1. Quite often the cause of secondary immunodeficiency is an infection involvement, when the causative agents propagate directly in the cells of immune system and destroy it. The following diseases are characterized by?

a. Tuberculosis, mycobacteriosis
b. Dysentery, cholera
c. Q-febris, epidemic typhus
d. Infectious mononucleosis, AIDS
e. Poliomyelitis, type A hepatitis

2. It is planned to use the territory of an old cattle burial ground (which is not used for more than 50 years) for building houses. But ground analysis revealed presence of the pathogen of the very dangerous illness. Which of the indicated microorgonisms is likely to remain in the ground for such a long time?

a. Brucella abortus
b. Francisella tularensis
c. Bacillus anthracis
d. Yersinia pestis
e. Mycobacterium bovis

3. From the nasopharynx of a 5-year-old child it was excreted a microorganism which is identical to Corynebacterium diphtheriae according to morphological and biochemical signs.Microorganism does not produce exotoxin. As a result of what process can this microorganism become toxigenic?

a. Cultivation in the telluric environment
b. Growing with antitoxic serum
c. Chromosome mutation
d. Phage conversion
e. Passing through the organism of the sensative animals

4. A physician revealed some light-pink thin microorganisms with 12-14 regular spiral coils and pointed ends, up to 10-13 micrometer long after analysing a microslide obtained from the punctuate of a regional lymph node and stained by Romanovsky-Giemsa method. This might be the causative agent of the following disease:

a. Leishmaniasis
b. Syphilis
c. Leptospirosis
d. Trypanosomiasis
e. Relapsing fever

5. Sanitary bacteriological research on water by the membrane filter method revealed two red colonies on a membrane filter (Endo agar) through which 500 ml of analyzed water were passed. Calculate the coli index and coli titer of the analyzed water:

a. 250 and 4
b. 2 and 500
c. 4 and 250
d. 500 and 2
e. 250 and 2

6. After examining a patient an otolaryngologist noticed hyperaemia and significantly edematous tonsils with a grayish film upon them. Microscopical examination of this film revealed some gram-positive bacilli placed at an angle with each other. What disease might be suspected?

a. Meningococcal nasopharyngitis
b. Epidemic parotitis
c. Angina
d. Scarlet fever
e. Diphtheria

7. Patient with vomiting, dizziness, sensation of dubble vision, difficult swallowing was admitted to the hospital. Doctor suspects botulism. What diagnostic methods should be used for diagnosis approving?

a. Bacteriological, mycological
b. Allergic test, serological
c. Biological test, bacteriological
d. Protozoological, microscopical
e. -

8. A man who was bitten by the unknown dog applied to the surgeon. Wide ragged woundes were localised on the face. What curative-prophylactic aid should be given to prevent rabies?
a. Immediate injection of DPT(Diphtheria, Pertusis, Tetanus) vaccine
b. Prescribe combine antibiotic therapy
c. Start immunisation with rabies vaccine
d. Hospitalize the patient and keep under the doctors supervision
e. Immediately inject normal gamma globulin

9. In a patient with clinical signs of immunodeficiency the number and functional activity of T and B lymphocytes are not changed. Defect with dysfunction of antigen-presentation to the immunocompetent cells was found during investigation on the molecule level. Defect of what cells is the most probable?
a. 0-lymphocytes
b. Macrophages, monocytes
c. NK-cells
d. -
e. Fibroblasts,

10. A patient with complaints of 3-day-long fever, general weakness, loss of appetite came to visit the infectionist. The doctor suspected enteric fever. Which method of laboratory diagnosis is the best to confirm the diagnosis?
a. Detachment of urine culture
b. Detachment of pure culture
c. Detachment of myeloculture
d. Detachment of feces culture
e. Detachment of blood culture

11. A consumptive patient has an open pulmonary form of disease. Choose what sputum staining should be selected for finding out the tubercle (Kochs) bacillus?
a. Method of Burry-Gins
b. Method of Ziel-Neelsen
c. Method of Gram
d. Method of Romanowsky-Giemsa
e. Method of Neisser

12. Surgical operation of blood transfusion was made. The blood must be checked to find antigens of some disease. What disease is expected to be found?
a. Enterovirus
b. Virus of hepatitis E
c. Virus of hepatitis A
d. Adenovirus
e. Virus of hepatitis B

13. A 42-year-old man who has been injured in a car accident is brought into the emergency room. His blood alcohol level on admission is 250 mg/dL. Hospital records show a prior hospitalization for alcohol related seizures. His wife confirms that he has been drinking heavily for 3 weeks. What treatment should be provided to the patient if he goes through withdrawal?
a. None
b. Diazepam
c. Pentobarbital
d. Phenobarbital
e. Phenytoin

14. A patient who came to the doctor because of his infertility was administered to make tests for toxoplasmosis and chronic gonorrhoea. Which reaction should be performed to reveal latent toxoplasmosis and chronic gonorrhoea of the patient?

a. (R)CFT- Reiters complement fixation test
b. Immunoblot analysis
c. RIHA - Reverse indirect hemagglutination assay
d. RDHA - Reverse direct hemagglutination assay
e. IFA - Immunofluorescence assay

15. On bacteriological study of rinsing water of the patient with food poisoning, the pure bacterial culture was inoculated with the following properties: gram-negative motile bacillus in the Endo environment grows like achromic colony. Representative of what genus has caused the illness?

a. Salmonella
b. Yersinia
c. Citrobacter
d. Escherichia
e. Shigella

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

a. Indirect hemagglutination test
b. Immunofluorescence test
c. Complement- fixation test
d. Precipitation test
e. Agglutination test

17. While registering the child to the school Mantus test was made to define whether revaccination was needed. Test result is negative. What does this test result mean?

a. Presence of antibodies for tubercle bacillus
b. Absence of cell immunity to the tuberculosis
c. Absence of antibodies for tubercle bacillus
d. Presence of cell immunity to the tuberculosis
e. Absence of antitoxic immunity to the tuberculosis

18. The donor who for a long time did not donate the blood was investigated with IFA method. Anti-HBs antibodies were revealed. What does positive result of IFA in this case mean?

a. Chronic hepatitis
b. Previous hepatitis B
c. Acute hepatitis C
d. Acute hepatitis B
e. Chronic hepatitis

19. Bacteriological examination of purulent discharges from the urethra revealed gram-negative bacteria looking like coffee beans. They were localized in the leukocytes and could decompose glucose and maltose to acid. These are the causative agents of the following disease:

a. Gonorrhoea
b. Veneral lymphogranulomatosis
c. Melioidosis
d. Soft chancre
e. Syphilis

20. Scraps of the mycelium of a fungus, spores, air bubbles and fat drops were discovered on microscopy of the patients hair excluded from the infected areas. For what fungus disease is this microscopic picture characteristic?

a. Microspory
b. Epidermophytosis
c. Sporotrichosis

d. Favus
e. Trichophytosis

21. In order to speed up healing of a wound of oral mucosa a patient was prescribed a drug that is a thermostable protein occuring in tears, saliva, mothers milk as well as in a new-laid hens egg. It is known that this protein is a factor of natural resistance of an organism. What is it?
a. Interferon
b. Complement
c. Lysozyme
d. Interleukin
e. Imanine

22. Study of bacteriological sputum specimens stained by the Ziel-Neelsen method revealed some bright-red acid-resistant bacilli that were found in groups or singularly. When they were inoculated onto the nutrient media, the signs of their growth show up on the 10-15 day. These bacteria relate to the following family:
a. Klebsiella rhinoscleromatis
b. Coxiella burnettii
c. Yersinia pseudotuberculosis
d. Histoplasma dubrosii
e. Micobacterium tuberculosis

23. A man was admitted to the hospital on the 5th day of disease that manifested itself by jaundice, muscle aching, chill, nose bleedings. In course of laboratory diagnostics a bacteriologist performed dark-field microscopy of the patients blood drop. Name a causative agent of this disease:
a. Bartonella bacilloformis
b. Rickettsia mooseri
c. Borrelia dutlonii
d. Calymmatobacterium granulomatis
e. Leptospira interrogans

24. Gramnegative bin-shaped diplococcus inside and outside of leucocytes were detected on bacteriological examination of the purulent exudates from the cervix of the uterus. Name the causative agent of purulent inflammation of the cervix of the uterus
a. Trichomonas vaginalis
b. Calymmatobacterium granulomatis
c. Chlamidia trachomatis
d. Haemophilus vaginalis
e. Neisseria gonorroeae

25. Patient with diarrhoea was admitted to the infection unit. Gramnegative curved rod-like bacteria were founded on bacterioscopic examination of faecal masses. What is the most likely disease in this patient?
a. Intestinal form of plague
b. Cholera
c. Salmonellosis gastroenteritis
d. Typhoid fever
e. Diphtheria

26. In a 2-year-old child with catarrhal presentations and skin rash a pediatrician suspected scarlet fever. The child was given intracutaneously a small dose of serum antibody to the streptococcal erythrogenic toxin; on the site of injection the rash disappeared. What do the reaction results mean?
a. The clinical diagnosis was confirmed
b. The disease wasnt caused by haemolytic streptococcus
c. The child has very weak immune system
d. The whole serum dose may be injected intravenously
e. The child has hypersensitivity to the erythrogenic toxin

27. From the defecation of a 6-year-old ill child, who has artificial feeding, the intestinal bacillus with antigen structure 0-111 is excreted. What is the diagnosis?

a. Cholera-like diseasis
b. Gastroenteritis
c. Coli-enteritis
d. Food poisoning
e. Disentery-like diseasis

