

Gram-positive Cocci: Staphylococci

1. On examination the patient, a physician noted a suppuration of a deep wound. In a micropreparation of the pus, bacteriologist isolated staphylococci and clostridia. What remedy will be administered to the patient to prevent the spread of infection?

+Donor γ (gamma) - globulin.

Staphylococcal toxoid.

Tetanus toxoid.

Sextatoxoid.

Staphylococcal bacteriophage.

2. A physician diagnosed sepsis due to clinical signs of suppurated open fracture of a hip. What research technique will bacteriologist apply to confirm the diagnosis?

+Isolation of pure culture in the blood.

Isolation of pure culture in the wound.

Identification of antibodies to staphylococcal toxin.

Microscopy of blood smears.

Study of the patient's immune system.

3. What remedy is expected to be prescribed to a pregnant woman for specific prophylaxis of postnatal staphylococcal infection?

+Staphylococcal toxoid.

Inactivated staphylococcal vaccine.

Live (attenuated) staphylococcal vaccine.

Staphylococcal bacteriophage.

Ampicillin.

4. An old man had been attacked by influenza but did not visit a doctor. Serological research confirmed the diagnosis of influenza. The patient recovered but some days later he was admitted to hospital with fever and productive cough with purulent sputum. X-ray examination revealed numerous abscesses in the lungs of the patient. Sputum was identified for coagulase-positive bacteria with enzyme DNA activity. What microorganism was revealed by bacteriologist?

+*Staphylococcus aureus*.

Streptococcus pyogenes.

Clostridium perfringens.

Clostridium septicum.

Staphylococcus intermedius.

5. A 20-year-old patient developed a suppurated post operational wound after purulent appendectomy. Bacterioscopy of pus swab obtained from the wound revealed a considerable number of leukocytes and Gram-positive bacteria. What microorganism appeared to be the cause of suppuration of the postoperative wound?

+*Staphylococcus*.

Tetracoccus.

Streptococcus.

Gonococcus.

Meningococcus.

6. A 15-year-old female patient visited a dermatologist complaining of frequent furunculosis. Within several months on her face and neck there had been formed 1-2 furuncles; they disclosed, healed and then new furuncles appeared. The patient underwent a course of vitamin and antibiotic therapy, applied local treatment, was administered a course of special diet (without carbohydrates) but therapy appeared to be ineffective. What microorganism is the causative agent of furunculosis?

+*Staphylococcus*.

Enterococcus.

Fungi of genus *Candida*.

Escherichia coli.

Streptococcus.

7. To prevent frequent respiratory infections patients are often administered 'Ribomunil' inhalations. The remedy contains antigens of widespread causative agents of bacterial respiratory infections: golden

staphylococcus, pneumococcus, Klebsiella pneumoniae, Haemophilus influenzae. What is the mechanism of its therapeutic effect?

+Synthesis of specific secretory IgA is induced.

Synthesis of specific serral IgA is induced.

Formation of specific cytotoxic T-lymphocytes is induced.

Synthesis of specific IgG is induced.

Synthesis of specific IgM is induced.

8. A child is admitted to hospital with the diagnosis "staphylococcal sepsis". What nutrient medium will be used to isolate a causative agent in the blood?

Meat peptone agar (MPA).

MPA with bile.

+Sugar peptone broth.

Buczyna's medium.

Yolk-salt agar.

9. A female patient visited a doctor complaining of frequent formation of furuncles on the face, neck and shoulders. Bacterioscopy of pus swab from a furuncle revealed microorganisms of round shape arranged in grape clusters. What bacterium was revealed by bacteriologist?

Diplococcus.

+Staphylococcus.

Micrococcus.

Streptococcus.

Tetracoccus.

10. Immune therapy of staphylococcal diseases includes drugs, except:

Antistaphylococcal plasma.

+Antistaphylococcal horse serum.

Antistaphylococcal immunoglobulin.

Staphylococcal γ (gamma) - globulin.

Staphylococcal toxoid.

11. A 55-year-old patient suspected of sepsis is hospitalized to the surgical clinic. What material from the patient is it necessary to investigate, and in what bacteriological medium should the material grow?

+Blood; in sugar broth.

Cerebrospinal fluid; on serum agar.

Urine; in meat peptone broth.

Pus; on yolk salt agar.

Punctate of lymph node; on cysteine agar.

12. Administration of antibiotic therapy for a septic patient has been discussed by specialists. What particularity of the causative agent should be taken into consideration before obtaining the results of the patient's sensitivity to antibiotics?

Capability to form capsule.

+Gram staining results.

Acid-fast properties of bacterium.

Presence of aggressive factors.

Formation of spore.

13. Examining the medical staff of the surgical unit, bacteriologist isolated Gram-positive cocci from the nasopharynx of the operational sister. In a preparation microorganisms were arranged in grape clusters, on yolk salt agar they produced colonies of S-shape with turbidity, in anaerobic conditions they fermented mannitol with acid formation. What test will confirm that it is Staphylococcus aureus?

+Plasma coagulase test.

Catalase test.

Urease test.

Testing penicillinase.

Testing fibrinolysin.

14. A patient with an open fracture of a thigh is admitted to a casualty department. On examination, the doctor revealed wound suppuration. Bacteriological research of pus identified microbic association of staphylococcus and Escherichia coli. What is the type of infection?

+Mixed infection.

Secondary infection.
Primary infection.
Endogenous infection.
Superinfection.

15. Sepsis is a severe generalized human disease, in which microorganism

Is within the gallbladder.
Is identified in the lymph.
Is transported in the blood.
+Multiplies in the blood.
Is within the feces.

16. A child recovering from measles is diagnosed with pleuropneumonia. The disease is caused by conditional pathogenic *Staphylococcus epidermidis*. Name the type of infection.

+Secondary infection.
Superinfection.
Reinfection.
Persistent infection.
Nosomial infection.

17. Bacteriologist revealed microorganisms of round clusters and irregular shape in pus smear. What microorganism is characterized by such morphological properties?

Sarcine.
Diplococcus.
Streptococcus.
+Staphylococcus.
Micrococcus.

18. A patient got pustules on the skin. Bacteriologist isolated the agent which produced round, average sized yellow colonies with a zone of hemolysis on blood agar. In a micropreparation bacteriologist found out Gram-positive cocci arranged irregularly in a shape of congestions. The culture is oxidase and catalyze positive, ferments mannitol, and synthesizes plasminogen activator. Name the causative agent of the species.

Streptococcus pyogenes.
Streptococcus agalactiae.
+*Staphylococcus aureus*.
Staphylococcus saprophyticus.
Staphylococcus epidermidis.

19. Studying the immune status of the patient, bacteriologist defined phagocytic activity of neutrophils to golden staphylococcus. The estimation showed that the number of bacteria in phagocytes did not only decrease but, on the contrary, their number increased and bacteria remained viable. What pathologic process was established by bacteriologist?

+Incomplete phagocytosis.
Complete phagocytosis.
Reduction of neutrophils chemotaxis.
Elevation of neutrophils chemotaxis.
Reduction of neutrophils adhesion.

20. Before practical training at the plant the students are examined by the physician. The aim is to reveal *Staphylococcus aureus* carriers among them. What medium has to be used to isolate a pure culture of bacteria?

+Yolk-salt agar.
Endo agar.
Meat peptone agar.
Wilson-Blair agar.
Blood tellurite agar.

21. A 17-year-old male is suffering from furunculosis caused by *Staphylococcus epidermidis*. What test is to be performed to choose adequate therapy for the patient?

+Sensitivity of the agent to antibiotics.
Determination of agent's phage sensitivity.
Detection of pathogenic factors of the agent.
Detection of antigenic factors of the agent.

Study of biochemical properties.

22. Spherical microorganism is isolated from a purulent wound of the patient. Microorganisms are arranged in the preparation like a grape cluster. Bacterium is Gram-positive. On MPA bacterium produces S-shape colony. What species of bacteria is detected in the pus of the wound?

+It is impossible to establish a list of properties typical for bacterium.

Staphylococcus aureus.

Staphylococcus epidermidis.

Staphylococcus saprophyticus.

Streptococcus pyogenes.

23. Pathogenic staphylococcus was isolated from a purulent wound and its sensitivity to antibiotics was defined: penicillin – zone of 8 mm growth, oxacilin – 9 mm, ampicillin – 10 mm, gentamicin – 22 mm, lincomycin – 11 mm. What bacteriological method was used for the definition of pathogenic staphylococcal sensitivity to antibiotics?

+Agar Diffusion Test.

Method of Serial Dilutions.

Bacteriological method.

Bacterioscopic method.

Drygalsky method.

24. What nutrient medium is favorable for the growth of pus from the wound for express identification of the agent?

+Blood agar.

Sugar agar.

Milk salt agar.

Bile agar.

Meat peptone agar.

25. If sepsis is suspected, patient's blood is investigated. 5-10 ml of blood is taken from the ulnar vein with sterile syringe. What nutrient medium is used for inoculation of blood?

+Sugar broth in a vial (50-100 ml).

Meat peptone agar on Petri dish.

Blood agar on Petri dish.

Glucose agar on Petri dish.

Meat peptone broth in test tube.

26. A 20-year-old patient visited a dentist complaining of toothache radiating to the temple. On examination of the carious cavity the patient felt pain at the bottom of the cavity. Pain was typical for acute pulpitis. What microorganism is most likely to cause pulpitis?

+*Staphylococcus aureus*.

Streptococcus salivarius.

Actinomyces viscosus.

Leptotrichia buccalis.

Prevotella melaninogenica.

27. A 30-year-old patient visited a dentist complaining of toothache in the 6th right lower tooth on chewing, tooth bleeding during meals and a stinking smell. What is chelitis caused by?

+Formation of methylmercaptan and hydrogen sulphide.

Hyaluronidase synthesized by microorganism.

Milky acid produced by microorganisms.

Degeneration of tooth tissue and microorganisms.

Endotoxin secreted by microorganism.

28. A patient is admitted to hospital with staphylococcal dermatitis which does not respond to antibiotic therapy. What is to be done next to cure the patient?

+Administration of autovaccine.

Administration of antibiotics of wide spectral effect.

Administration of a high dose of penicillin.

Use of antitoxin.

Administration of antibiotics with vitamin complex.

29. To prevent post operational complications 50 ml of liquid polyvalent staphylococcal bacteriophage was injected into the patient's abdominal cavity. What is the mechanism of action of the injection?

+Lysis of microbial cells.
Neutralization of staphylococcal toxins.
Immunity activation.
Slow growth of the agent.
Destruction of synthesis of pathogenic enzymes.

30. A patient with furunculosis underwent microbiological investigation to confirm staphylococcal etiology of the disease. What method of microbiological diagnostics was used?

+Bacteriological.
Skin allergic test.
Serological.
Microscopic.
Biological.

31. An episode of suppurated postoperative wound is registered in the surgical department. Bacterioscopy of the wound revealed colonies of Gram-positive bacteria arranged in grape clusters. To differentiate what microorganism did bacteriologist use coagulase test?

+*Staphylococcus aureus* from *Staphylococcus epidermidis*.
Streptococcus pyogenes from *Staphylococcus aureus*.
Staphylococcus epidermidis from *Neisseria meningitidis*.
Streptococcus pyogenes from *Enterococcus faecalis*.
Neisseria meningitidis from *Streptococcus pneumoniae*.

32. A purulent abscess developed on the neck of a 65-year-old man. Bacteriologist isolated a culture of Gram-positive coccus possessing plasma coagulase activity. It is most likely to be

+*Staphylococcus aureus*.
Staphylococcus epidermidis.
Staphylococcus saprophyticus.
Neisseria meningitidis.
Streptococcus pyogenes.

