

1. A patient's preliminary diagnosis is toxoplasmosis. What material was used for diagnostics of this disease?

- a. Urine
- b. Feces
- c. Blood**
- d. Duodenal contents
- e. Sputum

2. As a result of dehelminthization a 2 m helminth came out with feces. It had a segmented body, small head with four suckers and hooks. Name the type of helminth:

- a. Dwarf tapeworm
- b. Unarmed tapeworm
- c. Armed tapeworm**
- d. Echinococcus
- e. Broad tapeworm

3. A scientific expedition in India was guided by a native who had never parted with his dog. What invasion diseases can be transmitted to the participants of the expedition as a result of contacts with this dog if it is known to be the source of invasion?

- a. Echinococcosis**
- b. Paragonimiasis
- c. Fascioliasis
- d. Dicroceliasis
- e. Teniasis

4. After consumption of some tinned meat a patient had diplopia, acute headache, deglutition disorder, hard breathing, muscle weakness. The diagnosis was botulism. What factor of pathogenicity are the clinic presentations of this disease connected with?

- a. Hemolysin
- b. Plasmocoagulase
- c. Fibrinolysin
- d. Exotoxin**
- e. Endotoxin

5. Retrospective diagnostics of old bacillary dysentery required serologic examination of blood serum in order to determine blood titer to the shigells. What reaction should be applied for this purpose?

- a. Reaction of passive hemagglutination**
- b. Precipitation reaction
- c. Bacteriolysis reaction
- d. Hemolysis reaction
- e. Bordet-Gengou test

6. A patient has high sunlight sensitivity of skin. During standing his urine turns dark-brown. What is the most probable cause of this condition?

- a. Porphyria**
- b. Albinism
- c. Alkaptonuria
- d. Pellagra
- e. Haemolytic jaundice

7. A 62 year old patient with cerebral haemorrhage was admitted to the neurological department in grave condition. Objectively: increase of respiration depth and rate with its following reduction to apnoea, thereafter respiration cycle restores. What respiration type is it?

- a. Biots
- b. Kussmauls
- c. Cheyne-Stokes**
- d. Gasping
- e. Apneustic

8. A 50-year-old male patient suffers from chronic bronchitis, complains about dyspnea during physical activity, sustained cough with sputum. After examination he was diagnosed with pulmonary emphysema. This complication is caused by:

- a. Decrease in alveolar ventilation
- b. Decrease in lung perfusion
- c. Ventilation-perfusion disbalance
- d. Decrease in lung elasticity**
- e. Decrease in lung compliance

9. The contents of vesicles from the mucous tunic of a man who has smallpox variola was sent to the virusologic laboratory. What will be revealed during microscopy of smears?

- a. Paschens corpuscles**

- b. Guarnieris corpuscles
- c. Syncytium
- d. Babesh-Ernst corpuscles
- e. Babesh-Negri corpuscles

10. A laboratory received a material (extract of animal matter) from the region with cases of anthrax among animals. What serological reaction should be used in order to reveal antigens of pathogenic organism in the given material?

- a. Thermoprecipitation**

- b. Indirect hemagglutination
- c. Precipitations in agar
- d. Radio assay
- e. Complement binding

11. Bacteriological laboratory has the task to sterilize nutrient mediums containing substances that convert under the temperature over 100°C (urea, carbohydrates). What method of sterilization should be used?

- a. Autoclaving
- b. Tindalization
- c. Pasteurization
- d. Fluid steam sterilization**
- e. Boiling

12. A patient was taken to the hospital with complaints of headache, high temperature, frequent stool, stomach pain with tenesmus. Doctor made a clinical diagnosis dysentery and sent the material (excrements) to the bacteriological laboratory for analysis. What diagnostic method should the laboratory doctor use to confirm or to disprove the clinical diagnosis?

- a. Allergic
- b. Bacteriological**
- c. Bacterioscopic
- d. Biological
- e. Serological

13. Bacteriological examination of purulent discharges from urethra revealed some bacteria that had negative Grams stain, resembled of coffee corns, decomposed glucose and maltose up to acid. They were located in leukocytes. What disease do they cause?