28. For serological diagnostics of the whooping cough it was made large-scale reaction with parapertussis and pertussis diagnosticums. At the bottom of the test-tubes with diagnosticum of Bordetella parapertussis grain-like sediment formed. What antibodies have this reaction revealed?

a. Opsonins
b. Precipitins
c. Agglutinins
d. Bacteriolysins
e. Antitoxins

29. A man died from an acute infectious disease accompanied by fever, jaundice, haemorrhagic rash on the skin and mucous membranes as well as by acute renal insufficiency. Histological examination of renal tissue (stained by Romanovsky-Giemsa method) revealed some convoluted bacteria looking like C und S letters. What bacteria were revealed?

a. Leptospira
b. Spirilla
c. Campilobacteria
d. Borrelia
e. Treponema

30. A 16 y.o. boy from a countryside entered an educational establishment. Scheduled Manteux test revealed that the boy had negative reaction. What are the most reasonable actions in this case?

a. To repeat the reaction in a month
b. To isolate the boy temporarily from his mates
c. To perform rapid Price diagnostics
d. To perform BCG vaccination
e. To perform serodiagnostics of tuberculosis

31. Examination of a patient with pustular skin lesions allowed to isolate a causative agent that forms in the blood agar roundish yellow middle-sized colonies surrounded by haemolysis zone. Smears from the colonies contain irregular-shaped clusters of gram-positive cocci. The culture is oxidase- and catalase-positive, ferments mannitol and synthesizes plasmocoagulase. What causative agent was isolated?

a. Staphylococcus saprophyticus
b. Staphylococcus aureus
c. Streptococcus pyogenes
d. Streptococcus agalactiae
e. Staphylococcus epidermidis

32. Microscopic examination of a Gram-stained scrape from patients tongue revealed oval, round, elongated chains of dark-violet gemmating cells. What disease can be caused by this causative agent?

a. Actinomycosis
b. Staphylococcic infection
c. Diphtheria
d. Candidosis
e. Streptococcic infection

33. From pharynx of a child with suspected diphtheria a pure culture of microorganisms was isolated. Their morphological, tinctorial, cultural and biochemical properties appeared to be typical for diphtheria causative agents. What study should be conducted in order to draw a conclusion that this

is a pathogenic diphtheria bacillus?

a. Estimation of urease activity
b. Estimation of proteolytic properties
c. Estimation of toxigenic properties
d. Estimation of cystinous activity
e. Estimation of ability to decompose starch

34. Examination of a child revealed some whitish spots looking like coagulated milk on the mucous membrane of his cheeks and tongue. Analysis of smears revealed gram-positive oval yeast-like cells. What causative agents are they?

a. Candida
b. Diphtheria bacillus
c. Fusobacteria
d. Actinomycetes
e. Staphylococci

35. A duodenal content smear of a patient with indigestion contains protosoa 10-18 mm large. They have piriform bodies, 4 pairs of filaments, two symmetrically located nuclei in the broadened part of body. What kind of the lowest organisms are they?

a. Dysentery ameba
b. Intestinal ameba
c. Balantidium
d. Lamblia
e. Trichomonas

36. Blood of a patient with presumable sepsis was inoculated into sugar broth. Bottom sediment appeared there. Repeated inoculation into blood agar caused growth of small transparent round colonies surrounded by hemolysis zone. Examination of a smear from the sediment revealed gram-positive cocci in form of long chains. What microorganisms are present in blood of this patient?

a. Tetracocci
b. Sarcina
c. Micrococci
d. Staphylococci
e. Streptococci

37. Results of bacteriological tests of the defecation of a 4-months-old baby with the symptoms of acute bowel infection showed red colonies spread in the large quantity in the Endo environment. What microorganism can it be?

a. Streptococcus
b. Shigella
c. Salmonella
d. Staphylococcus
e. Escherichia

38. Bacteriological examination of a patient with food poisoning required inoculation of a pure culture of bacteria with the following properties: gram-negative movable bacillus that grows in the Endos medium in form of colourless colonies. A representative of which species caused this disease?

a. Iersinia
b. Shigella
c. Salmonella
d. Esherichia
e. Citrobacter

39. Examination of a young man in the AIDS centre showed a positive result of immune-enzyme assay with HIV antigens. Patient did not complain on state of his health. What can the positive result of immune-enzyme assay be evidence of?

a. HBV persistence
b. HIV infection

c. Being infected with HBV
d. Being ill with AIDS
e. Having had AIDS recently

40. Microscopy of stained (Ziehl-Neelsen staining) smears taken from the sputum of a patient with chronic pulmonary disease revealed red bacilli. What property of tuberculous bacillus was shown up?
a. Capsule formation
b. Sporification
c. Alkali resistance
d. Alcohol resistance
e. Acid resistance

41. Reaction of passive hemagglutination conducted with erythrocytic typhoid Vi-diagnosticum helped to reveal some antibodies in the dilution of the patients serum at a ratio of 1:80 that exceeds the diagnostic titer. Such result witnesses of:
a. Being ill with acute typhoid fever
b. Incubation period of typhoid fever
c. Reconvalescence of a patient ill with typhoid fever
d. Being a potential carrier of typhoid bacilli
e. Typhoid fever recurrence

42. In order to determine toxigenicity of diphtheria bacilli a strip of filter paper impregnated with antitoxic diphtherial serum was put on the dense nutrient medium. There were also inoculated a studied microbal culture and a strain that is known to be toxigenic. If the microbal culture under examination produces exotoxin, it will result in formation of:
a. Zones of diffuse opacification
b. Haemolysis zones
c. Precipitin lines
d. Zones of lecithovitellinous activity
e. Precipitin ring

43. A 50-year-old patient with typhoid fever was treated with Levomycetin, the next day his condition became worse, temperature rised to 39,6 C. What caused the complication?
a. Irresponsiveness of an agent to the levomycetin
b. Allergic reaction
c. The effect of endotoxin agent
d. Secondary infection addition
e. Reinfection

44. In order to estimate toxigenity of diphtheria agents obtained from patients the cultures were inoculated on Petri dish with nutrient agar on either side of a filter paper strip that was put into the centre and moistened with antidiphtheric antitoxic serum. After incubation of inoculations in agar the strip-like areas of medium turbidity were found between separate cultures and the strip of filter paper. What immunological reaction was conducted?
a. Coombs test
b. Rings precipitation reaction
c. Opsonization reaction
d. Precipitation gel reaction
e. Agglutination reaction

45. A patient with clinical signs of encephalitis was delivered to the infectious diseases hospital. Anamnesis registers a tick bite. Hemagglutination-inhibition reaction helped to reveal antibodies to the causative agent of tick-borne encephalitis in the dilution 1:20 which is not diagnostic. What actions should the doctor take after he had got such result?
a. To apply more sensitive reaction
b. To examine the same serum
c. To repeat the examination with serum taken 10 days later
d. To repeat examination with another diagnosticum

e. To deny diagnosis of tick-borne encephalitis

46. The first grade pupils were examined in order to sort out children for tuberculosis revaccination. What test was applied for this purpose?

a. Mantoux test
b. Supracutaneous tularin test
c. Anthraxine test
d. Burnet test
e. Schick test

47. Clinical diagnosis of a female patient was gonorrhoea. What examination method can be applied for confirmation of this diagnosis?

a. Microscopy of pathological material
b. Test with bacteriophage
c. Immobilization reaction
d. Hemagglutination reaction
e. Infection of laboratory animals

48. A patient suffering from periodical attacks caused by inhalation of different flavoring substances was diagnosed with atopic bronchial asthma. IgE level was increased. This is typical for the following type of reactions:

a. Cytotoxic reactions
b. Delayed-type hypersensitivity
c. Autoimmune reactions
d. Anaphylactic reactions
e. Immunocomplex reactions

49. Bacteriological laboratory examines canned meat whether it contains botulinum toxin. For this purpose an extract of test specimen and antitoxic antibotulinic serum of A, B, E types were introducted to a group of mice under examination; a control group of mice got the extract without antibotulinic serum. What serological reaction was applied?

a. Opsono-phagocytic
b. Double immune diffusion
c. Precipitation
d. Complement binding
e. Neutralization

50. For the purpose of retrtospective diagnostics of recent bacterial dysentery it was decided to perform serological examination of blood serum in order to determine antibody titer towards Shiga bacilli. What of the following reactions should be applied?

a. Passive hemagglutination
b. Precipitation
c. Bacteriolysis
d. Hemolysis
e. Bordet-Gengou test

51. During the repeated Widals agglutination test it was noticed that the ratio of antibody titers and O-antigens S.typhi in the patients serum had increased from 1:100 to 1:400. How would you interpret these results?

a. The patient is a chronic carrier of typhoid microbs
b. The patient is an acute carrier of typhoid microbes
c. The patient has typhoid fever
d. The patient previously had typhoid fever
e. The patient was previously vaccinated against typhoid fever

52. A patient recovered from Sonne dysentery and was once more infected with the same causative agent. How is such infection form called?

a. Reinfection

b. Superinfection
c. Chronic infection
d. Persisting infection
e. Recidivation

53. A 10-year-old child had been administered the mantoux tuberculin test. 48 hours later a papule up to 8 mm in diameter appeared on the site of the injection. What type of hypersensitivity reaction developed after the tuberculin injection?

a. Type IV hypersensitivity reaction
b. Seroreaction
c. Type II hypersensitivity reaction
d. Atopic reaction
e. Arthus phenomenon