33. Isolated pathogens of staphylococcus from a purulent wound were tested for their sensitivity to antibiotics: penicillin – zone of 8 mm growth, oxacillin – 9 mm, ampicillin – 10 mm, gentamicin – 22 mm, lincomycin – 11 mm. What antibiotic is to be prescribed for therapy?

Penicillin.
Oxacillin.
Ampicillin.
+Gentamicin.
Lincomycin.

34. A staphylococcal culture had been incubated for a long time at room temperature; after that a preparation was Gram stained. Microscopy revealed Gram-positive cocci settled in pairs and in small clusters. What type of variation is it?

+Modification.
Conjugation.
Mutation.
Transduction.
Transformation.

35. A doctor suspected a case of meningitis in a 30-year-old man. Anamnesis reads that the patient pressed out a pimple on the nose, after that a reddening with pus in the centre appeared on the same place. His face got swollen; his body temperature elevated and symptoms of meningitis appeared. Pathogenic staphylococcus was isolated during inoculation of blood and cerebrospinal fluid. What pathogenic factor allows staphylococcus to penetrate through the skin, connective tissue, to find its way into the blood and cerebrospinal fluid?

+Factor of invasion.
Factor of adhesion.
Endotoxin.
Exotoxin.
Capsule.

36. A patient is diagnosed with furunculosis. Micropreparation of the pus shows Gram-positive bacteria arranged in clusters. What pathogenic feature of bacteria is to be identified to establish the etiology of the disease?

- +Synthesis of plasma coagulase and lecithinase.
- Growth on meat peptone broth.
- Synthesis of lipopolysaccharide endotoxin.
- Synthesis of β -lactamase.
- Pigment formation.

37. A condition of a 20-year-old patient deteriorated sharply after purulent appendicitis. A physician suspected sepsis and administered blood test for sterility. Which medium of cultivation should be used by bacteriologist for blood inoculation?

- +Sugar broth.
- Loeffler medium.
- Blood agar.
- MPA.
- Endo agar.

38. A 30-year-old patient developed a purulent postoperative process. Bacteriologist isolated *Staphylococcus aureus* from the purulent wound. Which test allows the bacteriologist to differentiate the isolated culture from *Staphylococcus epidermidis*?

- +Plasma coagulase activity.
- Haemolysis on blood agar.
- Colourization of the colonies.
- Fermentation of arabinose.
- Oxidase test.

39. Which bacterial component causes endotoxic shock?

- +Lipid A.
- Capsular lipopolysaccharide.
- H-antigen.
- Ribosomal ribonucleic acid (rRNA).
- Lecithinase.

Gram-positive Cocci: *Streptococci*

40. A patient is diagnosed with croupous pneumonia. In lumps of pus from the sputum there were revealed Gram-positive lancetrical incapsulated diplococci. What method of diagnostics was used by bacteriologist?

- +Bacterioscopic.
- Express method.
- Bacteriological.
- Biological.
- Serological.

41. A 14-year-old patient is diagnosed with chronic decompensated tonsillitis. Tonsillectomy is supposed to decide the problem. What laboratory research will confirm the necessity of surgical intervention?

- +Identification of antigens of streptococcus in the urine by ELISA.
- High titre of antibodies to the toxin of streptococcus.
- Increased titre of antibodies to the toxin of streptococcus in dynamics.
- Increased number of leukocytes.
- Isolation of pure culture of haemolytic streptococcus from the fauces.

42. Gram-positive lancetrical diplococci with the pointed opposite ends were revealed in the sputum of a patient suspected of pneumonia. What species of bacteria is it?

- +*Streptococcus pneumoniae*.
- Staphylococcus aureus*.
- Klebsiella pneumoniae*.
- Neisseria meningitidis*.
- Neisseria gonorrhoeae*.

43. On what nutrient medium is it necessary to culture clinical material for the isolation of streptococcus?

- +Blood agar.
- MPB.

Yolk-salt agar.

Bile salt broth.

MPA.

44. In the material of the patient with the suspicion of scarlatina Gram-positive oval-shaped microorganisms arranged in chains were revealed. What are the basic cultural properties of the causative agent of scarlatina?

+It requires nutrient medium.

Selective medium is Endo agar.

It forms large colourless colonies.

Bacteria cultivate only in anaerobic conditions.

They produce diffuse turbidity on meat peptone broth.

45. Infection of gall bladder is caused by microorganisms, in which microscopy revealed capsules; bacteria are stretched and arranged in pairs or short chains. Due to biological properties bacteriologist related them to streptococci of group D. What are the isolated microorganisms called?

Streptococci with a green zone of haemolysis.

Pyogenic streptococci.

Haemolytic streptococci.

+Enterococci.

Pneumococci.

46. A 5-year-old child diagnosed with pneumonia is administered injections of penicillin. 40 minutes later urticaria and itching appeared on the skin. What is the mechanism of such allergic reaction?

Cytotoxic reaction.

Arthús phenomenon.

Cellular immune reaction.

+Anaphylactic reaction.

Delayed hypersensitivity.

47. On suspicion of scarlatina, there was made a fence of slime from the fauces and nose of a child. On yolk-salt agar small transparent colonies with an iridescent aura grew. On MPA colonies had golden pigmentation. Plasmocoagulase reaction was positive. On Ramchensky and Schaveleva media there was revealed diffuse turbidity related to the formation of sour products at the fermentation of glucose. The bacteria produced necro-, hemo- and enterotoxins. Is the isolated culture a causative agent of scarlatina?

Yes, it is a streptococcus.

+No, it is not a streptococcus.

Yes, it is a meningococcus.

Yes, it is a micrococcus.

Yes, it is an enterococcus.

48. A child is diagnosed with chronic tonsillitis. A culture of coccal bacteria was isolated in the mucus of the pharynx. Microscopy of the preparation revealed bacteria located in chains. What microorganisms have typical location?

+Streptococci.

Staphylococci.

Escherichia.

Clostridium.

Vibrio.

49. The blood of the patient suspected of sepsis was cultured on blood agar and on sugar broth. Small transparent round colonies surrounded by a zone of hemolysis grew on blood agar. On sugar broth sedimentation of bacteria was observed. Gram stain of the preparation revealed Gram-positive cocci located in chains. What microorganisms were identified in the patient's blood?

Sarcine.

Micrococci.

+Streptococci.

Staphylococci.

Tetracocci.

50. The pus was taken from the wound of a patient with femoral phlegmona and it was sent for investigation to the bacteriological laboratory. On blood agar greyish casky colonies (diameter up to 1 mm) surrounded by a wide zone of hemolysis grew. Gram stain revealed round (diameter up to

1 mm) bacteria of violet pigmentation located in chains. What microorganisms were they?

+β-hemolytic streptococcus.

Golden staphylococcus.

Staphylococcus epidermidis.

Proteus vulgaris.

α (alpha) - hemolytic streptococcus.

51. In the sputum of the patient suspected of croupous pneumonia Gram-positive cocci in the capsule were revealed. The capsule became swollen when a specific immune serum was added. What is the causative agent of the disease?

Staphylococcus haemolyticus.

+*Streptococcus pneumoniae*.

Staphylococcus aureus.

Streptococcus viridans.

Streptococcus pyogenes.

52. In the slime from the tonsils of a patient with angina there were revealed round microorganisms, arranged in chains in the preparation stained by Gram method. What microorganisms were revealed in the slime?

+Streptococci.

Staphylococci.

Diplococci.

Micrococci.

Tetracocci.

53. A 6-year-old child got ill with the disease caused by hemolytic streptococcus. It began with acute catarrh of the fauces and tonsils, spread later to the mucous membrane of the mouth, tongue ("crimson tongue") and pharynx. On the tonsils there was also revealed necrosis spreading to the soft palate and pharynx. In the places with the rejection of necrotic material the ulcers were formed. Cervical lymphatic nodes were enlarged. The surface of the body was observed with spots of bright red colour. There was no rash on the part of nasolabial triangle. What was the patient diagnosed with?

Measles.

Angina.

+Scarlatina.

Diphtheria.

Meningococcal nasopharyngitis.

54. A patient complains of high temperature (up to 39 °C), cough with a plenty of sputum and chest pain. The research of the sputum revealed Gram-positive diplococci. Name the prospective activator of the disease.

Neisseria meningitidis.

Klebsiella pneumoniae.

Mycoplasma pneumoniae.

+*Streptococcus pneumoniae*.

Legionella pneumophila.

55. A 7-year-old child is repeatedly sick with angina caused by streptococcus. Doctor suspected the development of rheumatism and administered serological research. The presence of antibodies to what antigens of streptococci will confirm the prospective diagnosis?

+To O-streptolysin.

To C-carbohydrates.

To M-protein.

To erythrogenic toxin.

To polysaccharide of the capsule.

56. A patient of 32 years old is suspected of subacute septic endocarditis after an attack of streptococcal angina. What kind of streptococcus is likely to be isolated in the drop of blood?

+*Streptococcus viridans*.

Streptococcus pyogenes.

Streptococcus agalactiae.

Streptococcus pneumoniae.

Streptococcus bovis.

57. A female of 73 years old developed fever, cough, and chills on the sixth day after the operation on the abdominal cavity. Sputum microscopy revealed Gram-positive diplococci of lancetical shape. What is the suggestive causative agent of the disease?

+*Streptococcus pneumoniae*.

Streptococcus pyogenes.

Klebsiella pneumoniae.

Mycoplasma pneumoniae.

Chlamydia pneumoniae.

58. Serologic research of the patient's serum revealed antistreptolysins. What immune cells produce them?

+B-lymphocytes.

T-lymphocytes.

Macrophages.

NK-cells.

Monocytes.

59. A woman presented to the therapist complaining of a sore throat, elevated temperature, and general weakness. Objectively: hyperemia of the fauces, incrustations of white colour easily removed by spatula. Microscopy of the preparation from the fauces revealed Gram-positive cocci located in chains. What method of laboratory diagnostics is considered to define the causative agent?

+Bacteriological.

Serological.

Biological.

Bacterioscopic.

Express-method (fluorescence microscopy).

60. Microscopy of the sputum obtained from the patient with croupous pneumonia revealed microorganisms surrounded by a capsule. What is the chemical structure of the capsule?

+Polysaccharides.

RNA.

Peptidoglycans.

Lipids.

DNA.

61. Identifying etiological role of microorganisms in the development of infectious process, it is necessary to take into account pathogenic factors. What pathogenic factor of streptococcus can be determined in the clinical material through light microscopy?

+Capsule.

Fimbria.

Protein M.

Protein A.

Inclusions.

62. A woman of 48 years old presents with dyspnoea, swollen eyelids, and backache. The urine contains proteins and erythrocytes. The diagnosis is "acute pyelonephritis". Past case history said that for many years she had been suffering from chronic tonsillitis. What microorganisms are likely to be the causative agents of the disease?

+Streptococci.

Staphylococci.

Ureaplasmas.

Chlamydiae.

Proteus.

63. A 25-year-old female suffering from pyoepidermidis caused by streptococcus developed sepsis. For the confirmation of the streptococcal origin of sepsis in the patient, 10 ml of blood was taken and grown on bile broth. The crop was cultivated in ordinary thermostat at the $t = 37\text{ }^{\circ}\text{C}$ within 6 weeks, but no signs of growth appeared. What mistake was made by bacteriologist?

+The medium was chosen incorrectly.

Wrong method of diagnostics.

The material for the research was chosen incorrectly.

Insufficient amount of the material for research was taken.

There were not created anaerobic conditions.

64. What microorganism is a common reason of bacterial meningitis in newborns?

+*Streptococcus agalactiae*.