- a. Soft chancre
- b. Pseudocholera
- c. Syphilis
- d. Venereal lymphogranulomatosis
- e. Gonorrhea**

14. A patient in the oral surgery department has got purulent complication. Bacteriological analysis of the wound material found a culture that produces cyan pigment. What microorganism is the most probable causative agent?

- a. Pseudomonas aeruginosa**

- b. *Bacillus subtilis*
- c. *Staphylococcus epidermidis*
- d. *Klebsiella pneumoniae*
- e. *Proteus vulgaris*

15. Sputum smears of a patient with chronic pulmonary disease were stained by Ziehl-Neelsen method and analyzed in the bacteriological laboratory. Microscopy revealed red bacillus. What property of tuberculosis myobacteria was found?

- a. Acid resistance
- b. Alcohol resistance
- c. Spore-formation
- d. Encapsulation
- e. Alkali resistance

16. A patient who suffered from syphilis took a course of antibiotic therapy and fully recovered. Some time later he was infected again with *Treponema pallidum*. What form of infection is it?

- a. Reinfection
- b. Secondary infection
- c. Complication
- d. Superinfection
- e. Recurrence

17. Professional dentists belong to the risk group concerning professional infection with viral hepatitis type B. Name an effective method for active prevention of this disease among the dentists:

- a. Introduction of specific immunoglobuline
- b. Introduction of interferonogenes
- c. Secure sterilization of medical instruments
- d. Working with gum gloves on
- e. Vaccination with recombinant vaccine

18. A lot of pyoinflammatory processes in oral cavity are caused by anaerobes. What nutrient medium can be used for control of wound textile contamination by anaerobes?

- a. Endo
- b. Sabourauds
- c. Ploskirevs
- d. Kitt-Tarozzi
- e. Roux

19. Microscopic analysis of tissue sampling from affected area of mucous membrane of oral cavity revealed bacillus in form of accumulations that looked like a pack of cigarettes. Ziehl-Neelsen staining gives them red colour. What kind of pathogenic organism was most likely revealed in tissue sampling?

- a. *A.bovis*
- b. *M.tuberculosis*
- c. *M.leprae*
- d. *A.israillii*
- e. *M.avium*

20. A patient with clinical presentations of primary immunodeficiency displays disturbance of antigen-presenting function by immunocompetent cells. What cells may have structure defect?

- a. Macrophages, monocytes
- b. B-lymphocytes
- c. O-lymphocytes
- d. Fibroblasts
- e. T-lymphocytes

21. From the purulent exudate of a patient with odontogenic phlegmon a pure culture of Gram(+) microorganisms was segregated. This culture was lecithinolytically active, coagulated plasma of a rabbit,

decomposed mannitol under anaerobe conditions. What microorganism may have contributed to the origin of suppurative complication?

- a. S.viridans
- b. S.mutans
- c. S.epidermidis
- d. S.pyogenes
- e. S.aureus**

22. A doctor examined a patient with recurrent aphthous stomatitis with concomitant candidosis and decided to eliminate a possibility of HIV-infection. What examination can help to clear the situation up and make a provisional diagnosis?

- a. Gel precipitation reaction
- b. Reaction of hemagglutination
- c. Phase-contrasr microscopy
- d. Immune-enzyme analysis**
- e. Reaction of hemagglutination inhibition

23. A patient has pure culture of diphtheria corynebacteria. What immunological reaction should be used in order to determine bacteria toxigenity?

- a. Indirect hemagglutination
- b. Precipitation in agar**
- c. Complement binding
- d. Agglutination
- e. Inhibition of hemagglutination

24. An infectious diseases hospital admitted a veterinarian with assumed brucellosis. What serologic test can confirm this diagnosis?