54. A patient with clinical presentations of immunodeficiency went through immunological examinations. They revealed significant loss of cells that form rosettes with erythrocytes of a ram. What conclusion can be made according to the analysis data?

a. Insufficiency of effector cells of humoral immunity
b. Decrease of T-lymphocytes rate
c. Decrease of natural killer cell rate
d. Decrease of B-lymphocytes rate
e. Decrease of complement system rate

55. As a result of durative antibiotic therapy a 37-year old patient developed intestinal dysbacteriosis. What type of drugs should be used in order to normalize intestinal microflora?

a. Bacteriophages
b. Sulfanilamides
c. Eubiotics
d. Autovaccines
e. Vitamins

56. Among junior children of an orphanage an outbreak of intestinal infection with signs of colienteritis was registered. In order to identify isolated causative agent it is necessary to:

a. To study sensitivity to bacteriophages
b. To determine sensitivity to antibiotics
c. Study antigenic properties of the causative agent
d. To study biochemical properties of the causative agent
e. To study virulence of the causative agent

57. Urine examination of a patient with acute cystitis revealed leukocytes and a lot of gram-negative bacilli. Inoculation resulted in growth of colonies of mucous nature that formed green soluble pigment. What microorganism is the most probable cause of the disease?

a. Escherihia coli
b. Proteus mirabilis
c. Salmonella enteritidis
d. Pseudomonas aeruginosa
e. Klebsiella pneumoniae

58. A laboratory received a material from a patients wound. Preliminary diagnosis is gaseous gangrene. What microbiological method should be applied to determine species of causative agent?

a. Serological
b. RIA
c. Allergic
d. Bacterioscopic
e. Bacteriological

59. A virological laboratory obtained pathological material (mucous discharges from nasal meatuses) taken from a patient with provisional diagnosis "influenza". What quick test will allow to reveal

specific viral antigen in the analysed material?

a. Hemagglutination inhibition assay
b. Direct and indirect fluorescence immunoassay
c. Direct and indirect immunofluorescence test
d. Radioimmunoassay
e. -

60. In the surgical department of a hospital there was an outbreak of hospital infection that showed itself in often postoperative wound abscesses. Bacteriological examination of pus revealed aurococcus. What examination shall be conducted to find out the source of this causative agent among the department personnel?

a. Estimation of antibiotic susceptibility
b. Biochemical identification
c. Microscopical examination
d. Serological identification
e. Phagotyping

61. A 7 year old child often suffers from streprococcic angina. Doctor suspected development of rheumatism and administered serological examination. The provisional diagnosis will be most probably confirmed by presence of antibodies to the following streptococcic antigen:

a. C-carbohydrate
b. Erythrogenic toxin
c. Capsular polysaccharide
d. O-streptolysin
e. M-protein

62. A culture of monkey cells (Vero) and a group of mouse sucklings were infected with an inoculum taken from a child with provisional diagnosis enterovirus infection. There was no cytopathic effect on the cell culture but mouse sucklings died. What enteric viruses might have caused disease of this child?

a. Polioviruses
b. Unclassified enteric viruses 68-71
c. Coxsackie B
d. ECHO virus
e. Coxsackie A

63. A patient has been suffering from elevated temperature and attacks of typical cough for 10 days. Doctor administered inoculation of mucus from the patients nasopharynx on the agar. What microorganism is presumed?

a. Staphylococcus
b. Pertussis bacillus
c. Listeria
d. Pfeiffers bacillus
e. Klebsiella

64. A patient of surgical department complains about pain in the small of her back and in the lower part of her belly; painful and frequent urination. Bacteriological examination of urine revealed gram-negative oxidase-positive rod-like bacteria forming greenish mucoid colonies with specific smell. What causative agent can it be?

a. Pseudomonas aeruginosa
b. E.coli
c. Mycoplasma pneumonie
d. Str.pyogenes
e. Proteus mirabilis

65. A female patient underwent liver transplantation. 1,5 month after it her condition became worse because of reaction of transplant rejection. What factor of immune system plays the leading part in this reaction?

a. Natural killers
b. Interleukin-1
c. T-killers
d. B-lymphocytes
e. T-helpers

66. Microscopical examination of a microbal culture revealed fusiform spore-forming microorganisms that get violet-blue Grams stain. What microorganisms were revealed?
a. Clostridia
b. Spirochaete
c. Diplococci
d. Actinomycete
e. Streptococci

67. A specimen stained by Ozheshko method contains rod-like microorganisms stained blue with round terminal components stained red. What are these components called?
a. Mesosomas
b. Spores
c. Flagella
d. Cilia
e. Capsules

68. During the regular sanitary-epidemiological inspection of a pharmacy, the bacteriological analysis of air was performed. Bacilli, yeast fungi, hemolytic streptococci, micrococci were found in the air. Which of the detected microorganisms indicate the direct epidemic danger?
a. -
b. Haemolytic streptococci
c. Bacilli
d. Micrococci
e. Yeast fungi

69. A bacteriological laboratory received sputum sample of a patient suffering from tuberculosis. Bacterioscopic examination of smears and detection of tuberculosis bacillus can be realized by one of enrichment methods that involves processing of sputum only with solution of caustic soda. How is this method called?
a. Filtration
b. Neutralization
c. Inactivation
d. Flotation
e. Homogenization

70. A pregnant woman was registered in an antenatal clinic and underwent complex examination for a number of infections. Blood serum contained IgM to the rubella virus. What is this result indicative of?
a. Of exacerbation of a chronic disease
b. Of recurring infection with rubella virus
c. Of a chronic process
d. The woman is healthy
e. Of primary infection

71. A 65-year-old man has purulent abscess on his neck. Analyses revealed a culture of gram-positive cocci with plasmocoagulase activity. This culture relates most likely to:
a. Staphylococcus aureus
b. Staphylococcus epidermidis
c. -
d. Staphylococcus saprophyticus
e. Streptococcus pyogenes

72. Material taken from a patient with provisional diagnosis of influenza was referred to a laboratory. For virological examination the hemadsorption reaction was applied. This reaction can be applied for detection of the following viruses:

a. Any viruses

b. Viruses containing hemagglutinins

c. All the complex viruses

d. All the simple viruses

e. DNA-genomic viruses

73. Inoculum from pharynx of a patient with angina was inoculated into blood-tellurite agar. It resulted in growth of grey, radially striated (in form of rosettes) colonies 4-5 mm in diameter. Gram-positive bacilli with clublike thickenings on their ends placed in form of spread wide apart fingers are visible by microscope. What microorganisms are there?

a. Diphtheroids

b. Botulism clostridia

c. Diphtheria corynebacteria

d. Streptococci

e. Streptobacilli

74. During examination of a patient a dentist revealed a lot of white spots - zones of enamel demineralization. What microorganisms take part in the development of this process?

a. Staphylococcus epidermidis

b. Streptococcus mutans

c. Streptococcus pyogenes

d. Streptococcus salivarius

e. Veilonella parvula

75. Planned mass vaccination of all newborn 5-7 day old children against tuberulosis plays an important role in tuberculosis prevention. In this case the following vaccine is applied:

a. Adsorbed diphtheria vaccine

b. -

c. Diphteria and tetanus toxoids and pertussis vaccine

d. Diphtheria and tetanus anatoxin vaccine

e. BCG

76. Quite often the cause of secondary immunodeficiency is an infection involvement, when the causative agents propagate directly in the cells of immune system and destroy it. The following diseases are characterized by:

a. Infectious mononucleosis, AIDS

b. Poliomyelitis, type A hepatitis

c. Q-febris, epidemic typhus

d. Dysentery, cholera

e. Tuberculosis, mycobacteriosis

77. From the nasopharynx of a 5-year-old child it was excreted amicroorganism which is identical to Corynebacterium diphtheriae dose according to morphological and biochemical signs.Microorganism does not produce exotoxin. As a result of what process can this microorganism become toxigenic?

a. Chromosome mutation

b. Phage conversion

c. Passing through the organism of the sensative animals

d. Cultivation in the telluric environment

e. Growing with antitoxic serum

78. While studying a microslide obtained from the punctuate of a regional lymph node and stained by Romanovsky-Giemsa method a physician revealed some light-pink thin microorganisms with 12-14 regular spiral coils and pointed ends, up to 10-13 micrometer long. This might be the causative agent of the following disease:

a. Trypanosomiasis

b. Relapsing fever
c. Leishmaniasis
d. Syphilis
e. Leptospirosis

79. Sanitary bacteriological research on water by the membrane filter method revealed two red colonies on a membrane filter (Endo agar) through which 500 ml of analyzed water were passed. Calculate the coli index and coli titer of the analyzed water:
a. 4 and 250
b. 250 and 4
c. 250 and 2
d. 500 and 2
e. 2 and 500

80. While examining a patient an otolaryngologist noticed hyperaemia and significantly edematous tonsils with a grayish film upon them. Microscopical examination of this film revealed some gram-positive bacilli placed at an angle with each other. What disease might be suspected?
a. Angina
b. Meningococcal nasopharyngitis
c. Epidemic parotitis
d. Diphtheria
e. Scarlet fever

81. Patient with vomiting, dizziness, sensation of dubble vision, difficult swallowing was admitted to the hospital. Doctor suspects botulism. What diagnostic methods should be used for diagnosis approving?
a. Biological test, bacteriological
b. Bacteriological, mycological
c. -
d. Protozoological, microscopical
e. Allergic test, serological