Streptococcus pneumoniae.

Staphylococcus aureus.

Klebsiella pneumoniae.

Escherichia coli.

65. Virological and bacteriological method of the researched material revealed the agents of measles and scarlet fever. What kind of infection is it?

+Mixed.

Long-lasting.

Latent.

Chronic.

Inapparent.

66. A boy of 12 year's old developed rheumatic endocarditis after the attack of quinsy. Every next streptococcal infection worsens the condition of the patient. What preparation is relatively safe for the prophylaxis of complications?

Streptococcal toxoid.

+Benzolpenicillinum sodium salt.

Streptococcal bacteriophage.

Donor γ (gamma) - globulin.

Autovaccine.

67. A 2-year-old child was introduced with a small amount of serum against erythrogenous toxin of streptococcus subcutaneously. Skin rash disappeared on the place of injection. What is the result of reaction evident of?

The whole serum dose can be introduced intravenously.

The child is hypersensitive to erythrogenous toxin.

The disease was caused by nonhemolytic streptococcus.

+Clinical diagnosis is confirmed.

Immune system of the child is weakened.

68. A patient is diagnosed with "croupous pneumonia". Microscopy of the pus from the sputum revealed Gram-positive diplococci of lancetical form with a capsule. What agent caused the disease?

+*Streptococcus pneumoniae*.

Klebsiella pneumoniae.

Chlamydia pneumoniae.

Staphylococcus aureus.

Escherichia coli.

69. Infection of gall bladder was caused by microorganisms similar to pneumococci. Due to biological properties bacteriologist related them to streptococci of group D. What microorganisms are most likely to cause the disease?

+Faecal enterococci.

Streptococci with a green zone of haemolysis.

Pyogenic streptococci.

Lancetical diplococci.

Haemolytic streptococci.

70. An attack of flu was followed by pneumonia and the patient was hospitalized to the infectious department. Investigation of the sputum revealed Gram-positive cocci. The growth of bacteria on nutrient medium was characterized by the development of β -hemolysis. What nutrient medium was used for investigation?

+Blood agar.

Yolk-salt agar.

Kitt-Tarozzi medium.

Endo agar.

Serum agar.

71. A 7-year-old patient presented to the hospital with hyperemia of the skin, bright red small spots on the forehead, neck, groins, and popliteal area; nasolabial triangle seemed pale. There were observed local bright

red hyperemia in the throat, swollen tonsils, pus in the lacunes and "strawberry tongue". Cervical lymphatic nodules were enlarged, dense and painful on palpation. What disease was the patient diagnosed with?

Infectious mononucleosis.

Rubella.

Diphtheria.

Pertussis.

+Scarlet fever.

Gram-negative Cocci: Neisseria (Coffee-bean Shaped Diplococci)

72. Which of these microorganisms can cause specific inflammation?

+Gonococcus.

Volkovitch-Frisch bacilli (*Klebsiella pneumoniae*, subsp. *rhinoscleromatis*).

Staphylococcus.

Streptococcus.

Leoffler's bacillus.

73. A patient is diagnosed with gonorrhea. What is bacteriological investigation performed for?

+Identification of antibiotic sensibility.

Identification of biochemical properties of culture.

Determination of phagotype.

Making a diagnosis more precise.

Determination of pathogenic properties of the microorganism.

74. A patient is hospitalized with the suspicion of chronic gonorrhea. What serological two-phased reaction must be carried out for determining specific antibodies in the patient's serum?

+Complement fixation test (Bordet-Gengou test).

Reaction of neutralization.

Agglutination test.

RIA (Radioimmune assay).

ELISA (enzyme-linked immunosorbent assay).

75. A child is hospitalized with the symptoms of headache, vomiting and slurred speech. Lumbar puncture was made and Gram-negative diplococci located mainly intracellularly were revealed. What is the cause of this case?

+*Neisseria meningitides*.

Staphylococcus aureus.

Influenza virus.

HIV.

Poliovirus.

76. Pure culture of coccus was isolated from the urethral discharge of a patient with urethritis. This isolated microorganism ferments glucose only into acid. What microorganism is it?

+*Neisseria gonorrhoeae*.

Neisseria meningitidis.

Staphylococcus aureus.

Streptococcus pyogenes.

Enterococcus faecalis.

77. Pure culture of polymorph coccus capable to ferment glucose and maltose into acid was isolated from the material of a 5-year-old child. What microorganism is it?

+Meningococcus.

Staphylococcus.

Streptococcus.

Pneumococcus.

Gonococcus.

78. A group of people who had been in contact were tested for chronic type of gonorrhea. They were administered serological research of blood serum with complement fixation test and skin allergic test with gonococcal allergen. Why were those two methods used?

+They allow choosing patients for more accurate research.

They are the most informative for the confirmation of diagnosis.

They allow making proper diagnosis in short terms.

They can be performed in any hospital.

This is doctor's wish.

79. A patient is tested for toxoplasmosis and chronic form of gonorrhea according to the rules of sterility. What reaction must be performed for the confirmation of the above mentioned diseases?

+Complement fixation test.

IFT.

Immunoblotting.

PIHAT (passive indirect hemagglutination test).

Counter electrophoresis.

80. Bacteriologist prepared a pus smear from the patient's urethra by Gram staining. Microscopy revealed a great number of leucocytes, in the cytoplasm of which there were a lot of Gram-negative diplococci in a shape of coffee beans. What is the result of this process?

+Phagocytosis.

Metabolism.

Formation of capsule.

Formation of spore.

Malignation.

81. A 5-year-old patient complains of bad headache and vomiting. Objectively: rigidity of the occipital muscles, occasional vomiting, nausea, herpes on the face, and fever. What material can prove the preliminary diagnosis of cerebrospinal meningitis?

+Puncture of cerebrospinal fluid which runs out under pressure with unpleasant odor.

Identification of *N. meningitidis* in urine culture.

Identification of *N. meningitidis* in stool culture.

Research of vomiting mass.

Identification of *N. meningitidis* on the mucous membrane of urogenital system.

82. During bacteriological investigation of pyogenic discharge from urethra there were discovered Gram-negative coffee-bean shaped bacteria which could ferment glucose into acid and were settled inside cytoplasm of leucocytes. What disease can these microorganisms cause?

+Gonorrhea.

Syphilis.

Veneral lymphogranulomatosis.

Soft chancre.

Meloidosis.

83. Light blue colonies grew on special enriched media after having been inoculated from the urethra. Microscopy revealed Gram-negative coffee bean shaped diplococci. What disease can these microorganisms cause?

Chlamydiosis.

+Gonorrhea.

Syphilis.

Tularaemia.

Melioidosis.

84. Smear was taken from a patient suspected of chronic form of gonorrhoea. Three days earlier the patient had treated himself with penicillin. L-forms of gonococcus are observed under the microscope. What is the effect of penicillin on gonococcus?

It destroys protein synthesis.

+It destroys cell wall synthesis.

It destroys aminoacid synthesis.

It changes penetrative function of cytoplasm membrane.

It destroys adhesion.

85. The staff and children of a kindergarten are to be tested for meningococcal infection. Choose the method of microbiological research.

Skin allergic test.

+Bacteriological.

Bacterioscopic.

Biological.

Serological.

86. Gram - negative coffee bean shaped diplococci were found in the pyogenic discharge from the neck of uterus. They were located in leucocytes and outside them. They created a film in a fluid medium; they were inactive biochemically, produced endotoxin and could stimulate the inflammation of uterus. What agent caused the inflammation of the uterine neck?

Chlamydia trachomatis.

Haemophilus vaginalis.

Trichomonas vaginalis.

+*Neisseria gonorrhoeae*.

Calymmatobacterium granulomatis.

87. Bacteriologist followed all the rules during the research of a pathological material (cerebrospinal fluid, mucus from the pharynx, blood) because of high sensibility to environmental factors (low temperature) and to the demands of the selective media. Microscopy revealed Gram-negative coffee bean shaped cocci arranged in pairs or in tetrads. Name the isolated causative agent.

+*Neisseria meningitidis*.

Staphylococcus aureus.

Neisseria gonorrhoeae.

Moraxella lacunata.

Acinetobacter calcoaceticus.

88. During bacteriological investigation of the material taken from the patient suspected of chronic gonorrhoea no growth of microorganisms on special enriched media was observed. What method of diagnostics is to be used to confirm or deny the diagnosis of chronic gonorrhea?

+Complement fixation test, skin allergic test with gonococcal antigen.

Determination of antibodies titre in patient's blood serum using passive haemagglutination test.

Biological method.

Immune electron microscopy.

Reinvestigation of the material in differential-diagnostic medium.

89. Cerebrospinal fluid of a child suffering from cerebrospinal meningitis contained a great number of leucocytes. What serological reaction should be performed for express diagnostics of the disease?

Agglutination test.

+Precipitation test.

Complement fixation test.

HAT (haemagglutination test).

Neutralization test.

90. A child is suspected of pyogenic keratoconjunctivitis of ophthalmia neonatorum (gonococcal conjunctivitis, blennorrhoea). What methods are most likely to confirm the diagnosis?

+Microscopic and bacteriological.

Serological and skin allergic tests.

Biological and methods of bacteriophage typing.

Biological and skin allergic tests.

Microscopic and serological.

91. A child suffering from nasal pharyngitis is diagnosed with meningococcal infectious disease. Which method of diagnostics is the most effective for the confirmation of diagnosis?

Biological test.

Serological.

Microscopic.

+Bacteriological.

Skin allergic test.

92. A patient is suspected of acute form of gonorrhea. Gram staining of the pus obtained from the urethra of the patient revealed a great number of cocci. What tinctorial properties and the way microorganisms are arranged in the preparation confirm this diagnosis?

Gram-positive cocci located in leucocytes and outside them.

Gram-positive diplococci located in leucocytes and outside them.

Gram-positive tetrads located in leucocytes and outside them.

Gram-positive cocci arranged in chains.

+Gram-negative coffee-bean shaped diplococci located in leucocytes and outside them.

93. A patient who is known to have suffered from gonorrhea but recovered completely is diagnosed with acute gonorrhea again. What type of the disease is it?

Recurrence.

Secondary infection.

+Reinfection.

Autoinfection.

Superinfection.

94. There are some pathological processes associated with microbic factors: meningococcemia, acute pyelonephritis caused by *Klebsiella*, septic condition caused by *Escherichia coli*, bad wound infection caused by *Proteus vulgaris* and endometritis caused by enteroinfection of unknown origin. Name the common sign of these diseases.

Bacterial protein toxin intoxication.

Sepsis.

+Intoxication caused by lipopolysaccharide endotoxin.

Presence of Gram-negative bacteria in blood.

Septicemia with the development of allergic reactions.

95. Choose the condition which can ensure the right results in investigation of meningococcal infection:

Transportation of the material in cool condition ($t = 0-4,5^{\circ}\text{C}$).

Transportation of the material in elective medium ($t = 37,5^{\circ}\text{C}$, 1 hour).

Transportation of the material in preserving medium ($t = 20,5^{\circ}\text{C}$).

+Growth of the material obtained near the bed of the patient into MPB with protein.

Transportation of the material in selective medium ($t = 37,5^{\circ}\text{C}$, 1 hour).

96. Gram-negative diplococci located inside and outside leucocytes were identified in the preparation made from the patient's cerebrospinal fluid which ran out under pressure during lumbar puncture. What is this disease called?

Blue pus bacillus.

+Meningococcal infection.

Staphylococcal infection.

Tuberculosis.

Pneumococcal infection.