- a. Weigls agglutination reaction
- b. Wassermann reaction of complement binding
- c. Widals agglutination reaction
- d. Ascolis precipitation reaction
- e. Wrights agglutination reaction**

25. In case of many infectious diseases patients blood may contain antigens of causative agents. What reaction should be applied provided that the level of antigenemia is low?

- a. Indirect hemagglutination test
- b. Agglutination test
- c. Enzyme-linked immunosorbent assay**
- d. Latex agglutination test
- e. Immunoelectrophoresis

26. A pregnant woman applied to a doctor with complaints typical for toxoplasmosis. The doctor took a sample of her blood. What serological tests should be performed in this case?

- a. Neutralization test
- b. Precipitation test
- c. Complement binding assay**
- d. Widals test
- e. Wassermann test

27. A doctor recorded in the medical history that a patient had hypopnoe (reduced respiration depth). It means that the following characteristic of external respiration is reduced:

- a. Vital lung capacity
- b. Expiration capacity
- c. Respiratory minute volume
- d. Respiratory volume**
- e. Functional residual capacity

28. Specific prophylaxis involved application of a vaccine containing microorganisms and exotoxin

detoxicated by formalin. It relates to the following type of vaccine:

- a. Anatoxin
- b. Genetically engineered
- c. Combined**
- d. Chemical
- e. Live

29. After continuous treatment with antibiotics a patient got symptoms of stomatitis. Examination of specimens of oral mucous membrane revealed some oval polymorphous Gram-positive microorganisms arranged in clusters. What microorganism may be the cause of such manifestations?

- a. C.albicans**
- b. S.aureus
- c. C.pylori
- d. S.pyogenes
- e. C.perfringens

30. Examination of a child revealed growth of a pharyngeal tonsil causing the obstructed air escape from nasal cavity. What openings of nasal cavity are blocked in this case?

- a. Pterygopalatine
- b. Maxillary sinus
- c. Nostrils
- d. Piriform
- e. Choanae**

31. A patients preliminary diagnosis is toxoplasmosis. What material was used for diagnostics of this disease?

- a. Blood**
- b. Urine
- c. Sputum
- d. Duodenal contents
- e. Feces

32. As a result of dehelminization a 2 m helminth came out with feces. It had segmented body, small head with four suckers and hooks. Name the type of helminth:

- a. Broad tapeworm
- b. Armed tapeworm**
- c. Dwarf tapeworm
- d. Unarmed tapeworm
- e. Echinococcus

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

34. A scientific expedition in India was guided by a native who had never parted with his dog. What invasion diseases can be transmitted to the participants of the expedition as a result of contacts with this dog if it is known to be the source of invasion?

- a. Paragonimiasis
- b. Teniasis
- c. Echinococcosis**
- d. Dicroceliasis
- e. Fascioliasis

35. 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

36. 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**

37. 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

38. After consumption some tinned meat a patient had diplopia, acute headache, deglutition disorder, hard breathing, muscle weakness. The diagnosis was botulism. What factor of pathogenicity are the clinic presentations of this disease connected with?

- a. Fibrinolysin
- b. Exotoxin**
- c. Endotoxin
- d. Hemolysin
- e. Plasmocoagulase

39. 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

40. Retrospective diagnostics of old bacillary dysentery required serologic examination of blood serum in order to determine blood titer to the shigells. What reaction should be applied for this purpose?

- a. Hemolysis reaction
- b. Bacteriolysis reaction
- c. Bordet-Gengou test
- d. Precipitation reaction
- e. Reaction of passive hemagglutination**

41. 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. Yersinia pseudotuberculosis
- b. Klebsiella rhinoscleromatis
- c. Coxiella burnetii
- d. Micobacterium tuberculosis**
- e. Histoplasma dubosii

42. 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 wasn't caused by haemolytic streptococcus

43. A patient has high sunlight sensitivity of skin. During standing his urine turns dark-brown. What is the most probable cause of this condition?

- a. Alkaptonuria
- b. Porphyria**
- c. Albinism
- d. Haemolytic jaundice
- e. Pellagra

44. A 62 year old patient with cerebral haemorrhage was admitted to the neurological department in grave condition. Objectively: increase of respiration depth and rate with its following reduction to apnoea, thereafter respiration cycle restores. What respiration type is it?