82. In a patient with clinical signs of immunodeficiency the number and functional activity of T and B lymphocytes are not changed. Defect with dysfunction of antigen-presentation to the immunocompetent cells was found during investigation on the molecule level. Defect of what cells is the most probable?
a. Macrophages, monocytes
b. NK-cells
c. 0-lymphocytes
d. Fibroblasts, T-lymphocytes, B-lymphocytes
e. T-lymphocytes, B-lymphocytes

83. A patient with complaints of 3-day-long fever, general weakness, loss of appetite came to visit the infectionist. The doctor suspected enteric fever. Which method of laboratory diagnosis is the best to confirm the diagnosis?
a. Detachment of feces culture
b. Detachment of myeloculture
c. Detachment of blood culture
d. Detachment of urine culture
e. Detachment of pure culture

84. A consumptive patient has an open pulmonary form of disease. Choose what sputum staining should be selected for finding out the tubercle (Kochs) bacillus?
a. Method of Romanowsky-Giemsa
b. Method of Neisser
c. Method of Burry-Gins
d. Method of Ziel-Neelsen
e. Method of Gram

85. During surgical operation a blood transfusion was made. The blood must be checked to find antigens of some disease. What disease is expected to be found?

a. Enterovirus
b. Virus of hepatitis E
c. Virus of hepatitis A
d. Adenovirus
e. Virus of hepatitis B

86. A 42-year-old man who has been injured in a car accident is brought into the emergency room. His blood alcohol level on admission is 250 mg/dL. Hospital records show a prior hospitalization for alcohol related seizures. His wife confirms that he has been drinking heavily for 3 weeks. What treatment should be provided to the patient if he goes into withdrawal?

a. Phenytoin
b. None
c. Phenobarbital
d. Pentobarbital
e. Diazepam

87. A patient who came to the doctor because of his infertility was administered to make tests for toxoplasmosis and chronic gonorrhoea. Which reaction should be performed to reveal latent toxoplasmosis and chronic gonorrhoea of the patient?

a. RDHA - Reverse direct hemagglutination assay
b. RIHA - Reverse indirect hemagglutination assay
c. IFA - Immunofluorescence assay
d. Immunoblot analysis
e. (R)CFT- Reiters complement fixation test

88. On bacteriological study of rinsing water of the patient with food poisoning, the pure bacterial culture was inoculated with the following properties: gram-negative motile bacillus in the Endo environment grows like achromic colony. Representative of what genus has caused the illness?

a. Shigella
b. Escherichia
c. Citrobacter
d. Salmonella
e. Yersinia

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

a. Indirect hemagglutination test
b. Immunofluorescence test
c. Complement- fixation test
d. Precipitation test
e. Agglutination test

90. While registering the child to the school Mantus test was made to define whether revaccination was needed test result is negative. What does this result of the test mean?

a. Presence of antibodies for tubercle bacillus
b. Absence of cell immunity to the tuberculosis
c. Absence of antibodies for tubercle bacillus
d. Presence of cell immunity to the tuberculosis
e. Absence of antitoxic immunity to the tuberculosis

91. The donor who for a long time didnt donate the blood was investigated with IFA method. Anti-HBs antibodies were revealed. What does positive result of IFA in this case mean?

a. Acute hepatitis B
b. Chronic hepatitis B
c. Chronic hepatitis C

d. Previous hepatitis B
e. Acute hepatitis C

92. Bacteriological examination of purulent discharges from the urethra revealed gram-negative bacteria looking like coffee beans. They were localized in the leukocytes and could decompose glucose and maltose to acid. These are the causative agents of the following disease:
a. Melioidosis
b. Gonorrhoea
c. Veneral lymphogranulomatosis
d. Syphilis
e. Soft chancre

93. Scraps of the mycelium of a fungus, spores, air bubbles and fat drops were discovered on microscopy of the patients hair excluded from the infected areas. For what fungus disease is this microscopic picture characteristic?
a. Epidermophytosis
b. Sporotrichosis
c. Microspory
d. Trichophytosis
e. Favus

94. In order to speed up healing of a wound of oral mucosa a patient was prescribed a drug that is a thermostable protein occuring in tears, saliva, mothers milk as well as in a new-laid hens egg. It is known that this protein is a factor of natural resistance of an organism. What is it called?
a. Lysozyme
b. Interferon
c. Imanine
d. Interleukin
e. Complement

95. Study of bacteriological sputum specimens stained by the Ziel-Neelsen method revealed some bright-red acid-resistant bacilli that were found in groups or singularly. When inoculated onto the nutrient media, the signs of their growth show up on the 10-15 day. These bacteria relate to the following family:
a. Histoplasma dubrosii
b. Yersinia pseudotuberculosis
c. Micobacterium tuberculosis
d. Klebsiella rhinoscleromatis
e. Coxiella burnettii

96. A man was admitted to the hospital on the 5th day of disease that manifested itself by jaundice, muscle aching, chill, nose bleedings. In course of laboratory diagnostics a bacteriologist performed dark-field microscopy of the patients blood drop. Name a causative agent of this disease:
a. Borrelia dutlonii
b. Bartonella bacilloformis
c. Rickettsia mooseri
d. Leptospira interrogans
e. Calymmatobacterium granulomatis

97. Gramnegative bin-shaped diplococcus inside and outside of leucocytes were detected on bacteriological examination of the purulent exudates from the cervix of the uterus. Name the causative agent of purulent inflammation of the cervix of the uterus
a. Calymmatobacterium granulomatis
b. Neisseria gonorroeae
c. Haemophilus vaginalis
d. Chlamidia trachomatis
e. Trichomonas vaginalis

98. Patient with diarrhoea was admitted to the infection unit. Gramnegative curved rod-like bacteria were founded on bacterioscopic examination of faecal masses. What is the most likely disease in this patient?

a. Salmonellosis gastroenteritis
b. Typhoid fever
c. Cholera
d. Diphtheria
e. Intestinal form of plague

99. In a 2-year-old child with catarrhal presentations and skin rash a pediatrician suspected scarlet fever. The child was given intracutaneously a small dose of serum antibody to the streptococcal erythrogenic toxin; on the site of injection the rash disappeared. What do the reaction results mean?

a. The child has hypersensitivity to the erythrogenic toxin
b. The whole serum dose may be injected intravenously
c. The child has very weak immune system
d. The clinical diagnosis was confirmed
e. The disease wasnt caused by haemolytic streptococcus

100. From the defecation of a 6-year-old ill child, who has artificial feeding, the intestinal bacillus with antigen structure 0-111 is excreted. What is the diagnosis?

a. Coli-enteritis
b. Cholera-like diseasis
c. Disentery-like diseasis
d. Food poisoning
e. Gastroenteritis

101. A man died from an acute infectious disease accompanied by fever, jaundice, haemorrhagic rash on the skin and mucous membranes as well as by acute renal insufficiency. Histological examination of renal tissue (stained by Romanovsky-Giemsa method) revealed some convoluted bacteria looking like C und S letters. What bacteria were revealed?

a. Treponema
b. Borrelia
c. Campilobacteria
d. Leptospira
e. Spirilla

102. A 16 y.o. boy from a countryside entered an educational establishment. Scheduled Manteux test revealed that the boy had negative reaction. What are the most reasonable actions in this case?

a. To isolate the boy temporarily from his mates
b. To perform rapid Price diagnostics
c. To repeat the reaction in a month
d. To perform serodiagnostics of tuberculosis
e. To perform BCG vaccination

103. Microscopic examination of a Gram-stained scrape from patients tongue revealed oval, round, elongated chains of dark-violet gemmating cells. What disease can be caused by this causative agent?

a. Candidosis
b. Streptococcic infection
c. Diphtheria
d. Staphylococcic infection
e. Actinomycosis

104. From pharynx of a child with suspected diphtheria a pure culture of microorganisms was isolated. Their morphological, tinctorial, cultural and biochemical properties appeared to be typical for diphtheria causative agents. What study should be conducted in order to drow a conclusion that this is a pathogenic diphtheria bacillus?

a. Estimation of ability to decompose starch

b. Estimation of toxigenic properties
c. Estimation of urease activity
d. Estimation of proteolytic properties
e. Estimation of cystinous activity

105. Examination of a child revealed some whitish spots looking like coagulated milk on the mucous membrane of his cheeks and tongue. Analysis of smears revealed gram-positive oval yeast-like cells. What causative agents are they?
a. Actinomycetes
b. Fusobacteria
c. Staphylococci
d. Diphtheria bacillus
e. Candida

106. A duodenal content smear of a patient with indigestion contains protosoa 10-18 mcm large. They have piriform bodies, 4 pairs of filaments, two symmetrically located nuclei in the broadened part of body. What kind of the lowest organisms is it?
a. Intestinal ameba
b. Balantidium
c. Dysentery ameba
d. Trichomonas
e. Lamblia

107. Blood of a patient with presumable sepsis was inoculated into sugar broth. There appeared bottom sediment. Repeated inoculation into blood agar caused growth of small transparent round colonies surrounded by hemolysis zone. Examination of a smear from the sediment revealed gram-positive cocci in form of long chains. What microorganisms are present in blood of this patient?
a. Micrococci
b. Tetracocci
c. Sarcina
d. Streptococci
e. Staphylococci

108. On bacteriological examination of the defecation of a 4-months-old baby with the symptoms of acute bowel infection there were revealed red colonies spread in the large quantity in the Endo environment. What microorganism can it be?
a. Escherichia
b. Staphylococcus
c. Shigell
d. Streptococcus
e. Salmonella