97. A 5-year-old child presented with elevated body temperature up to 40°C , headache, vomiting, anxiety, and chills. 4 days later hemorrhagic rash on the skin, oliguria, and suprarenal failure developed and it led to death. Meningococcus was determined during bacteriological research of pharyngeal smears. What type of disease was observed?

+Meningococcemia.

Hydrocephaly.

Meningoencephalitis.

Meningococcal nasopharyngitis.

Meningococcal meningitis.

98. Mother of a neonate visited an ophthalmologist of the outpatient department complaining of pyogenic discharge from the conjunctiva of the child's eye. A great number of leucocytes and Gram-negative bean-shaped diplococci were revealed inside leucocytes. What is the causative agent of the disease?

Streptococcus pyogenes.

Neisseria catarrhalis.

Staphylococcus epidermidis.

+*Neisseria gonorrhoeae*.

Staphylococcus aureus.

99. What is the most frequent reason of newborn bacterial meningitis?

Neisseria meningitidis.

Staphylococcus aureus.

Escherichia coli.

Streptococcus pyogenes.

+*Streptococcus agalactiae*.

100. A 30-year-old female suffers from chronic inflammation of the ovaries. Serological investigation by Bordet-Gengou reaction appeared to be positive. What microorganism is most likely to be the causative agent of the disease?

+*Neisseria gonorrhoeae*.
Chlamydia trachomatis.
Treponema pallidum.
Ureaplasma urealyticum.
Trichomonas vaginalis.

101. Diagnostics of chronic gonorrhea by Bordet-Gengou reaction is performed in the bacteriological laboratory. Such reagents as gonococcal antigen, complement solution, hemolytic serum and erythrocyte suspension have been prepared. What is the function of complement in this reaction?

+It is adsorbed on the complex "antigen-antibody".
It blocks nonspecific antibodies in the researched serum.
It is a part of hemolytic system.
It represents itself as the indicator.
It changes corpuscular antigen to soluble one.

102. Bacterioscopy of the sediment of cerebrospinal fluid of the patient suspected of meningitis revealed Gram-negative diplococci. To confirm the diagnosis the sediment was inoculated on nutrient medium. What medium was used for the test?

+Serum agar with ristomycin.
MPA with lincomycin.
Blood agar with penicillin.
Blood agar with lincomycin.
MPA with ristomycin.

103. Pathologic material (pyogenic discharge from the urogenital system of the patient diagnosed with acute urethritis) was delivered to the bacteriological laboratory. To separate the causative agent the nutrient medium of serum agar with vancomycin and nystatin was prepared. What microorganism is likely to be isolated by bacteriologist?

+*Gonococcus*.
Treponema pallidum.
Candida genus fungus.
Chlamydia.
Staphylococcus aureus.

104. A young female unexpectedly developed high body temperature up to 39 °C and bad headache. On examination, a physician observed rigidity of occipital muscles and administered lumbar puncture. Gram staining of the preparation made from the cerebrospinal fluid revealed a great number of neutrophils and Gram-negative diplococci. What species of bacteria caused the disease?

+*Neisseria meningitidis*.
Streptococcus pneumoniae.
Haemophilus influenzae.
Staphylococcus aureus.
Pseudomonas aeruginosa.

105. A child from the kindergarten is diagnosed with meningococcal nasal pharyngitis. What type of vaccine will be administered to the other children for immediate specific prophylaxis of meningococcal infection?

+Chemical.
Live (attenuated).
Inactivated.
Toxoid.
Mixed vaccine.

106. Microscopy of the pus swab revealed a great number of Gram-negative cocci. What nutrient medium is used for bacteriological investigation of the pus?

+Blood agar.
MPA.
Endo agar.
Bile broth.
MPA with bile.

107. A culture of meningococcus was isolated from the sediment of the cerebrospinal fluid of the patient diagnosed with meningitis. What serological reaction is to be performed to determine the serum group of the causative agent?

+AT.
PT.
PHAT.
CFT.
Reaction of immune lysis.

108. A neonate was born without medical assistance, not in the maternity hospital. During pregnancy the mother was not checked up properly. On the second day a newborn was hospitalized with acute purulent conjunctivitis. Microscopy of the discharge from the eyes of the baby revealed Gram-negative diplococci settled inside and outside leucocytes. What microorganism is likely to be the causative agent of the disease?

+*Neisseria gonorrhoeae*.
Chlamydia trachomatis.
Corynebacterium diphtheriae.
Staphylococcus aureus.
Pseudomonas aeruginosa.

109. In the mucus of the rhinopharynx bacteriologist revealed small pair settled bean shaped microorganisms. Gram staining changed pigmentation to pink color. What microorganisms were revealed by bacteriologist?

+*Neisseria*.
Staphylococci.
Streptococci.
Enterococci.
Micrococci.

110. A sick doctor is diagnosed with gonorrhea. What method of microbiological diagnostics was used by bacteriologist to confirm the diagnosis?

+Microscopic (microscopy of pathological material).
Biological (infected laboratory animals).
Bacteriological (test with bacteriophage).
Serological (hemagglutination reaction).
Serological (immobilization reaction).

Facultative - anaerobic Gram-negative Enzymatic Rods – Escherichia

111. Colon bacillus culture with the antigen structure O111 was isolated from the feces of a 6-month-old child who had been fed artificially. What is the patient likely to be diagnosed with?

+Colienteritis.
Gastroenteritis.
Cholera-type disease.
Food poisoning.
Dysentery-type disease.

112. If a patient has dysbacteriosis followed by the development of ichorous flora (*proteus*, *pseudomonads*) and elevated pH in feces, he is prescribed biological preparations that will acidify the medium and manifest antagonistic effect. What microorganisms are capable to perform such functions?

+*Bifidobacterium bifidum*.
Klebsiella.
Azotobacter.
Enterobacter.
Serratia.

113. For the first inoculation of feces the following media are used:

Blood agar.
Triple sugar iron agar.
Hiss media.
+MacConkey agar (or eosin-methylene blue agar – EMB-agar).
Sugar broth.

114. When xenogenetic antigen penetrates into the organism, synthesis of antibodies takes place. Which of the enumerated immunoglobulins penetrates through placenta producing natural passive neonatal immunity?

IgA.
IgD.
IgE.
+IgG.
IgM.

115. Bacteriologist isolated Flexner shigellosis type 2 agent, Zonne shigellosis and enteropathogenic Escherichia coli O55:K59 from the material of a young patient. What is this type of infection called?

Secondary infection.
+Mixed infection.
Bacteria carriage.
Superinfection.
Reinfection.

116. Information about microorganism sensitivity and its resistance to antibiotics with zones of growth and delay diameter is given in the antibiogram obtained from the bacteriological laboratory. By what method was the microorganism sensitivity to antibiotics revealed in the given case?

By method of Serial Dilutions in the solid nutrient medium.
+By Disco-Diffusion test (with standard disks application).
By method based on the change of color of the indicator when pH medium is changed.
By method of Serial Dilutions in the liquid nutrient medium.
By method based on the microorganism enzymatic activity change.

117. E. coli serotype O78:K12 was isolated from the patient's feces and its sensitivity to antibiotics was determined: for penicillin growth delay zone of 8 mm, for erythromycin – 9 mm, for chloramphenicol – 10 mm, for gentamicin – 12 mm, for polymyxin – 25 mm. What antibiotic is most effective for the patient's treatment?

Penicillin.
Erythromycin.
Chloramphenicol.
Gentamicin.
+Polymyxin M.

118. A child suspected to have colienteritis is admitted to the infectious hospital. Colon bacillus was isolated from his feces. How can colon bacillus relation to pathogenic variants be determined?

By microscopy of stained preparations.
By growth on Endo agar.
With the help of phage typing.
On the basis of biochemical qualities study.
+In agglutination reaction with O-sera.

119. When the feces of a four-month-old child with the symptoms of acute intestinal infection were bacteriologically investigated, some of red pigmented colonies grew on Endo agar. What microorganism is it likely to be?

Staphylococcus.
Salmonella.
+Escherichia.
Streptococcus.
Shigella.

120. A 1.5-year-old child presented with vomiting, diarrhea, and elevated body temperature. His feces were investigated and plated on Endo agar. 18 hours later, round, slightly convex red colonies with metallic sheen and average size grew on the surface of the medium. What should be done with these colonies?

Phage typing of the microorganisms.
+Reaction of agglutination with polyvalent of OK-sera of pathogenic serum groups.
Plating of microorganisms on the triple sugar iron agar.
Making a preparation and staining it by Gram method.
Determination of the bacterial motility in the dark field.

121. During the outbreak of acute intestinal disease, serotype of pathogenic colon bacillus was isolated from some sick children. In order to identify the isolated culture as enteropathogenic Escherichia coli, it is necessary to reveal antigen O111 in it. What makes it possible to reveal this antigen in the isolated culture?

+Reaction of agglutination with the monovalent serum.

Differentiation of the antigens of bacteria by method of immune electrophoresis.

Dropped microagglutination.

Agglutination with the blood serum of the convalescent children.

Using specific precipitating serum against the mentioned antigen.

122. A 7-year-old boy has cholera-like disease (vomiting, profuse diarrhea). On plating the patient's feces on Endo agar, similar colonies of crimson color with metallic sheen appeared. What organism is likely to be the agent of the disease?

+Enterotoxigenic *Escherichia coli*.

Salmonella enterica.

Yersinia enterocolitica.

Shigella sonnei.

NAG-vibrios' (nonagglutinable vibrio).

123. A child with acute intestinal infection developed rapid signs of dehydration and blood streaks in feces. Pediatrician suspected colienteritis. Which of the methods should be used to diagnose enteric escherichiosis?

+Bacteriological.

Serological.

Biological.

Skin allergic test.

Microscopic.

124. Enterotoxigenic *Escherichia coli* was isolated from the soil during the sanitary bacteriological inspection of the city rest zone. Its toxin stimulates the appearance of cAMP (adenosine 3'5'-cyclic phosphate) and, as a result, hypersecretion of water and salts in the intestines appeared. What disease can this microorganism most likely cause?

+Cholera-like escherichiosis.

Dysentery-like escherichiosis.

Urethral infection.

Peritonitis.

Enterotoxic shock.

125. Infants from the orphanage are registered with outbreak of intestinal infection of colienteritis. What investigation should be performed for the final identification of the isolated agent?

+Study the antigenic properties of the agent.

Study the sensitivity to antibiotics.

Study the sensitivity to bacteriophages.

Study the biochemical properties of the agent.

Study the pathogenic ability of the agent.

126. The feces of a sick infant were sent to the bacteriological laboratory for investigation and Enteropathogenic *Escherichia coli* O55:K59 culture was isolated. On the basis of what properties can the isolated culture be referred to EPEC O55?

+Antigen properties.

Morphological properties.

Cultural properties.

Biochemical properties.

Phagotype determination.

127. A 37-year-old patient developed intestinal dysbacteriosis after a long course of antibiotic therapy. What medicine should be administered to the patient to normalize macroflora of the intestines?

+Eubiotics.

Sulfonamides.

Bacteriophages.

Autovaccine.

Vitamins.

128. A pure culture of pathogenic colon bacillus was isolated from the feces of a sick child and it was identified by its antigen structure. The child was diagnosed with colienteritis. What method of microbiological diagnostics was used to determine the serovar of the causative agent?

+Bacteriological.

Serological.

Biological.

Skin allergic test.

Microscopic.

129. A 6-month-old child developed severe intestinal disturbances with diarrhea. The initial diagnosis is "colienteritis". What method is likely to confirm the etiology of the disease?

+Bacteriological.

Microscopic.

Skin allergic test.

Biological.

Serological.