- a. Cheyne-Stokes**
- b. Biots
- c. Apneustic
- d. Gasping
- e. Kussmauls

45. 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 and S letters. What bacteria were revealed?

- a. Leptospira**
- b. Spirilla
- c. Campylobacteria
- d. Borrelia
- e. Treponema

46. A 50-year-old male patient suffers from chronic bronchitis, complains about dyspnea during physical activity, sustained cough with sputum. After examination he was diagnosed with pulmonary emphysema. This complication is caused by:

- a. Decrease in lung elasticity**
- b. Decrease in lung compliance
- c. Ventilation-perfusion disbalance
- d. Decrease in lung perfusion
- e. Decrease in alveolar ventilation

47. Blood serum of a newborn contains antibodies to measles virus. What kind of immunity is this indicative of?

- a. Natural active
- b. Artificial active
- c. Heredoimmunity
- d. Natural passive**

e. Artificial passive

48. The contents of vesicles from the mucous tunic of a man who has smallpox variola was sent to the virusologic laboratory. What will be revealed during microscopy of smears?

a. Syncytium

b. Paschens corpuscles

c. Guarnieris corpuscles

d. Babesh-Negri corpuscles

e. Babesh-Ernst corpuscles

49. When examining a child the dentist found the deposit on both tonsils and suspected atypical form of diphtheria. A smear was taken, and after the nutrient media inoculation the toxicity of the isolated pure culture was determined. What reaction was used to determine the toxigenicity of the isolated strain of diphtheria bacillus?

a. Gel precipitation reaction

b. Complement binding reaction

c. Ring precipitation reaction

d. Hemolysis reaction

e. Agglutination reaction on a glass slide

50. Bacteriological laboratory has the task to sterilize nutrient mediums containing substances that convert under the temperature over 100°C (urea, carbohydrates). What method of sterilization should be used?

a. Autoclaving

b. Tindalization

c. Pasteurization

d. Fluid steam sterilization

e. Boiling

51. From the fecal sample of a patient Shigella sonnei were isolated. What additional studies are required to identify the source of infection?

a. Neutralization reaction

b. Phage-typing of the isolated pure culture

c. Precipitation reaction

d. Antibiogram

e. Complement-fixation reaction

52. Microscopy of a smear obtained from a patient with acute purulent periostitis revealed gram-positive bacteria arranged in clusters resembling bunch of grapes. What microorganisms is this morphology typical for?

a. Tetracocci

b. Sarcina

c. Staphylococci

d. Candida fungi

e. Streptococci

53. A patient in the oral surgery department has got purulent complication. Bacteriological analysis of the wound material found a culture that produces cyan pigment. What microorganism is the most probable causative agent?

a. Bacillus subtilis

b. Proteus vulgaris

c. Pseudomonas aeruginosa

d. Klebsiella pneumoniae

e. Staphylococcus epidermidis

54. Sputum smears of a patient with chronic pulmonary disease were stained by Ziehl-Neelsen method and analyzed in the bacteriological laboratory. Microscopy revealed red bacillus. What property of tuberculosis myobacteria was found?

- a. Encapsulation
- b. Spore-formation
- c. Alkali resistance
- d. Alcohol resistance
- e. Acid resistance

55. A female woman has been clinically diagnosed with gonorrhea. Which of the following studies can be used to confirm the diagnosis?

- a. Hemagglutination reaction
- b. Immobilization reaction
- c. Disinfection of laboratory animals
- d. Bacteriophage test

e. Microscopy of the pathological material

56. Professional dentists belong to the risk group concerning professional infection with viral hepatitis type B. Name an effective method for active prevention of this disease among the dentists:

- a. Secure sterilization of medical instruments
- b. Introduction of specific immunoglobuline
- c. Introduction of interferonogenes

d. Vaccination with recombinant vaccine

- e. Working with gum gloves on

57. Microscopic analysis of tissue sampling from affected area of mucous membrane of oral cavity revealed bacillus in form of accumulations that looked like a pack of cigarettes. Ziehl-Neelsen staining gives them red colour. What kind of pathogenic organism was most likely revealed in tissue sampling?

