes there appeared feeling of itching, burning of the skin, lips and eyelids edema, whistling cough, decreasing of BP. What antibodies take part in the development of this allergic reaction?
- IgE and IgG
  - IgM and IgG
  - IgA and IgM
  - IgM and IgD
  - IgG and IgD
251. Tuberculine was injected intracutaneously to the child for tuberculin test. Marked hyperemia, tissue infiltration developed on the place of injection in 24 hours.

What mechanism caused these modifications?

- A. Cells cytotoxicity
- B. Reagin type cytotoxicity
- C. Antibody cytotoxicity
- D. Granuloma formation
- E. Immunocomplex cytotoxicity

252. Live vaccine is injected into the human body. Increasing activity of what cells of connective tissue can be expected?

- A. Plasmocytes and lymphocytes
- B. Macrophages and fibroblasts
- C. Pigmentocytes and pericytes.
- D. Adipocytes and adventitious cells
- E. Fibroblasts and labrocytes

### Correct answers codes

Tests №	Code	№	Code	№	Code	№	Code
1	C	38	A	75	C	112	E
2	E	39	C	76	C	113	D
3	A	40	E	77	A	114	A
4	E	41	B	78	E	115	D
5	B	42	E	79	A	116	E
6	E	43	A	80	A	117	B
7	B	44	B	81	B	118	C
8	D	45	A	82	A	119	B
9	D	46	A	83	A	120	D
10	C	47	B	84	A	121	D
11	E	48	C	85	B	122	B
12	A	49	E	86	E	123	A
13	B	50	E	87	A	124	E
14	D	51	A	88	B	125	A
15	D	52	A	89	A	126	C
16	B	53	E	90	E	127	E
17	A	54	A	91	D	128	E
18	E	55	C	92	A	129	E
19	B	56	E	93	D	130	A
20	A	57	A	94	D	131	D
21	A	58	A	95	B	132	B

22	D	59	D	96	C	133	E
23	E	60	E	97	B	134	A
24	C	61	A	98	A	135	E
25	A	62	E	99	B	136	A
26	B	63	E	100	D	137	B
27	A	64	C	101	A	138	A
28	D	65	D	102	A	139	D
29	D	66	B	103	D	140	E
30	D	67	C	104	B	141	A
31	D	68	B	105	B	142	B
32	A	69	A	106	E	143	A
33	A	70	E	107	A	144	E
34	C	71	A	108	A	145	A
35	A	72	D	109	A	146	C
36	B	73	C	110	E	147	A
37	B	74	D	111	A	148	A

№	Code	№	Code	№	Code
149	C	189	B	229	E
150	E	190	A	230	C
151	A	191	A	231	A
152	B	192	A	232	A
153	C	193	C	233	D
154	A	194	D	234	B
155	B	195	E	235	A
156	A	196	B	236	C
157	D	197	A	237	A
158	E	198	B	238	A
159	E	199	A	239	D
160	A	200	E	240	D
161	E	201	C	241	A
162	B	202	D	242	C
163	E	203	C	243	B
164	D	204	B	244	D
165	C	205	C	245	D
166	A	206	B	246	D
167	C	207	B	247	B
168	A	208	C	248	A
169	E	209	C	249	C
170	A	210	E	250	C

171	B
172	E
173	E
174	A
175	E
176	A
177	B
178	A
179	A
180	C
181	A
182	C
183	B
184	A
185	A
186	A
187	D
188	E

211	E
212	A
213	D
214	A
215	C
216	C
217	A
218	D
219	A
220	A
221	A
222	C
223	C
224	B
225	D
226	D
227	E
228	D

251	A
252	A