130. An 18-year-old male developed appendicitis as a result of endogenic infection. What living microorganism in the intestine is unlikely to be the causative agent of the illness?

+Bifidobacteria.

Bacteroides.

Enterococci.

Escherichia.

Proteus.

131. The feces of the patient diagnosed with acute intestinal disease were sent for bacteriological study. The material was inoculated on the nutrient medium and on the second day the answer obtained from the laboratory was "no pathogenic strains of intestinal bacterium are observed". The study of what properties of the bacterial culture made it possible to get such a result?

+Antigenic.

Tinctorial.

Morphological.

Sugarlytical.

Proteolytical.

132. A remedy containing bifidobacteria is used to prevent disbacteriosis. What group of preventive medication does it refer to?

+Eubiotics.

Vaccines.

Serum.

Immunoglobulins.

Chemical drugs.

133. What is the argument to prove that younger children are not susceptible to develop dysenterial escherichiosis but they get infected by serotypes of enteropathogenic Escherichia coli?

+The presence of IgG.

The presence of IgM.

The presence of serum IgA.

The presence of IgE.

Immunological tolerance.

134. A 6-month-old child presented with the signs of acute intestinal infection. The feces were inoculated on Endo agar for bacteriological diagnostics. The typical growth of the agent on the nutrient medium showed the initial result – the causative agent of Escherichia coli. What are the typical cultural properties of the agent on Endo agar?

+Red colonies with metallic sheen.

Large mucous colonies.

Small decolorized colonies.

Pink colonies with white rim.

"Swarming" type of growth on agar.

135. Bacteriological study of the urine revealed Escherichia coli, the number of which calculated 10^6 CFU/ml. What is it evident of?

+Ascending infection of the urinary apparatus (pyelonephritis).

Glomerulonephritis with autoimmune component.

Infection of the urine by urethra microphlora.

Infection of the urine by air microphlora.

Septicemia followed by the discharge of the agent with urea.

136. A child was hospitalized with the presentation of general malaise, diarrhea with bleeding, backache in the renal area, and anorexia. The coproscopy didn't reveal any leucocytes. What microorganism is likely to cause the disease?

+Enterohemorrhagic *Escherichia coli*.

Enteropathogenic *E. coli*.

Enterotoxigenic *E. coli*.

Enteroinvasive *E. coli*.

Enteraggregative *E. coli*.

137. Pure culture of *Escherichia coli* was isolated from the feces of the patient. Which from the listed below is not typical for this very type? Colon bacillus doesn't refer to

+Toxic at lysogenia.

Normal colon microflora of large intestine.

Causative agent of pyogenic inflammatory processes.

Causative agent of cholera-type diseases.

Active component of eubiotics.

138. A patient underwent the course of antibiotic therapy after the attack of chronic pneumonia, diarrhea, intestinal disturbances, and meteorism. Bacteriological study didn't reveal *Escherichia coli*, but the decreased number of lacto- and bifidobacteria. What remedy should be administered to the patient?

+Eubiotics and vitamins.

Antibiotics and eubiotics.

Sulfonamides and eubiotics.

Antibiotics and vitamins.

Sulfonamides and vitamins.

139. An isolated strain of colon bacillus appeared to be able to synthesize bactericins. What is this capability due to?

+Plasmids.

Mutations.

Reparations.

Dissociation.

Bacteriophage.

Facultative-anaerobic Gram-negative Enzymatic Rods – *Shigella*

140. *Shigella sonnei* was isolated from the feces of a patient. What additional investigation should be performed to determine the source of infection?

Study of sensitivity to antibiotics.

Precipitation test.

Complement fixation test.

+Phage typing of the isolated pure culture.

Neutralization test.

141. *Shigellosis* agent was isolated in the material obtained from a child with acute intestinal infection. What morphological properties is this agent characterized by?

Gram-positive mobile bacillus.

Capsule on the nutrient medium.

Spore in the medium.

Gram-positive bacilli arranged in chains.

+Gram-negative immobile bacilli.

142. A 29-year-old patient presented with vomiting, severe diarrhea, and tenesmus. Feces are decolorized with bundles of mucus and streaks of blood. During bacteriological investigation of the colonies on MacConkey agar immobile Gram-negative bacilli were revealed. They decomposed lactose partially within 48 hours. What is the causative agent of this infectious process?

Vibrio eltor.

Yersinia enterocolitica.

Proteus penneri.

+*Shigella sonnei*.

Salmonella enterica.

143. During the systematic inspection of shigellosis agent carrying in the customs employees, the coproculture possessing such features as: 1) Gram-negative bacillus; 2) decolorized colonies on Endo agar; 3) peritrichous; 4) fermentation of carbohydrates producing acid and gas was isolated. On the basis of what features did bacteriologists exclude the presence of shigellosis agent?

+Shigella is immobile.

Carbohydrate fermentation.

No growth on Endo agar.

The absence of agents among people.

Pigmentation by Gram stain.

144. A laboratory assistant has a problem with the fecal inoculation of a patient suspected to have shigellosis. What optimal diagnostic medium is necessary to be chosen for the differentiation of the agent from atypical shigella?

MacConkey-Chapin medium¹.

MacConkey agar.

+Synthetic medium with nicotine acid.

MPA.

Endo agar.

145. Among tourists (a group of 27 people), who drank water from a lake, 7 appeared to develop diarrhea two days later. What material is necessary to be sent to the laboratory for investigation so that to determine the etiology of the disease?

Patients' blood.

Food products.

Urine.

Sputum.

+Water and patients' feces.

146. Shigella, capable of producing exotoxin, was detected in a patient diagnosed with shigellosis. What species of shigella is it?

Shigella sonnei.

Shigella flexneri.

Shigella boydii.

Shigella newcastle.

+*Shigella dysenteriae*.

147. After drinking unboiled milk, a 4-year-old child developed signs of dysfunction of gastrointestinal tract, particularly: pain in the stomach, diarrhea, frequent defecation followed by spasmodic pains in the intestines. Feces had mucous-bloody consistence. What genus caused the infection?

Escherichia.

Clostridium.

Staphylococcus.

Salmonella.

+*Shigella*.

148. 10 children of different age groups got ill and developed clinical symptoms of intestinal infection in a kindergarten within 24 hours. During bacteriological investigation of the patients' feces the agents of shigellosis were isolated. Because of unfavorable epidemiological situation among the children of this group, it is necessary to take precautions for contacted children. What preparation for specific prophylaxis is it necessary to prescribe to the children who were in contact with those patients?

Immunoglobulin.

+Shigellosis bacteriophage.

Sulphanilamide.

Antibiotics.

TABTe-vaccine.

149. A patient who got ill 3 days earlier and at present complains of elevated body temperature (38°C), pain in the abdomen, frequent watery defecation and presence of blood in feces, is diagnosed with shigellosis. What method of microbiological diagnosis is expedient to be used in the given case? What patient's material is to be obtained to confirm the diagnosis?

Bacterioscopic; feces.

¹ Medium for cultivation of *Francisella tularensis* (causative agent of tularemia).

+Bacteriological; feces.
Bacterioscopic; blood.
Bacterioscopic; urine.
Serologic; blood.

150. On inoculation the feces of a patient suspected to have shigellosis, a great number of colonies with smooth surface and even edges grew on MacConkey agar. The isolated culture fermented glucose, mannitol and maltose producing acid and it didn't ferment lactose and sucrose. What species of microorganism is it?

Shigella sonnei.
+*Shigella flexneri*.
Shigella boydii.
Shigella dysenteriae.
Salmonella typhi.

151. A patient suspected to have shigellosis was admitted to the infectious department. Which of the following basic methods of microbiological diagnostics should be administered?

Mycological.
+Bacteriological.
Biological.
Bacterioscopic.
Skin allergic test.

152. A patient suspected of acute shigellosis was admitted to the infectious department. What material should be investigated in bacteriological laboratory?

+Feces.
Urine.
Bile.
Stomach washing water.
Blood.

153. Bacteriological investigation of the patient's feces diagnosed with typical shigellosis did not reveal clinical signs of the disease because of the previous use of antibiotics. In PHAT with pair sera the titre of antishigellosis antibodies grew by 4 times. What is it evident of?

A patient had shigellosis earlier.
Vaccinal reaction.
Nonspecific reaction.
Dismissal of shigellosis diagnosis.
+Confirmation of shigellosis diagnosis.

154. It was noted during the epidemiological investigation of shigellosis outbreak caused by *Shigella sonnei*, that three milk plant workers could have been the source of infection. What additional investigation should be performed to determine the original source of infection?

Serotype shigella determination.
Colicinotyping.
Titre of antishigellosis antibodies determination.
+Phage typing.
Subserotype shigella determination.

155. Pure culture of bacteria related to *Shigella* genus by morphological, cultural and biochemical properties was isolated from the patient diagnosed with the disease similar to colitis. Which of the reactions should be used for serological identification of the culture?

+Agglutination test with the diagnostic sera.
Complement fixation test.
PHAT.
Precipitation test.
Haemagglutination inhibition test.

156. While studying the coproculture of the patient infected with shigellosis the presence of Gram-negative immobile bacilli related to *Shigella sonnei* by serological features were identified. Point out the fermentation properties of *S. sonnei* according to lactose on Endo agar.

+Slowly fermenting lactose.
Non-fermenting lactose.
Fermenting lactose with acid and gas.

Colonies of bright red color with metallic sheen on Endo agar.

Non-cultivated on Endo agar.

157. To carry out the retrospective diagnostics of former shigellosis patient, which of the serological investigations of serum was prescribed to determine the titre of antibodies to Shigella?

+Passive haemagglutination test.

Complement fixation test.

Precipitation test.

Haemolysis test.

Bacteriolysis test.

158. A patient recovered from shigellosis and got infected with the same agent. What is this type of infection called?

+Reinfection.

Recurrent infection.

Superinfection.

Persistent infection.

Chronic infection.

159. Pure culture of shigellosis agent was isolated from the patient's material in the laboratory. What research should be made to identify the final serological agent?

+Reaction of agglutination with standard sera.

Reaction of agglutination with the patient's serum.

Reaction of indirect haemagglutination.

Reaction of molecular hybridization of DNA.

Detection of heat-stable antigens in the ring test.

160. Microscopic examination of the feces of a patient complaining of frequent stools, abdominal pain, and fever revealed Gram-negative bacilli creating decolorized colonies on Endo agar and fermenting glucose only. What agent is the cause of the disease?

+*Shigella dysenteriae*.

Escherichia coli.

Salmonella typhimurium.

Shigella sonnei.

Salmonella typhi.

161. The reaction performed by diagnostic test set revealed *Shigella sonnei* on the objects of the environment and in the food. The test set includes plastic microtiter plates (plates with series of small wells) with adsorbed specific antibodies. What is this reaction called?

+ELISA.

IFT.

PHAT (with antibody erythrocyte diagnosticum).

PHAT (with antigen erythrocyte diagnosticum).

Reaction of immunoelectrophoresis.

162. In a kindergarten, an outbreak of bacterial dysentery is registered. Who is most likely to be the source of infection?

+Employee of cafeteria.

A dog, the owner of which is a child attending the kindergarten.

A cat living in the territory of the kindergarten.

Turtles living in the aquarium.

A parrot that was brought to the kindergarten by a child.

163. Bacteriological study of patient's feces revealed lactose negative, immobile, Gram-negative, and rod shaped bacilli. The agent of what intestinal infection is characterized by such properties?

+Causative agent of dysentery.

Causative agent of typhoid fever.

Causative agent of colienteritis.

Causative agent of cholera.

Causative agent of salmonellosis.

164. In a kindergarten an outbreak of bacterial dysentery was registered. What therapy should be administered to the children to prevent the spread of infection?