109. Examination of a young man in the AIDS centre produced a positive result of immune-enzyme assay with HIV antigens. Patients complaints about state of his health were absent. What can the positive result of immune-enzyme assay be evidence of?
a. HIV infection
b. Being infected with HBV
c. HBV persistence
d. Having had AIDS recently
e. Being ill with AIDS

110. Microscopy of stained (Ziehl-Neelsen staining) smears taken from the sputum of a patient with chronic pulmonary disease revealed red bacilli. What property of tuberculous bacillus was shown up?
a. Sporification
b. Acid resistance
c. Alcohol resistance
d. Alkali resistance
e. Capsule formation

111. Reaction of passive hemagglutination conducted with erythrocytic typhoid Vi-diagnosticum helped to reveal some antibodies in the dilution of the patients serum at a ratio of 1:80 that exceeds the diagnostic titer. Such result witnesses of:

a. Typhoid fever recurrence
b. Being ill with acute typhoid fever
c. Being a potential carrier of typhoid bacilli
d. Incubation period of typhoid fever
e. Reconvalescence of a patient ill with typhoid fever

112. In order to determine toxigenicity of diphtheria bacilli a strip of filter paper impregnated with antitoxic diphtherial serum was put on the dense nutrient medium. There were also inoculated a microbal culture under examination and a strain that is known to be toxigenic. If the microbal culture under examination produces exotoxin, this wil result in formation of:

a. Precipitin ring
b. Precipitin lines
c. Zones of diffuse opacification
d. Haemolysis zones
e. Zones of lecithovitellinous activity

113. A 50-year-old patient with typhoid fever was treated with Levomycetin, the next day his condition became worse, temperature rised to 39,60C. What caused worthening?

a. Irresponsiveness of an agent to the levomycetin
b. Allergic reaction
c. The effect of endotoxin agent
d. Secondary infection addition
e. Reinfection

114. In order to estimate toxigenity of diphtheria agents obtained from patients the cultures were inoculated on Petri dish with nutrient agar on either side of a filter paper strip that was put into the centre and moistened with antidiphtheric antitoxic serum. After incubation of inoculations in agar the strip-like areas of medium turbidity were found between separate cultures and the strip of filter paper. What immunological reaction was conducted?

a. Opsonization reaction
b. Precipitation gel reaction
c. Agglutination reaction
d. Coombs test
e. Rings precipitation reaction

115. The first grade pupils were examined in order to sort out children for tuberculosis revaccination. What test was applied for this purpose?

a. Burnet test
b. Anthraxine test
c. Schick test
d. Supracutaneous tularin test
e. Mantoux test

116. Clinical diagnosis of a female patient was gonorrhoea. What examination method can be applied for confirmation of this diagnosis?

a. Hemagglutination reaction
b. Immobilization reaction
c. Infection of laboratory animals
d. Test with bacteriophage
e. Microscopy of pathological material

117. A patient suffering from periodical attacks caused by inhalation of different flavoring substances was diagnosed with atopic bronchial asthma. IgE level was increased. This is typical for the following type of reactions:

a. Cytotoxic reactions

b. delayed-type hypersensitivity
c. Autoimmune reactions
d. Anaphylactic reactions
e. Immunocomplex reactions

118. Bacteriological laboratory examines canned meat whether it contains botulinum toxin. For this purpose an extract of test specimen and antitoxic antibotulinic serum of A, B, E types were introducted to a group of mice under examination; a control group of mice got the extract without antibotulinic serum. What serological reaction was applied?
a. Precipitation
b. Opsono-phagocytic
c. Double immune diffusion
d. Neutralization
e. Complement binding

119. For the purpose of retrtospective diagnostics of recent bacterial dysentery it was decided to perform serological examination of blood serum in order to determine antibody titer towards Shiga bacilli. What of the following reactions should be applied?
a. Bacteriolysis
b. Passive hemagglutination
c. Precipitation
d. Bordet-Gengou test
e. Hemolysis

120. During the repeated Widals agglutination test it was noticed that the ratio of antibody titers and O-antigens S.typhi in the patients serum had increased from 1:100 to 1:400. How would you interpret these results?
a. The patient is an acute carrier of typhoid microbes
b. The patient previously had typhoid fever
c. The patient was previously vaccinated against typhoid fever
d. The patient has typhoid fever
e. The patient is a chronic carrier of typhoid microbs

121. A patient recovered from Sonne dysentery and was once more infected with the same causative agent. What is such infection form called?
a. Chronic infection
b. Reinfection
c. Superinfection
d. Recidivation
e. Persisting infection

122. A 10-year-old child had the mantoux tuberculin test administered. 48 hours later a papule up to 8 mm in diameter appeared on the site of the injection. What type of hypersensitivity reaction developed after the tuberculin injection?
a. Type IV hypersensitivity reaction
b. Seroreaction
c. Type II hypersensitivity reaction
d. Atopic reaction
e. Arthus phenomenon

123. A patient with clinical presentations of immunodeficiency went through immunological examinations. They revealed significant loss of cells that form rosettes with erythrocytes of a ram. What conclusion can be made according to the analysis data?
a. Decrease of natural killer cell rate
b. Decrease of B-lymphocytes rate
c. Decrease of T-lymphocytes rate
d. Decrease of complement system rate
e. Insufficiency of effector cells of humoral immunity

124. Among junior children of an orphanage an outbreak of intestinal infection with signs of colienteritis was registered. In order to identify isolated causative agent it is necessary to:

a. To study virulence of the causative agent

b. Study antigenic properties of the causative agent

c. To study sensitivity to bacteriophages

d. To determine sensitivity to antibiotics

e. To study biochemical properties of the causative agent

125. Urine examination of a patient with acute cystitis revealed leukocytes and a lot of gram-negative bacilli. Inoculation resulted in growth of colonies of mucous nature that formed green soluble pigment. What microorganism is the most probable cause of the disease?

a. Pseudomonas aeruginosa

b. Klebsiella pneumoniae

c. Salmonella enteritidis

d. Proteus mirabilis

e. Escherihia coli

126. A laboratory received a material from a patients wound. Ppreliminary diagnosis is gaseous gangrene. What microbiological method should be applied to determine species of causative agent?

a. RIA

b. Bacteriological

c. Bacterioscopic

d. Allergic

e. Serological

127. A virological laboratory obtained pathological material (mucous discharges from nasal meatuses) taken from a patient with provisional diagnosis "influenza". What quick test will allow to reveal specific viral antigen in the material under examination?

a. Direct and indirect immunofluorescence test

b. Hemagglutination inhibition assay

c. -

d. Radioimmunoassay

e. Direct and indirect fluorescence immunoassay

128. In the surgical department of a hospital there was an outbreak of hospital infection that showed itself in often postoperative wound abscesses. Bacteriological examination of pus revealed aurococcus. What examination shall be conducted to find out the source of this causative agent among the department personnel?

a. Biochemical identification

b. Phagotyping

c. Serological identification

d. Microscopical examination

e. Estimation of antibiotic susceptibility

129. A 7 year old child often suffers from streptococcal angina. Doctor suspected development of rheumatism and administered serological examination. The provisional diagnosis will be most probably confirmed by presence of antibodies to the following streptococcal antigen:

a. C-carbohydrate

b. Erythrogenic toxin

c. Capsular polysaccharide

d. O-streptolysin

e. M-protein

130. A culture of monkey cells (Vero) and a group of mouse sucklings were infected with an inoculum taken from a child with provisional diagnosis "enterovirus infection". There was no cytopathic effect on the cell culture but mouse sucklings died. What enteric viruses might have caused disease of this child?

a. Polioviruses

b. Unclassified enteric viruses 68-71
c. Coxsackie B
d. ECHO virus
e. Coxsackie A

131. A patient of surgical department complains about pain in the small of her back and in the lower part of her belly; painful and frequent urination. Bacteriological examination of urine revealed gram-negative oxidase-positive rod-like bacteria forming greenish mucoid colonies with specific smell. What causative agent can it be?
a. Proteus mirabilis
b. Str.pyogenes
c. Mycoplasma pneumonie
d. Pseudomonas aeruginosa
e. E.coli

132. A female patient underwent liver transplantation. 1,5 month after her condition became worse because of reaction of transplant rejection. What factor of immune system plays the leading part in this reaction?
a. B-lymphocytes
b. T-helpers
c. Interleukin-1
d. Natural killers
e. T-killers

133. Microscopical examination of a microbal culture revealed fusiform spore-forming microorganisms that get violet-blue Grams stain. What microorganisms were revealed?
a. Diplococci
b. Clostridia
c. Spirochaete
d. Streptococci
e. Actinomycete

134. A specimen stained by Ozheshko method contains rod-like microorganisms stained blue with round terminal components stained red. What are these components called?
a. Flagella
b. Cilia
c. Spores
d. Capsules
e. Mesosomas

135. During the regular sanitary-epidemiological inspection of a pharmacy, the bacteriological analysis of air was performed. The air was found to have bacilli, yeast fungi, hemolytic streptococci, micrococci. Which of the detected microorganisms indicate the direct epidemic danger?
a. Micrococci
b. Yeast fungi
c. -
d. Haemolytic streptococci
e. Bacilli

136. A bacteriological laboratory received sputum sample of a patient suffering from tuberculosis. Bacterioscopic examination of smears and detection of tuberculosis bacillus can be realized by one of enrichment methods that involves processing of sputum only with solution of caustic soda. What is this method called?
a. Flotation
b. Inactivation
c. Homogenization
d. Filtration
e. Neutralization

137. A pregnant woman was registered in an antenatal clinic and underwent complex examination for a number of infections. Blood serum contained IgM to the rubella virus. What is this result indicative of?