- a. A.israelii
- b. M.avium
- c. M.tuberculosis
- d. A.bovis

e. M.leprae

58. A patient with clinical presentations of primary immunodeficiency displays disturbance of antigen-presenting function by immunocompetent cells. What cells may have structure defect?

- a. O-lymphocytes
- b. Macrophages, monocytes**
- c. B-lymphocytes
- d. T-lymphocytes
- e. Fibroblasts

59. From the purulent exudate of a patient with odontogenic phlegmon a pure culture of Gram(+) microorganisms was segregated. This culture was lecithinously active, coagulated plasma of a rabbit, decomposed mannitol under anaerobe conditions. What microorganism may have contributed to the origin of suppurative complication?

- a. S.aureus**
- b. S.pyogenes
- c. S.mutans
- d. S.viridans
- e. S.epidermidis

60. In case of many infectious diseases patients blood may contain antigens of causative agents. What reaction should be applied provided that the level of antigenemia is low?

- a. Agglutination test
- b. Latex agglutination test
- c. Immunoelectrophoresis
- d. Enzyme-linked immunosorbent assay**
- e. Indirect hemagglutination test

61. A pregnant woman applied to a doctor with complaints typical for toxoplasmosis. The doctor took a sample of her blood. What serological tests should be performed in this case?

- a. Wassermann test
- b. Complement binding assay**

- c. Neutralization test
- d. Precipitation test
- e. Widals test

62. 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 II hypersensitivity reaction
- b. Type IV hypersensitivity reaction**
- c. Seroreaction
- d. Arthus phenomenon
- e. Atopic reaction

63. A doctor recorded in the medical history that a patient had hypopnoe (reduced respiration depth). It means that the following characteristic of external respiration is reduced:

- a. Functional residual capacity
- b. Vital lung capacity
- c. Respiratory volume**
- d. Expiration capacity
- e. Respiratory minute volume

64. Specific prophylaxis involved application of a vaccine containing microorganisms and exotoxin detoxicated by formalin. It relates to the following type of vaccine:

- a. Combined**
- b. Anatoxin
- c. Live
- d. Chemical
- e. Genetically engineered

65. After continuous treatment with antibiotics a patient got symptoms of stomatitis. Examination of specimens of oral mucous membrane revealed some oval polymorphous Gram-positive microorganisms arranged in clusters. What microorganism may be the cause of such manifestations?

- a. S.pyogenes
- b. C.pylori
- c. C.perfringens
- d. S.aureus
- e. C.albicans**

66. Examination of a child revealed growth of a pharyngeal tonsil causing the obstructed air escape from nasal cavity. What openings of nasal cavity are blocked in this case?

- a. Choanae**
- b. Piriform
- c. Maxillary sinus
- d. Pterygopalatine
- e. Nostrils

67. Microscopy of a smear taken from the film that appeared on the peptone water 6 hours after seeding and culturing of a fecal sample in a thermostat revealed mobile gram-negative bacteria curved in form of a comma that didnt make spores or capsules. What microorganisms were revealed?

- a. Corynebacteria
- b. Spirilla
- c. Spirochetes
- d. Clostridia
- e. Vibrios**

68. In order to eliminate occupational risks dental workers underwent vaccination. The vaccine should protect them from a viral infection, whose pathogen may be found in blood of dental patients who had had this infection or who are its chronic carriers. What vaccine was used?

- a. Live measles vaccine
- b. Inactivated hepatitis A vaccine
- c. Genetically engineered HBs antigen
- d. Subunit influenza vaccine
- e. Anti-rabies vaccine

69. A patient complains of frequent bowel movements and stool with blood admixtures ("raspberry jelly" stool). Microscopic examination revealed large mononuclear cells with absorbed red blood cells. What protozoon is this morphological structure typical for?