+Bacteriophage.

Antibiotics.
Vaccines.
Probiotics.
Vitamins.

165. A patient complaining of frequent stools and mild pyrexia is preliminarily diagnosed with dysentery. The isolated culture ferments glucose and mannitol with the formation of acid; it slowly ferments lactose and does not ferment protein with the formation of indole. What causative agent of dysentery is characterized by such properties?

+*Shigella sonnei*.
Shigella boydii.
Shigella flexneri.
Shigella dysenteriae.
Plesiomonas shigelloides.

166. An autopsy of the mucous membrane of rectum and sigmoid colon of a 46-year-old male revealed multiple brownish-green layers, bleeding in the intestine's lumen and mucus with a small amount of blood; histologically it was diagnosed as fibrinous colitis. On bacteriological study of intestinal contents *Shigella sonnei* was isolated. What diagnosis is most likely to be made?

+Dysentery.
Crohn's disease.
Cholera.
Yersiniosis.
Salmonellosis.

Facultative-anaerobic Gram-negative Enzymatic Rods – Salmonella

167. Pure culture of typhoid fever was isolated in the patient's blood. What cultural properties are typical for this agent?

Formation of red pigmented colonies with metallic sheen on Endo agar.
Formation of decolorized colonies on bismuth-sulfite agar.
Haemolysis on blood agar.
Formation of soft pellicle on alkaline peptone water.
+Formation of colorless or pink colonies on Endo and MacConkey media.

168. An outbreak of food poisoning is associated with the use of confectionery made of duck eggs and kept at room temperature. What organisms are likely to cause the disease?

Escherichia coli.
+*Salmonella*.
Staphylococcus.
Legionella.
Vibrio cholerae.

169. For serum diagnostics of typhoid fever the following reaction is performed: three species of bacteria are added to different solutions of patient's serum, the result is evaluated by the presence of agglutinate. What is this reaction called?

Bordet-Gengou test.
Wassermann test.
Wright test.
Ascoli test.
+Widal test.

170. Effective diagnostics of intestinal infection agents' carrying is based on the reaction of antibodies to certain bacterial antigens in passive haemagglutination test. What standard preparation should be used for this reaction?

+Erythrocyte diagnosticum with absorbed bacterial antigens.
Antibodies against basic classes of immunoglobulins.
Monoclonal antibodies.
Monoreceptor diagnostic sera.
Sheep erythrocytes and haemolytic serum.

171. A patient presented to the infectious clinic with primary diagnosis of typhoid fever. He had been ill for three days. What method makes it possible to confirm the diagnosis?

Stool culture investigation.

Urine culture investigation.

Bile culture investigation.

Roseola culture investigation.

+Hemoculture (blood culture) investigation.

172. A 45-year-old male presented to the hospital with primary diagnosis of typhoid fever in the incubation period. Bacteriological investigation of the feces revealed intestinal infection agent with the following features: transparent red colonies with metallic sheen on Endo agar; round convex red colonies on BSA (bismuth-sulphite agar); nonforming spores and capsules; Gram-negative bacilli, peritrichous; fermenting carbohydrates producing acid and gas. By what signs did bacteriologist exclude the isolated culture as typhoid fever agent?

No growth on Endo agar.

Spore formation.

Immobile bacteria.

Gram-positive bacteria.

+Nonfermenting lactose, colorless colonies on Endo agar.

173. During systematic inspection of food enterprise employee on typhoid fever agent carrying, the titre of H-antigen 1:80 was detected with the help of passive hemagglutination test. Could this man be bacteria carrier?

+He is a bacteria carrier.

He is a patient.

He is at the height of the disease.

He is not a bacteria carrier.

He is in acute stage of typhoid fever.

174. Bacteriological investigation of feces of the chief of a restaurant who didn't manifest clinical features of the disease revealed small black colonies with metallic sheen grown on bismuth-sulfite agar. What organism is it likely to be?

Shigella.

Escherichia.

Staphylococcus.

+Salmonella.

Streptococcus.

175. A patient suspected of typhoid fever presented to the clinic. He had been ill for 10 days. The results of Widal test were obtained. Point out the findings of Widal test corresponding to the peak of the disease:

Agglutination test is positive with antigen of paratyphoid B agent in titer of serum 1:100.

Agglutination test is positive with antigen of paratyphoid A agent in titer of serum 1:100.

Agglutination test is positive only with H-antigen in titer of serum 1:100.

Agglutination test is positive with O- and H-antigens in titer of serum 1:100.

+Agglutination test is positive with O-antigen in titer of serum 1:200.

176. A patient, having eaten meat, developed such clinical features as increasing intoxication, elevated body temperature, fever, headache and diarrhea. What species of microorganism is most likely to be the causative agent?

Staphylococcus aureus.

+Salmonella typhimurium.

Proteus vulgaris.

Streptococcus faecalis.

Escherichia coli.

177. A patient is suspected of typhoid fever. What investigation can be performed for initial (within first days) diagnosis of this disease?

Agent culture isolation from lymphatic nodes.

Agent culture isolation from feces.

Agent culture isolation from bile.

Agent culture isolation from urine.

+Agent culture isolation from blood.

178. Bacteriological investigation of the patient's vomiting discharge and stomach washing waters revealed mobile Gram-negative bacilli of medium size with rounded ends which agglutinate with Salmonellosis O-

serum of group B. Identical microorganisms were also detected in meat salad that had been eaten by the patients. The agent of what disease is described in this particular case?

Escherichia – food toxic infection agent.

Proteus – food toxic infection agent.

+Salmonella – acute gastroenteritis agent.

Salmonella – paratyphoid A agent.

Salmonella – typhoid fever agent.

179. Having taken into consideration the patient's complaints, objective investigation data and epidemiological situation, a doctor made preliminary clinical diagnosis of typhoid fever and sent the investigated material to the bacteriological laboratory. The patient had been ill for two days. By what method of microbiological diagnostics was the patient's diagnosis confirmed?

+Bacteriological.

Serological.

Microscopic.

Skin allergic test.

Biological.

180. A patient suspected to be ill with typhoid fever had not been diagnosed for two weeks of the disease. What material is necessary to be sent to the laboratory for bacteriological investigation on the third-fourth week?

Mucus from the nose.

+Feces and urine.

Mucus from the pharynx.

Sputum.

Washing waters of the stomach.

181. For serological diagnostics of typhoid fever Widal test is performed. What is the mechanism of antigens and antibodies interaction based on?

Haemolysis.

Bacteriolysis.

Bacteria immobilization.

Precipitation.

+Agglutination.

182. On examination of the patient on the 3^d day of the disease doctor suspected him of typhoid fever. What microbiological method of investigation should be used to confirm the diagnosis?

+Hemoculture investigation.

Method of biological experiment.

Widal test.

Chicken embryonic infection.

Urine culture investigation.

183. A patient with typhoid fever presented to the hospital. After the course of treatment the patient's condition considerably improved. Therefore, antibiotic therapy was cancelled. Next day the patient's condition deteriorated: signs of intoxication appeared, and body temperature elevated up to 38,4 °C. What type of infection was it?

Reinfection.

Persistent infection.

Superinfection.

Chronic infection.

+Recurrent infection.

184. A laboratory received a set for serological reactions which included: a) erythrocyte diagnosticum (stabilized erythrocytes with conjugated Vi-antigens of typhoid fever agent); b) buffered isotonic solution; c) standard serum with antibodies to Vi-antigen of typhoid fever agent. What serological reaction is the set to be used for?

Neutralisation test.

CFT.

Hemagglutination inhibition test.

+Passive hemagglutination test.

Hemagglutination test.

185. Blood of a patient infected with typhoid fever was sent to the laboratory for identification of antibodies. Which of the following reactions should be performed?

Complement fixation test.

Haemagglutination inhibition test.

+Agglutination test.

Precipitation test.

Passive haemagglutination test.

186. Chloramphenicol was prescribed to a 50-year-old patient for typhoid fever treatment, but the next day the patient's condition deteriorated, body temperature elevated up to 39,6 °C. How can the deterioration of the patient's condition be explained?

+Endotoxin action.

Secondary infection joining.

Reinfection.

Agent insensitivity (resistance) to chloramphenicol.

Allergic reaction.

187. During investigation of typhoid fever outbreak in village N. strains of typhoid fever bacteria were found out in patients, milk products and in a milk shop assistant (bacteria carrier). Additional investigation was performed to identify the source of infection. What investigation should be made in the particular case?

+Phage typing of all strains of typhoid fever bacteria.

Phage typing of strains of typhoid fever bacteria isolated from the patients.

Phage typing of strains isolated from the milk.

Phage typing of strains of typhoid fever bacteria isolated from the bacteria carrier.

Determination of sensibility of all strains of typhoid fever bacteria to typhoid fever bacteriophage.

188. Infectionist administered bacteriological investigation of blood of the patient suspected to have typhoid fever. The reason of this investigation is explained by the fact that the first week of typhoid-paratyphoid disease is characterized by

+Bacteremia.

Toxinemia.

Septicemia.

Septicopiemia.

Viremia.

189. A patient complaining of headache, malaise, and weakness was hospitalized on the 8th day of the disease. Blood specimen was taken for serological investigation. Widal test established agglutination with O-diagnosticum of typhoid fever in the solution 1:200. What diagnosis can be made on the basis of this investigation?

+Typhoid fever.

Shigellosis.

Cholera.

Leptospirosis.

Tuberculosis.

190. Inoculation the typhoid fever patient's feces produced colonies of different pigmentation and size (big red colonies and decolorized colonies of medium size) on Endo agar. What group of media is the mentioned nutrient medium related to?

+Differential-diagnostic.

Elective.

Special.

Enriched medium.

Universal.

191. Several workers of a building team had dinner in the canteen. For dinner they ordered pork cutlets. In 8-10 hours they developed symptoms of acute gastroenteritis: nausea, vomiting, pain in the stomach, and diarrhea; body temperature elevated to 38 °C. Two of them were admitted to the infectious department. What bacteria caused acute enteritis?

+Salmonella.

Escherichia coli.

Agent of botulism.

Shigella.

Staphylococcus.

192. Widal test was performed to diagnose a typhoid-paratyphoid disease. The test with O-antigen in solution 1:1600 and with typhoid fever H-antigen in solution 1:200 was positive. What did it manifest?

+The second week of typhoid fever disease.

Absence of typhoid-paratyphoid disease.

Typhoid fever bacteria carrier.

Incubation period of typhoid fever.

Previous case of typhoid fever in anamnesis.

193. A patient visited a doctor on the second week of the disease that seemed to be typhoid-paratyphoid one due to clinical-epidemiological data. The doctor expected to prove the diagnosis by specific antibodies detection. What preparation should be used for this?

+Diagnosticum.

Diagnostic sera.

Labelled sera.

Monoclonal antibodies.

Adsorbed monovalent sera.

194. Pure culture of the agent identified as Salmonella typhi by morphological, cultural and biochemical features was isolated from a patient suspected to have typhoid fever. What investigation should be performed for final identification of the agent?

+Serum identification.

Serum diagnostics.

Allergic diagnostics.

Sensitivity to antibiotics.

Phage typing.

195. A patient presented to the hospital with the following symptoms: high temperature, raised spot rash on his breast and abdomen. Blood culture with such properties as Gram-negative rod-shaped bacilli creating pink S-form colonies on Endo agar was isolated. Having been cultivated on peptone water, they produced hydrogen sulphide. What is the patient's illness?

+Typhoid fever.

Cholera.

Shigellosis.

Colenteritis.

Q-fever.