a. The woman is healthy
b. Of a chronic process
c. Of primary infection
d. Of exacerbation of a chronic disease
e. Of recurring infection with rubella virus

138. A 65-year-old man has purulent abscess on his neck. Analyses revealed a culture of gram-positive cocci with plasmocoagulase activity. This culture relates most likely to:

a. Streptococcus pyogenes
b. Staphylococcus saprophyticus
c. -
d. Staphylococcus aureus
e. Staphylococcus epidermidis

139. Material taken from a patient with provisional diagnosis "influenza" was referred to a laboratory. For virological examination the hemadsorption reaction was applied. This reaction can be applied for detection of the following viruses:

a. Viruses containing hemagglutinins
b. All the complex viruses
c. Any viruses
d. DNA-genomic viruses
e. All the simple viruses

140. Vomiting matters of a patient suspected of having cholera were delivered to the bacteriological laboratory. The material was used for preparing a "hanging drop" specimen. What type of microscopy will be applied for identification of the causative agent by its mobility?

a. Phase-contrast microscopy
b. Immune and electron microscopy
c. Immersion microscopy
d. Fluorescence microscopy
e. Electron microscopy

141. Inoculum from pharynx of a patient ill with angina was inoculated into blood-tellurite agar. It resulted in growth of grey, radially striated (in form of rosettes) colonies 4-5 mm in diameter. Gram-positive bacilli with clublike thickenings on their ends placed in form of spread wide apart fingers are visible by microscope. What microorganisms are these?

a. Streptococci
b. Streptobacilli
c. Botulism clostridia
d. Diphtheroids
e. Diphtheria corynebacteria

142. During examination of a patient a dentist revealed a lot of "white spots" - zones of enamel demineralization. What microorganisms take part in the development of this process?

a. Staphylococcus epidermidis
b. Streptococcus mutans
c. Streptococcus pyogenes
d. Streptococcus salivarius
e. Veilonella parvula

143. Planned mass vaccination of all newborn 5-7 day old children against tuberulosis plays an important role in tuberculosis prevention. In this case the following vaccine is applied:

a. Diphtheria and tetanus anatoxin vaccine
b. Diphteria and tetanus toxoids and pertussis vaccine
c. BCG

d. Adsorbed diphtheria vaccine
e. -

144. A 4-year-old child presents with general weakness, sore throat and deglutitive problem. After his examination a doctor suspected diphtheria and sent the material to the bacteriological laboratory. In order to determine the diphtheria causative agent the material should be inoculated into the following differential diagnostic medium:
a. Blood tellurite agar
b. Ploskyrevs agar
c. Levenshtein-Yessen agar
d. Sabourauds agar
e. Endos agar

145. It is planned to use the territory of an old cattle burial ground (which is not used for more than 50 years) for building houses. But ground analysis revealed presence of the pathogen of the very dangerous illness. Which of the indicated microorgonisms is likely to remain in the ground for such a long time?
a. Bacillus anthracis
b. Brucella abortus
c. Mycobacterium bovis
d. Yersinia pestis
e. Francisella tularensis

146. From the nasopharynx of a 5-year-old child it was excreted a microorganism which is identical to Corynebacterium diphtheriae dose according to morphological and biochemical signs. Microorganism does not produce exotoxin. As a result of what process can this microorganism become toxigenic?
a. Passing through the organism of the sensative animals
b. Cultivation in the telluric environment
c. Phage conversion
d. Growing with antitoxic serum
e. Chromosome mutation

147. While studying a microslide obtained from the punctuate of a regional lymph node and stained by Romanovsky-Giemsa method a physician revealed some light-pink thin microorganisms with 12-14 regular spiral coils and pointed ends, up to 10-13 micrometer long. This might be the causative agent of the following disease:
a. Relapsing fever
b. Leishmaniasis
c. Trypanosomiasis
d. Leptospirosis
e. Syphilis

148. Sanitary bacteriological research on water by the membrane filter method revealed two red colonies on a membrane filter (Endo agar) through which 500 ml of analyzed water were passed. Calculate the coli index and coli titer of the analyzed water:
a. 500 and 2
b. 250 and 2
c. 2 and 500
d. 250 and 4
e. 4 and 250

149. While examining a patient an otolaryngologist noticed hyperaemia and significantly edematous tonsils with a grayish film upon them. Microscopical examination of this film revealed some gram-positive bacilli placed at an angle with each other. What disease might be suspected?
a. Epidemic parotitis
b. Diphtheria
c. Scarlet fever
d. Angina

e. Meningococcal nasopharyngitis

150. Patient with vomiting, dizziness, sensation of dubble vision, difficult swallowing was admitted to the hospital. Doctor suspects botulism. What diagnostic methods should be used for diagnosis approving?

a. -

b. Biological test, bacteriological

c. Bacteriological, mycological

d. Allergic test, serological

e. Protozoological, microscopical

151. A man who was bitten by the unknown dog applied to the surgeon. Wide ragged woundes were localised on the face. What curative-prophylactic aid should be given to prevent rabies?

a. Immediately inject normal gamma globulin

b. Start immunisation with rabies vaccine

c. Immediate injection of DPT(Diphtheria, Pertusis, Tetanus) vaccine

d. Prescribe combine antibiotic therapy

e. Hospitalize the patient and keep under the doctors supervision

152. In a patient with clinical signs of immunodeficiency the number and functional activity of T and B lymphocytes are not changed. Defect with dysfunction of antigen-presentation to the immunocompetent cells was found during investigation on the molecule level. Defect of what cells is the most probable?

a. 0-lymphocytes

b. Macrophages, monocytes

c. NK-cells

d. T-lymphocytes, B-lymphocytes

e. Fibroblasts, T-lymphocytes, B-lymphocytes

153. A patient with complaints of 3-day-long fever, general weakness, loss of appetite came to visit the infectionist. The doctor suspected enteric fever. Which method of laboratory diagnosis is the best to confirm the diagnosis?

a. Detachment of myeloculture

b. Detachment of urine culture

c. Detachment of pure culture

d. Detachment of blood culture

e. Detachment of feces culture

154. A consumptive patient has an open pulmonary form of disease. Choose what sputum staining should be selected for finding out the tubercle (Kochs) bacillus?

a. Method of Ziel-Neelsen

b. Method of Gram

c. Method of Burry-Gins

d. Method of Neisser

e. Method of Romanowsky-Giemsa

155. During surgical operation a blood transfusion was made. The blood must be checked to find antigens of some disease. What disease is expected to be found?

a. Virus of hepatitis E

b. Virus of hepatitis B

c. Adenovirus

d. Virus of hepatitis A

e. Enterovirus

156. A 42-year-old man who has been injured in a car accident is brought into the emergency room. His blood alcohol level on admission is 250 mg/dL. Hospital records show a prior hospitalization for alcohol related seizures. His wife confirms that he has been drinking heavily for 3 weeks. What treatment should be provided to the patient if he goes into withdrawal?

a. Phenobarbital
b. Phenytoin
c. None
d. Diazepam
e. Pentobarbital

157. A patient who came to the doctor because of his infertility was administered to make tests for toxoplasmosis and chronic gonorrhoea. Which reaction should be performed to reveal latent toxoplasmosis and chronic gonorrhoea of the patient?
a. IFA - Immunofluorescence assay
b. RDHA - Reverse direct hemagglutination assay
c. RIHA - Reverse indirect hemagglutination assay
d. (R)CFT- Reiters complement fixation test
e. Immunoblot analysis

158. On bacteriological study of rinsing water of the patient with food poisoning, the pure bacterial culture was inoculated with the following properties: gram-negative motile bacillus in the Endo environment grows like achromic colony. Representative of what genus has caused the illness?
a. Citrobacter
b. Salmonella
c. Yersinia
d. Shigella
e. Escherichia

159. While registering the child to the school Mantus test was made to define whether revaccination was needed test result is negative. What does this result of the test mean?
a. Presence of cell immunity to the tuberculosis
b. Absence of antitoxic immunity to the tuberculosis
c. Presence of antibodies for tubercle bacillus
d. Absence of cell immunity to the tuberculosis
e. Absence of antibodies for tubercle bacillus

160. The donor who didnt donate the blood for a long time was investigated with IFA method. Anti-HBs antibodies were revealed. What does positive result of IFA in this case mean?
a. Acute hepatitis B
b. Chronic hepatitis B
c. Chronic hepatitis C
d. Previous hepatitis B
e. Acute hepatitis C

161. Scraps of the mycelium of a fungus, spores, air bubbles and fat drops were discovered on microscopy of the patients hair excluded from the infected areas. For what fungus disease is this microscopic picture characteristic?
a. Favus
b. Trichophytosis
c. Sporotrichosis
d. Epidermophytosis
e. Microspory

162. In order to speed up healing of a wound of oral mucosa a patient was prescribed a drug that is a thermostable protein occuring in tears, saliva, mothers milk as well as in a new-laid hens egg. It is known that this protein is a factor of natural resistance of an organism. What is it called?
a. Complement
b. Interleukin
c. Imanine
d. Lysozyme
e. Interferon

163. Study of bacteriological sputum specimens stained by the Ziel-Neelsen method revealed some bright-red acid-resistant bacilli that were found in groups or singularly. When they were inoculated onto the nutrient media, the signs of their growth show up on the 10-15 day. These bacteria relate to the following family:

a. Micobacterium tuberculosis
b. Histoplasma dubrosii
c. Coxiella burnettii
d. Klebsiella rhinoscleromatis
e. Yersinia pseudotuberculosis