- a. Entamoeba histolytica
- b. Campylobacter jejuni
- c. Balantidium coli
- d. Toxoplasma gondii
- e. Giardia lamblia

70. 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

71. According to the data collected by WHO researchers, every year approximately 250 million malaria cases occur in the world. This disease can be encountered predominantly in tropical and subtropical areas. The spread of this disease matches the natural habitat of the following genus of mosquitoes:

- a. Aedes
- b. Culex
- c. Anopheles
- d. Mansonia
- e. Culiseta

72. A child was hospitalized with diagnosis of diphtheria. What should be given to this child for specific therapy?

- a. Diphtheria vaccines: DPT, DT, diphtheria vaccine
- b. Diphtheria bacteriophage
- c. Diphtheria anatoxin, antibiotics
- d. Codivac vaccine, sulfanilamides
- e. Diphtheria antitoxin serum, antibiotics

73. A man complaining of nausea, liquid stool with mucus and blood streaks, high temperature, and weakness was hospitalized into the infectious diseases department. The doctor suspects dysentery. What method of laboratory diagnostics would be the most effective for confirmation of this diagnosis?

- a. Bacteriological analysis
- b. Mycological analysis
- c. Protozoan analysis
- d. Microscopy
- e. Serological analysis

74. A person bitten by a stray dog came to the surgeon's office. Wide lacerated wounds are localized on the patient's face. What rabiesprevention aid should be provided to this person?

- a. Immediately administer DPT vaccine
- b. Prescribe combined vitamin therapy
- c. Begin immunization with antirabic vaccine
- d. Hospitalize the patient and continue to monitor his condition

e. Immediately administer normal gamma globulin

75. A bacteriological laboratory conducts the analysis of potable water quality. Microbial number of the water sample is approximately 100. What microorganisms were accounted for in this case?

a. Human and animal pathogenic bacteria

b. Colibacilli

c. All bacteria that have grown on a nutrient medium

d. Opportunistic pathogenic bacteria

e. Enteropathogenic bacteria and viruses

76. Often the cause of secondary immunodeficiency is organism exposure to an infection, agents of which reproduce directly in the cells of immune system and destroy them. Specify the diseases, during which the described above occurs:

a. Poliomyelitis, viral hepatitis type A

b. Tuberculosis, mycobacteriosis

c. Infectious mononucleosis, AIDS

d. Dysentery, cholera

e. Q fever, typhus

77. A sick child is suspected to have tuberculosis and is referred for Mantoux test. 24 hours later the place of allergen injection became swollen, hyperemic, and tender. What main components determine the development of this reaction?

a. Mononuclear cells, T-lymphocytes, and lymphokines

b. Plasma cells, T-lymphocytes, and lymphokines

c. Macrophages, B lymphocytes, and monocytes

d. B-lymphocytes and IgM

e. Granulocytes, T-lymphocytes, and IgG

78. A 3-year-old girl has rubella. Her 10- year-old sister was not infected, despite both girls constantly remaining in contact. The pediatrician determined that the elder girl had rubella 5 years ago. What type of immunity does the elder sister have?

a. Artificial active

b. Natural passive

c. Natural active

d. Artificial passive

e. Innate

79. During identification of pure culture of microorganisms the most important part is a serological identification that is conducted by means of agglutination reaction. What components are necessary to conduct this reaction?

a. Specific antigen, known antibody, bacteria

b. Unknown antibodies, nonspecific antigen

c. Thermoextract, specific serum

d. Unknown bacterial culture, specific antibodies

e. Specific antigen, serum sample obtained from the patient

80. During laboratory diagnostics of hepatitis C, it is necessary to detect the presence of antibodies to hepatitis C virus in the patient's blood serum. What test should be conducted in this case?

a. Nucleic acid hybridization with signal amplification

b. Nucleic acid hybridization

c. Enzyme-linked immuno sorbent assay (ELISA)

d. Ligase chain reaction

e. DNA probe method