196. When the feces of a man who had typhoid-paratyphoid disease was at first bacteriologically investigated, a culture, which fermented glucose, maltose, lactose creating acid and gas, producing hydrogen sulphide and growth on Hiss media was isolated. Can the isolated bacterial culture be referred to salmonella? Why?

+No, it can not. Salmonella doesn't ferment lactose.

Yes, it can. Salmonella ferments lactose.

No, it can not. Salmonella doesn't ferment glucose.

No, it can not. Salmonella doesn't ferment carbohydrates with creation of acid and gas.

No, it can not. Salmonella doesn't grow on Hiss media at all.

197. What material for bacteriological investigation should be obtained to isolate the agent at the early stage of the disease, when typhoid fever is diagnosed?

+Blood from the elbow vein (5 ml) and plated on Rapoport medium (MPB with bile).

Feces – on Endo agar.

Urine – on Chapek² medium.

Patient's blood serum – Widal test.

Smear from nasopharyngeal mucous membrane.

198. During bacteriological investigation of waters from the stomach of a patient who had food poisoning, a pure bacterial culture with such features as Gram-negative mobile bacillus, creating colorless colonies on Endo agar, was viewed. What genus caused the infection?

+Salmonella.

Shigella.

Yersinia.

² Solid nutrient medium for cultivation of fungi and identification of *Aspergillus* and *Penicillium*.

Escherichia.
Citrobacter.

199. Passive haemagglutination test performed by erythrocyte typhoid fever Vi-diagnosticum revealed antibodies in serum solution 1:80. The number of antibodies appeared to be more than diagnostic titre. Such result shows:

+Possible bacteria carrying of typhoid fever agent.

Acute typhoid fever disease.

Relapse of typhoid fever.

Typhoid fever incubation period.

Patient's recovery after typhoid fever.

200. Antibodies against the disease agent appeared in the blood of a patient with typhoid fever on the 2nd week of the disease. What is the mechanism of protection?

+Opsonization, complement system activation.

Exotoxins neutralization.

T-cytotoxic lymphocytes activation.

B-lymphocytes activation.

T-suppressors activation.

201. Because of typhoid fever outbreak the necessity of café employees' investigation appeared. What serological reaction should be used for bacteria carrying diagnostics?

+Passive hemagglutination test with Vi-diagnosticum.

Passive hemagglutination test.

Latex-agglutination.

Hemagglutination inhibition test.

Hemagglutination test with antibody erythrocyte diagnosticum.

202. An agent related to salmonella by morphological, cultural and biochemical features was isolated in the material obtained from a patient with gastroenteritis. What diagnostic preparation should be used for express identification of antigen properties?

+Monoreceptor O- and H-sera.

Polyvalent sera.

Agglutinating diagnostic sera.

Salmonellosis O - and H -diagnosticum.

Monoreceptor O9 and O4 sera.

203. An agent of the disease was isolated in the material obtained from a patient with acute gastroenteritis. It is identified by antigen structure. What serological reaction should be performed in this case?

+Agglutination test.

Complement fixation test.

Neutralisation test.

Precipitation test.

Opsonisation test.

204. Blood of a patient suspected to have typhoid fever (3rd day of the disease) was taken for investigation. It was grown in nutrient broth with bile in addition. What is the purpose of adding bile to the nutrient medium?

+To inhibit the growth of other microorganisms.

For pH medium stabilization.

As growth factor for salmonella.

As microelements source.

To determine biochemical activity of the agent.

205. Repeated Widal test identified the titre increase in antibodies to O-antigens S. typhi from 1:100 to 1:400 in the patient's serum. How can the result be interpreted?

+He is ill with typhoid fever.

He is an acute carrier of typhoid fever microorganisms.

He is a chronic carrier of typhoid fever microorganisms.

He had typhoid fever earlier.

He was vaccinated against typhoid fever earlier.

206. Resistance to phagocytosis and pathogenesis of some bacteria, for example, typhoid fever salmonella, is explained by the presence of surface antigen which is the type of K-antigen. What is it called?

+Vi-antigen.
H-antigen.
O-antigen.
A-antigen.
M-antigen.

207. Annotation to the preparation reads that it contains typhoid fever agent antigens which are adsorbed on stabilized sheep erythrocytes. What is the preparation used for?

+Detection of antibodies in passive hemagglutination test.
Detection of antibodies in complement fixation test.
Detection of antibodies in Widal test.
Detection of antibodies in hemagglutination inhibition test.
Serological identification of typhoid fever agent.

208. Antibodies to Vi-antigen were determined in the blood serum of a cook of school canteen for typhoid fever carrying. What test was performed by bacteriologist?

+PHAT.
CFT.
Widal test.
IFT.
ELISA.

209. A patient complaining of fever, general malaise, insomnia, and loss of appetite for three days, visited an infectionist. The doctor made preliminary diagnosis of typhoid fever. What method of microbiological diagnostics should be administered to prove the diagnosis?

+Blood culture (haemoculture) investigation.
Stool culture investigation.
Urine culture investigation.
Bile culture investigation.
Myeloculture investigation.

210. To diagnose serological bacteria carrying, diagnosticum of sheep erythrocytes with adsorbed Vi-antigens, Salmonella typhi process by tannin was used. In what reaction will this diagnosticum be used?

+PHAT.
Haemagglutination inhibition test (HIT).
HAT.
PT.
CFT.

211. A patient suspected to have typhoid fever was admitted to the infectious department on the 5th day of the disease. What material from the patient should be investigated at that time?

+Blood.
Urine.
Feces.
Bile.
Roseola content.

212. A patient complaining of high temperature, abdominal pain, diarrhea and delirium is admitted to the infectious department. He was suspected of typhoid fever. What investigation will help to prove the diagnosis?

+Hemoculture inoculation.
Feces microscopy.
Laboratory animals' infection.
Microscopy of preparation "crushed drop" from the feces.
Skin allergic test.

213. Material from a patient infected with acute intestinal disease was inoculated on Endo agar and bismuth-sulfite agar, on which semi-transparent pink and black shining colonies grew consequently in 18 hours. What genus of Enterobacteriaceae family can the culture be related to?

+Salmonella.
Shigella.
Yersinia.
Escherichia.

Hafnia.

214. During bacteriological investigation of the feces of a 38-year-old female who was attacked by typhoid fever 1,5 years ago, *Salmonella typhi* in quantity of 10^2 CFU/g is detected. How is the condition of the patient most exactly characterized?

+Bacteria carrying.

Dysbacteriosis.

Reinfection.

Superinfection.

Recurrent infection.

215. A patient presented with a suspicion of typhoid fever. What material should be taken from the patient for the initial diagnosis of the disease?

+Blood.

Urine.

Bile.

Feces.

Bone marrow.

216. A serological test (Widal test) revealed O- and H-hemagglutinins in titres 1:800 and 1:200 relatively in a typhoid patient. It is evident of

+Period of recovery.

Previously transmitted disease.

Vaccination.

Early disease.

Doubtful diagnosis.

217. Blood of a patient with preliminary diagnosis of typhoid fever was studied in the serological laboratory. When will the methods of serological diagnostics be effective?

+In a week.

3 days later.

12 hours later.

In a month.

Since the beginning of the disease.

218. Blood of a patient suspected of typhoid fever was studied in the bacteriological laboratory. Pure culture of bacteria was isolated in the blood. What serological reaction is to be performed to study the antigen structure of the causative agent?

+Agglutination test.

Precipitation test.

CFT.

ELISA.

Flocculation test.

219. A patient was hospitalized with the diagnosis of typhoid fever. What nutrient medium is needed for hemoculture investigation?

+Bile broth.

MPB.

Yolk-salt agar.

Blood agar.

Löwenstein-Jensen medium.

220. To perform a reaction of serological diagnostics of typhoid fever, three types of bacteria are added to various titres of patient's serum. The result of the reaction is estimated due to the presence of agglutinate. What is the mechanism of antigen and antibody interaction?

+Agglutination.

Lysis.

Bacteriolysis.

Haemolysis.

Precipitation.

221. Blood serum of a patient suspected to have typhoid fever was delivered to a serological laboratory. What antigen is needed for Widal test to diagnose typhoid fever?

+Typhoid fever diagnosticum.

Typhoid fever immune diagnostic serum.

Pure living culture of salmonella.

Erythrocyte salmonella diagnosticum.

Blood serum of the patient.

222. The blood of the patient suspected of typhoid fever carrying was delivered to the bacteriological laboratory for serological investigation. To reveal antibodies in the serum, erythrocyte diagnosticum with Vi-antigen of typhoid fever agent was performed. What results might be considered favorable?

+Binding of erythrocytes.

Complete lysis of erythrocytes.

Lack of haemolysis.

Complement fixation.

Formation of precipitation lines.

223. In course of passive haemoagglutination test different titres of patient's blood serum and erythrocyte Vi-dagnosticum are used. What is the purpose of the reaction?

+To identify carriers of typhoid fever.

To identify causative agent of typhoid fever in patient's blood.

To identify carriers of pathogenic *Escherichia coli*.

To identify pathogenic *Escherichia coli* in the patient's blood.

To detect antibodies to *Escherichia coli* in the blood.

224. Widal test to diagnose a case of typhoid fever estimated that the diagnostic titre of antibodies to O-antigen was 1:1600 and to H-antigen it was 1:200. What period of the disease is it?

+The peak of the disease.

Incubation period.

Prodromal period.

Period of recovery.

Latent period.

225. A patient suspected of typhoid fever carrying was tested with Vi-haemoagglutination test. What titre of serum will be of diagnostic value?

+1:40.

1:80.

1:20.

1:320.

1:180.

226. A patient diagnosed with typhoid fever was administered serological Widal test on the second week of illness. Several hours later, positive results were obtained due to the appearance of large loss of agglutinate. Antibodies to what antigen were determined in the blood serum which manifested the patient's recovery?

+Antibodies to H-antigen.

Antibodies to O-antigen.

Antibodies to K-antigen.

Antibodies to Vi-antigen.

Antibodies to M-antigen.

227. Blood of a patient with primary diagnosis of typhoid fever was delivered to the laboratory for serologic investigation. Widal test was performed by inexperienced lab technician, who used only O- and H-diagnosticum *Salmonella typhi*. What other diagnostics had to be used to perform Widal test correctly?

+A and B Paratyphoid.

K - and Vi - diagnosticums *Salmonella typhi*.

Cholera and dysentery.

Epidemic Typhus and Recurrent fever.

Erythrocyte O - and H - diagnosticum.

228. An outbreak of gastroenteritis was registered in 12 of 23 persons who developed diarrhea, headache, abdominal pain, nausea, vomiting, and elevated body temperature within 24 hours after dinner. Salad appeared to have caused the outbreak, as raw eggs had been used for cooking it. What microorganism is most likely to cause the infection?

+*Salmonella enterica*.

Enterotoxigenic *E. coli*.

Vibrio cholera.

Shigella dysenteriae.

Vibrio parahaemolyticus.

229. During the post-mortem of a 56-year-old male, several ulcers in diameter of 4-5 cm were found in the terminal portion of small intestine. The edges of the ulcers were above the mucous membrane, the walls were covered with grey-yellowish friable mass. Widal test appeared to be positive. What was the patient diagnosed with?

Krohn's disease.

+Typhoid fever.

Shigellosis.

Relapsing fever.

Paratyphoid.

230. A 36-year-old female died of "acute abdomen". Autopsy of small intestine revealed deep perforated ulcers in grouped follicles. What disease caused the death of the patient?

+Typhoid fever.

Dysentery.

Typhus.

Cholera.

Amebiasis.

231. A patient was admitted to hospital with the diagnosis of typhoid fever on the 11th day of illness. What material had to be obtained from the patient for further investigation?