164. Gramnegative bin-shaped diplococcus inside and outside of leucocytes were detected on bacteriological examination of the purulent exudates from the cervix of the uterus. Name the causative agent of purulent inflammation of the cervix of the uterus

a. Neisseria gonorroeae
b. Haemophilus vaginalis
c. Calymmatobacterium granulomatis
d. Trichomonas vaginalis
e. Chlamidia trachomatis

165. Patient with diarrhoea was admitted to the infection unit. Gramnegative curved rod-like bacteria were founded on bacterioscopic examination of faecal masses. What is the most likely disease in this patient?

a. Diphtheria
b. Intestinal form of plague
c. Typhoid fever
d. Salmonellosis gastroenteritis
e. Cholera

166. In a 2-year-old child with catarrhal presentations and skin rash a pediatrician suspected scarlet fever. The child was given intracutaneously a small dose of serum antibody to the streptococcal erythrogenic toxin; on the site of injection the rash disappeared. What do the reaction results mean?

a. The whole serum dose may be injected intravenously
b. The child has very weak immune system
c. The child has hypersensitivity to the erythrogenic toxin
d. The disease wasnt caused by haemolytic streptococcus
e. The clinical diagnosis was confirmed

167. From the defecation of a 6-year-old ill child, who has artificial feeding, the intestinal bacillus with antigen structure 0-111 is excreted. What is the diagnosis?

a. Food poisoning
b. Disentery-like diseasis
c. Gastroenteritis
d. Cholera-like diseasis
e. Coli-enteritis

168. For serological diagnostics of the whooping cough it was made large-scale reaction with parapertussis and pertussis diagnosticums. At the bottom of the test-tubes with diagnosticum of Bordetella parapertussis grain-like sediment formed. What antibodies have this reaction revealed?

a. Precipitins
b. Bacteriolysins
c. Antitoxins
d. Agglutinins
e. Opsonins

169. A man died from an acute infectious disease accompanied by fever, jaundice, haemorrhagic rash on the skin and mucous membranes as well as by acute renal insufficiency. Histological examination of renal tissue (stained by Romanovsky-Giemsa method) revealed some convoluted bacteria looking like C und S letters. What bacteria were revealed?

a. Campilobacteria
b. Leptospira
c. Spirilla
d. Treponema
e. Borrelia

170. Examination of a patient with pustular skin lesions allowed to isolate a causative agent that forms in the blood agar roundish yellow middle-sized colonies surrounded by haemolysis zone. Smears from the colonies contain irregular-shaped clusters of gram-positive cocci. The culture is oxidase- and catalase-positive, ferments mannitol and synthesizes plasmocoagulase. What causative agent was isolated?
a. Streptococcus agalactiae
b. Staphylococcus epidermidis
c. Staphylococcus saprophyticus
d. Staphylococcus aureus
e. Streptococcus pyogenes

171. Microscopic examination of a Gram-stained scrape from patients tongue revealed oval, round, elongated chains of dark-violet gemmating cells. What disease can be caused by this causative agent?
a. Streptococcic infection
b. Actinomycosis
c. Candidosis
d. Staphylococcic infection
e. Diphtheria

172. From pharynx of a child with suspected diphtheria a pure culture of microorganisms was isolated. Their morphological, tinctorial, cultural and biochemical properties appeared to be typical for diphtheria causative agents. What study should be conducted in order to draw a conclusion that this is a pathogenic diphtheria bacillus?
a. Estimation of cystinous activity
b. Estimation of ability to decompose starch
c. Estimation of proteolytic properties
d. Estimation of urease activity
e. Estimation of toxigenic properties

173. Examination of a child revealed some whitish spots looking like coagulated milk on the mucous membrane of his cheeks and tongue. Analysis of smears revealed gram-positive oval yeast-like cells. What causative agents are they?
a. Staphylococci
b. Actinomycetes
c. Fusobacteria
d. Candida
e. Diphtheria bacillus

174. A duodenal content smear of a patient with indigestion contains protosoa 10-18 mcm large. They have piriform bodies, 4 pairs of filaments, two symmetrically located nuclei in the broadened part of body. What kind of the lowest organisms is it?
a. Balantidium
b. Lamblia
c. Trichomonas
d. Dysentery ameba
e. Intestinal ameba

175. Blood of a patient with presumable sepsis was inoculated into sugar broth. There appeared bottom sediment. Repeated inoculation into blood agar caused growth of small transparent round colonies surrounded by hemolysis zone. Examination of a smear from the sediment revealed gram-positive cocci in form of long chains. What microorganisms are present in blood of this patient?

a. Staphylococci
b. Micrococci
c. Streptococci
d. Tetracocci
e. Sarcina

176. Bacterioscopy of nasopharyngeal mucus taken from a 2,5 year old child with nasopharyngitis revealed gram-positive diplococci looking like coffee grains. What organs of the child are most likely to be affected if these microorganisms penetrate the blood?
a. Lymph nodes
b. Brain tunics
c. Renal glomeruli
d. Cardiac valves
e. Urogenital tracts

177. Analysis of sputum taken from a patient with suspected pneumonia revealed rather elongated gram-positive diplococci with somewhat pointed opposite ends. What microorganisms were revealed in the sputum?
a. Neisseria gonorrhoeae
b. Streptococcus pneumoniae
c. Klebsiella pneumoniae
d. Staphylococcus aureus
e. Neisseria meningitidis

178. Serological diagnostics of infectious diseases is based upon specific interaction with antigenes. Specify the serological reaction that underlies adhesion of microorganisms when they are affected by specific antibodies in presence of an electrolyte:
a. Neutralization reaction
b. Agglutination reaction
c. Complement-binding reaction
d. Precipitation reaction
e. Hemadsorption reaction

179. The immunoblot detected gp120 protein in the blood serum. This protein is typical for the following disease:
a. Syphilis
b. Poliomyelitis
c. Virus B hepatitis
d. Tuberculosis
e. HIV-infection

180. HIV has gp41 and gp120 on its surface interacts with target cells of an organism. Which of the following human lymphocyte antigens is gp120 complementary bound with?
a. CD 8
b. CD 3
c. CD 4
d. CD 19
e. CD 28

181. The contents of vesicles that appeared on the mucous membrane of a patient with variola was sent to a virological laboratory. Which of the listed changes were revealed during the smear microscopy?
a. Guarnieri bodies
b. Babes-Negri bodies
c. Paschen bodies
d. Babes-Ernst bodies
e. Syncytium

182. Bacteriological examination of a patient with food poisoning required inoculation of a pure culture of bacteria with the following properties: gram-negative movable bacillus that grows in the Endos medium in form of colourless colonies. A representative of which species caused this disease?

a. Citrobacter
b. Salmonella
c. Iersinia
d. Shigella
e. Esherichia

183. Examination of a young man in the AIDS centre produced a positive result of immune-enzyme assay with HIV antigens. Patient didn't complain on state of his health. What can the positive result of immune-enzyme assay be evidence of?

a. HIV infection
b. Being infected with HBV
c. HBV persistence
d. Having had AIDS recently
e. Being ill with AIDS

184. Microscopy of stained (Ziehl-Neelsen staining) smears taken from the sputum of a patient with chronic pulmonary disease revealed red bacilli. What property of tuberculous bacillus was shown up?

a. Alcohol resistance
b. Alkali resistance
c. Acid resistance
d. Capsule formation
e. Sporification

185. Reaction of passive hemagglutination conducted with erythrocytic typhoid Vi-diagnosticum helped to reveal some antibodies in the dilution of the patients serum at a ratio of 1:80 that exceeds the diagnostic titer. Such result witnesses of:

a. Reconvalescence of a patient ill with typhoid fever
b. Being a potential carrier of typhoid bacilli
c. Typhoid fever recurrence
d. Being ill with acute typhoid fever
e. Incubation period of typhoid fever

186. In order to determine toxigenicity of diphtheria bacilli a strip of filter paper impregnated with antitoxic diphtherial serum was put on the dense nutrient medium. There were also inoculated a studied microbal culture and a strain that is known to be toxigenic. If the microbal culture under examination produces exotoxin, it will result in formation of:

a. Precipitin ring
b. Precipitin lines
c. Zones of diffuse opacification
d. Haemolysis zones
e. Zones of lecithovitellinous activity

187. A 50-year-old patient with typhoid fever was treated with Levomycetin, the next day his condition became worse, temperature rised to 39,6°C. What caused worthening?

a. Irresponsiveness of an agent to the levomycetin
b. Allergic reaction
c. The effect of endotoxin agent
d. Secondary infection addition
e. Reinfection

188. A patient underwent esophagogastroduodenoscopy. Analysis of the biopsy material enabled doctors to diagnose him with helicobacteriosis. What property of the bacteria found in this patient had to be obligatory taken into account during their cultivation?

a. Colonisation of gastral cells
b. Presence of urease

c. Microaerophilic ability
d. Absence of spores and capsules
e. Presence of six polar flagella

189. A patient with clinical signs of encephalitis was delivered to the infectious diseases hospital. Anamnesis registers a tick bite. Hemagglutination-inhibition reaction helped to reveal antibodies to the causative agent of tick-borne encephalitis in the dilution 1:20 which is not diagnostic. What actions should the doctor take after he had got such result?
a. To repeat the examination with serum taken 10 days later
b. To apply more sensitive reaction
c. To deny diagnosis of tick-borne encephalitis
d. To repeat examination with another diagnosticum
e. To examine the same serum

190. The first grade pupils were examined in order to sort out children for tuberculosis revaccination. What test was applied for this purpose?
a. Supracutaneous tularin test
b. Schick test
c. Mantoux test
d. Burnet test
e. Anthraxine test

191. Clinical diagnosis of a female patient was gonorrhoea. What examination method can be applied for confirmation of this diagnosis?
a. Infection of laboratory animals
b. Hemagglutination reaction
c. Immobilization reaction
d. Microscopy of pathological material
e. Test with bacteriophage

192. A patient suffering from periodical attacks caused by inhalation of different flavoring substances was diagnosed with atopic bronchial asthma. IgE level was increased. This is typical for the following type of reactions:
a. Immunocomplex reactions
b. Cytotoxic reactions
c. Anaphylactic reactions
d. Delayed-type hypersensitivity
e. Autoimmune reactions

193. Bacteriological laboratory examines canned meat whether it contains botulinum toxin. For this purpose an extract of test specimen and antitoxic antibotulinic serum of A, B, E types were introducted to a group of mice under examination; a control group of mice got the extract without antibotulinic serum. What serological reaction was applied?
a. Complement binding
b. Precipitation
c. Neutralization
d. Opsono-phagocytic
e. Double immune diffusion

194. For the purpose of retrtospective diagnostics of recent bacterial dysentery it was decided to perform serological examination of blood serum in order to determine antibody titer towards Shiga bacilli. What of the following reactions should be applied?
a. Precipitation
b. Bordet-Gengou test
c. Passive hemagglutination
d. Hemolysis
e. Bacteriolysis

195. During the repeated Widals agglutination test it was noticed that the ratio of antibody titers and O-antigens S.typhi in the patients serum had increased from 1:100 to 1:400. How would you interpret these results?

a. The patient was previously vaccinated against typhoid fever
b. The patient has typhoid fever
c. The patient is a chronic carrier of typhoid microbs
d. The patient is an acute carrier of typhoid microbes
e. The patient previously had typhoid fever

196. A patient recovered from Sonne dysentery and was once more infected with the same causative agent. What is such infection form called?

a. Reinfection
b. Superinfection
c. Chronic infection
d. Persisting infection
e. Recidivation

197. Among junior children of an orphanage an outbreak of intestinal infection with signs of colienteritis was registered. In order to identify isolated causative agent it is necessary to:

a. To determine sensitivity to antibiotics
b. To study biochemical properties of the causative agent
c. To study virulence of the causative agent
d. Study antigenic properties of the causative agent
e. To study sensitivity to bacteriophages

198. Urine examination of a patient with acute cystitis revealed leukocytes and a lot of gram-negative bacilli. Inoculation resulted in growth of colonies of mucous nature that formed green soluble pigment. What microorganism is the most probable cause of the disease?

a. Salmonella enteritidis
b. Pseudomonas aeruginosa
c. Klebsiella pneumoniae
d. Escherihia coli
e. Proteus mirabilis

199. A laboratory received a material from a patients wound. Ppreliminary diagnosis is gaseous gangrene. What microbiological method should be applied to determine species of causative agent?

a. Serological
b. RIA
c. Allergic
d. Bacterioscopic
e. Bacteriological

200. In the surgical department of a hospital there was an outbreak of hospital infection that showed itself in often postoperative wound abscesses. Bacteriological examination of pus revealed aurococcus. What examination shall be conducted to find out the source of this causative agent among the department personnel?

a. Serological identification
b. Microscopical examination
c. Phagotyping
d. Estimation of antibiotic susceptibility
e. Biochemical identification

201. A 7 year old child often suffers from streprococcic angina. Doctor suspected development of rheumatism and administered serological examination. The provisional diagnosis will be most probably confirmed by presence of antibodies to the following streptococcic antigen:

a. O-streptolysin
b. M-protein
c. Capsular polysaccharide

d. Erythrogenic toxin
e. C-carbohydrate

202. A patient of surgical department complains about pain in the small of her back and in the lower part of her belly; painful and frequent urination. Bacteriological examination of urine revealed gram-negative oxidase-positive rod-like bacteria forming greenish mucoid colonies with specific smell. What causative agent can it be?
a. E.coli
b. Proteus mirabilis
c. Pseudomonas aeruginosa
d. Str.pyogenes
e. Mycoplasma pneumonie

203. There was a record of some anthrax cases among animals in a countryside. The spread of disease can be prevented by means of immunization. What kind of vaccine should be used?
a. Sabins vaccine
b. Diphteria and tetanus toxoids and pertussis vaccine
c. BCG vaccine
d. Salk vaccine
e. STI live vaccine

204. A female patient underwent liver transplantation. 1,5 month after it her condition became worse because of reaction of transplant rejection. What factor of immune system plays the leading part in this reaction?
a. T-killers
b. Natural killers
c. T-helpers
d. B-lymphocytes
e. Interleukin-1

205. During the regular sanitary-epidemiological inspection of a pharmacy, the bacteriological analysis of air was performed. The air was found to have bacilli, yeast fungi, hemolytic streptococci, micrococci. Which of the detected microorganisms indicate the direct epidemic danger?
a. Yeast fungi
b. -
c. Micrococci
d. Bacilli
e. Haemolytic streptococci

206. A bacteriological laboratory received sputum sample of a patient suffering from tuberculosis. Bacterioscopic examination of smears and detection of tuberculosis bacillus can be realized by one of enrichment methods that involves processing of sputum only with solution of caustic soda. What is this method called?
a. Neutralization
b. Homogenization
c. Flotation
d. Inactivation
e. Filtration

207. Material taken from a patient with provisional diagnosis "influenza" was referred to a laboratory. For virological examination the hemadsorption reaction was applied. This reaction can be applied for detection of the following viruses:
a. DNA-genomic viruses
b. Any viruses
c. All the simple viruses
d. All the complex viruses
e. Viruses containing hemagglutinins

208. Vomiting material of a patient suspected of having cholera was delivered to the bacteriological laboratory. The material was used for preparing a "hanging drop" specimen. What type of microscopy will be applied for identification of the causative agent by its mobility?

a. Fluorescence microscopy
b. Immersion microscopy
c. Electron microscopy
d. Immune and electron microscopy
e. Phase-contrast microscopy

209. Inoculum from pharynx of a patient ill with angina was inoculated into blood-tellurite agar. It resulted in growth of grey, radially striated (in form of rosettes) colonies 4-5 mm in diameter. Gram-positive bacilli with clublike thickenings on their ends placed in form of spread wide apart fingers are visible by microscope. What microorganisms are there?

a. Streptobacilli
b. Diphtheria corynebacteria
c. Diphtheroids
d. Botulism clostridia
e. Streptococci

210. During examination of a patient a dentist revealed a lot of "white spots" - zones of enamel demineralization. What microorganisms take part in the development of this process?

a. Streptococcus pyogenes
b. Streptococcus salivarius
c. Streptococcus mutans
d. Veilonella parvula
e. Staphylococcus epidermidis

211. Planned mass vaccination of all newborn 5-7 day old children against tuberulosis plays an important role in tuberculosis prevention. In this case the following vaccine is applied:

a. Diphteria and tetanus toxoids and pertussis vaccine
b. Adsorbed diphtheria vaccine
c. -
d. BCG
e. Diphtheria and tetanus anatoxin vaccine

212. A 4-year-old child presents with general weakness, sore throat and deglutitive problem. After his examination a doctor suspected diphtheria and sent the material to the bacteriological laboratory. In order to determine the diphtheria causative agent the material should be inoculated into the following differential diagnostic medium:

a. Sabourauds agar
b. Levenshtein-Yessen agar
c. Endos agar
d. Ploskyrevs agar
e. Blood tellurite agar

213. To test donor blood for hepatitis B antigens, it is necessary to use highly sensitive detection methods. What test should be used for this purpose?

a. Complement binding
b. Indirect immunofluorescence
c. Immunoelectrophoresis
d. Indirect hemagglutination
e. Solid-phase enzyme-linked immunosorbent assay

214. The bacteriological laboratory has received for analysis a sample of dried fish from a focus of food poisoning outbreak. The bacteriologist inoculated the sample into a Kitt-Tarozzi medium, where growth of tennis racquetshaped microorganisms could be observed. These microorganisms are likely to be the causative agents of:

a. Dysentery

b. Salmonellosis
c. Botulism
d. Staphylococcal toxicoinfection
e. Typhoid fever

215. To determine toxigenicity of diphtheria causative agents obtained from patients, the cultures were inoculated in a Petri dish with nutrient agar, bilaterally to a strip of filter paper spotted with antidiphtheric antitoxic serum and situated in the center of the Petri dish. After incubation of the inoculated cultures in the agar, strip-like areas of medium turbidity formed between some of the cultures and the filter paper. What immunological test was conducted?
a. Opsonization test
b. Agar gel precipitation test
c. Agglutination test
d. Coombs test
e. Ring precipitin test

216. The bacteriological laboratory needs to prepare for analysis of materials that are suspected to be contaminated with spores of anthrax causative agent. What diagnostic preparation allows for quick detection of these spores?
a. Monoclonal antibodies to anthrax causative agent
b. Anti-anthrax fluorescent serum
c. Standard anthrax antigen
d. Anti-anthrax immunoglobulin
e. Enzyme-tagged immunoglobulin

217. A family has two children. The younger child is under a year. The child has developed spastic cough attacks. Similar clinical presentation was observed in the elder preschool child one month ago. The doctor suspects pertussis infection. What method enables retrospective diagnostics of this disease?
a. Molecular biological
b. Serological
c. Biological
d. Bacteriological
e. Microscopy

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