+Blood for haemoculture.

Mucus from the fauces.

Scrapes from the urethra.

Sputum.

Cerebrospinal fluid.

232. On bacteriological study of patient's feces with gastroenteritis black colonies with metallic sheen grew on bismuth sulfite agar. Study of biochemical properties of pure culture revealed fermentation of carbohydrates marked with acid and gas. What pathogen is it likely to be?

+Salmonella.

Escherichia.

Staphylococcus.

Shigella.

Proteus.

Facultative-anaerobic Gram-negative Enzymatic Rods – Causative Agents of Cholera

233. What specific prophylaxis is provided in cholera focus?

+Immunization by cholera vaccine.

Antibiotics that are introduced perorally.

Disinfection.

Cholera patients' isolation and hospitalization.

Intensification of sanitary supervision of food enterprises and reservoirs.

234. One of the stages to identify the isolated agent in the patient suspected of cholera, is the establishment of monotrichial mobility. What method is used for it?

Loeffler's staining method.

Stab culture into gel.

+Method of "hanging" or "crushed" drop.

Stab culture into MPA.

Growth of culture in peptone water.

235. Feces of a patient diagnosed with cholera were delivered to the laboratory of extremely dangerous infections. What method of bacteriological diagnostics should be used to prove or cancel the diagnosis?

Skin allergic test.

Bacterioscopic.

Biological.

Virological.

+Bacteriological.

236. Characterizing the strain isolated from the feces, bacteriologist used such phrases as Isaev-Pfeiffer phenomenon, O-serum, Yermolieva method, alkaline agar, and Diedonne medium. What do you think the isolated coproculture is?

+*Vibrio cholerae*.

Shigella flexneri.

Streptococcus pyogenes.

Klebsiella pneumoniae.

Vibrio parahaemolyticus.

237. During the first inoculation of investigated water on 1% alkaline peptone water, soft bluish film appeared on the medium surface 6 hours later. The agent of what disease are such cultural properties typical for?

+Cholera.

Plague.

Tuberculosis.

Shigellosis.

Pseudotuberculosis.

238. A patient complaining of persistent diarrhea and vomiting, muscle pain in legs, weakness, and nausea, was admitted to the infectious department. Having examined the patient, a doctor made preliminary diagnosis of cholera. How should the material from the patient be investigated to confirm the diagnosis as soon as possible?

+Direct and indirect IFT.

Agglutination test.

Bacteriological method.

Serological method.

Biological method.

239. Microscopic investigation of the material obtained from a patient with enteritis-type disease revealed Gram-negative, a bit curved rodlike bacteria stirred in concentrations which looked like fish flocks. On what nutrient medium should the patient's feces be inoculated to isolate pure culture of the agent?

On MPA.

On Endo agar.

On MacConkey agar.

On blood agar.

+In 1% alkaline peptone water.

240. Microscopy of "crushed drop" stained by Gram on feces of a patient suspected to have cholera identified Gram-negative, a bit curved, and mobile bacilli. What additional investigation can be carried out for express diagnostics?

Phagolysis reaction.

+Immune fluorescent test.

Microorganism fermentative activity determination.

Agglutination test.

Precipitation test.

241. Vibrio cultures isolated from the feces and vomiting discharge of the patient suggested a case of cholera. What reaction can establish the causative agent of the disease?

+Agglutination test with sera having antibodies to O-antigen.

Widal test.

Precipitation test.

Agglutination test with sera with antibodies to H-antigen.

Passive haemagglutination test with erythrocyte antigen diagnosticum.

242. A patient suspected to have cholera is admitted to the infectious department. What basic investigative methods should be used to prove the diagnosis?

Skin allergic test.

Biological test.

+Bacteriological.

Serological.

Immunological.

243. An outbreak of diarrhea was registered in village N. Since there was a suspicion of cholera, patients' feces were sent to the bacteriological laboratory for immediate proof of the assumption. What express methods should be used in the given case?

Immunofluorescent test, microagglutination test.

Immunofluorescent test, ring test.

Immunofluorescent test, complement fixation test.

+Immunofluorescent test, agglutination test.

Immunofluorescent test, precipitation test.

244. A patient with diarrhea is admitted to the infectious hospital. Bacteriological investigation of his feces revealed Gram-negative curved bacilli. What disease is it likely to be?

+Cholera.

Typhoid fever.

Salmonella gastroenteritis.

Diphtheria.

Intestinal plague.

245. Gram-negative comma-shaped bacteria were detected in the stroke of the patient's feces. What properties should be investigated microscopically to obtain additional information of the identified microorganism?

+Mobility.

Presence of capsule.

Spores.

Cysts.

First fluorescence.

246. Pure culture of mobile, small, a bit curved Gram-negative bacilli, growing within 6 hours in 1% alkaline peptone water in a shape of soft blue film, was isolated in the material obtained from a patient with acute gastroenteritis. What organisms are characterized by such features?

+Vibrios.

Spirochetes.

Clostridia.

Bacilli.

Spirillas.

247. Rather mobile, a bit curved Gram-negative bacilli that produced positive reaction with Inaba diagnostic serum, were isolated from the patient's vomiting discharge. What symptoms will the patient most probably develop without treatment?

+Dehydration of the organism.

Bacteremia.

Endotoxic shock.

Skin eruption.

Ulcers of small intestine.

248. In cholera pathogenesis exo- and endotoxin aggressive ferments play a considerable role. The main symptom of the disease is dehydration. Which of the following pathogenetic actions is the major cause of dehydration?

+Adenyl-cyclase activation.

Neuramine acid chipping off.

Hyaluronic acid destruction.

Membrane phospholipids defect.

Mucine destruction.

249. A 30-year-old male with profuse diarrhea and vomiting resulted in dehydration presented to the infectious hospital. Vibrio cholera was detected in the patient's discharge. Which of the agent's pathogenetic factors is most favorable for the development of the disease?

+Exotoxin.

Endotoxin.

Plasmocoagulase.

Neuraminidase.

Fibrinolysin.

250. For specific prophylaxis of cholera inactivated (killed) vaccine was used earlier, which appeared to be less effective. It was necessary to improve the properties of the vaccine. What antigen of *Vibrio cholerae* should be added to make the vaccine more effective?

- +Cholero-gen-toxoid.
- Cholera endotoxin.
- Cholera H-antigen.
- Cholera species antigen.
- Cholera type antigen.

251. Parenteral introduction of cholera vaccine is often ineffective. Enteral chemical bivalent vaccine consisting of toxoid and somatic type antigens was offered. Why was enteral introduction of this vaccine beneficial?

- +Because of the formation of local immunity.
- Because of the formation of general immunity.
- Because of the formation of antitoxic immunity.
- Because of the formation of antibacterial immunity.
- Because of the formation of specific type of immunity.

252. In one of the sea ports, 30 cases of acute intestinal infection followed by profuse diarrhea, vomiting, and severe dehydration were registered. Fecal discharge looked like "rice water stool". What disease was it likely to be?

- +Cholera.
- Typhoid fever.
- Shigellosis.
- Plague.
- Salmonellosis.

253. A patient, who has recently come from India, is admitted to infectious department with a suspicion of cholera. Which of the following methods can be used for express diagnostics of cholera?

- +Microscopic.
- Skin allergic.
- Biological.
- Bacteriological.
- Serological.

254. Lake water used for every day purposes was tested in the regional bacteriological laboratory. During bacteriological inoculation pure culture of *Vibrio cholerae* was isolated. What nutrient medium was used for investigation?

- +1% alkaline peptone agar.
- MPB.
- MPA.
- Endo agar.
- Triple Sugar Iron agar.

255. Typical mobility of microorganisms is observed during investigation of negative material containing cholera agent by means of phase-contrast and dark field illumination. What particularities of microbe cell is the mobility of the agent associated with?

- +Microorganism is monotrichous.
- Microorganism is peritrichous.
- Microorganism is spirilla.
- Microorganism has cilia.
- Microorganism has fimbria.

256. For specific systematic prophylaxis of cholera it is necessary to choose the proper vaccine. Consequently, biotype of *Vibrio cholerae* causing the disease within recent years is to be identified. This biotype is:

- +*V. cholerae*, eltor.
- V. cholerae*, metschnikovii.
- V. cholerae*, cholerae (*V. cholerae*, classic).
- V. cholerae*, albensis.
- V. cholerae*, proteus.

257. Determination of *Vibrio cholerae* serotype can be used to identify a selected strain and to predict the epidemiological situation. How can it be performed?

+With the help of agglutination test with choleric *O*-specific and choleric type specific sera.

With phagolysis by Mukherjee.

Through studying biochemical properties of Heiberg.

By definition the sensitivity of *Vibrio cholerae* to polymyxin.

Through agglutination reaction with chicken erythrocyte.

258. Vomiting discharge of a patient suspected to have cholera is sent to the bacteriological laboratory. Pathologic material was utilized for "hanging drop" preparation. What method of microscopy is used to identify the causative agent through its mobility?

+Phase-contrast microscopy.

Electron microscopy.

Immunoelectron microscopy.

Fluorescent microscopy.

Immersion microscopy.

259. Vomiting mass of a patient suspected to have cholera was sent to the bacteriological laboratory. Pathological material produced "hanging drop" in the dark field illumination. Dark field illumination made it possible to determine the mobility of a pathogen as an important diagnostic sign. What substance had to be processed for microscopic observation?

+None.

Luminescent serum.

Bleach solution.

Methylene blue solution.

Alkaline peptone water.

260. Microscopy of the patient's vomiting mass revealed slightly curved Gram-negative bacilli identified as *Vibrio cholerae*. What test is likely to differentiate classical biotype of *Vibrio cholerae* from El Tor biotype?

+Growth of bacteria on agar with polymyxin.

Reaction of agglutination test with *O1* choleric serum.

Fermentation of lactose.

Growth on 1% alkaline peptone agar.

Viewed "fish flocks" at microscopy.

261. An 18-year-old girl from rural India developed diarrhea with fluid loss up to 8 liters a day. What microorganism might cause the disease?

+*Vibrio cholerae*.

Campylobacter jejuni.

Enteropathogenic *Escherichia coli*.

Salmonella typhi.

Shigella dysenteriae.

262. Microscopy of the vomiting mass of a patient with acute gastroenteritis yields Gram-negative microorganisms in slightly curved sticks. What experimental method will identify the pathogen as *Vibrio cholerae*?

+Study of antigenic and biochemical properties.

Identification of enzyme pathogenicity.

Determination of toxigenic properties in precipitation reaction.

Determination of sensitivity to antibiotics.

Infective material from the patient or laboratory animals.

263. What is the express method of diagnostics that helps to make an adequate laboratory diagnosis of cholera based on?

+Biological characteristics of *Vibrio cholerae*.

Protection of *Vibrio cholerae* in the studied material.

Presence of several serotypes.

Undemanding to growth media.

Cultural properties.

264. The onset of the disease is accompanied by convulsions, signs of dehydration of the organism and rice water stool from the small intestine. Mucous coat is swollen and haemorrhagic. What infectious disease is characterized by such clinical features?

+Cholera.
Plague.
Anthrax.
Influenza.
Typhoid fever.

Microaerophilic Nonsporeforming Gram-negative Rods
(Causative Agents of Campylobacteriosis and Helicobacteriosis)

265. Patient C., 28 years old, presented with acute colitis and signs of moderate intoxication and diarrhoea. Feces contained blood streaks. Catalase positive and Gram-negative microaerophilic bacteria were isolated through bacteriological investigation. They didn't grow at 25 °C, were urease-negative; when two cells were taken together they looked like "sea-gull wing", didn't produce spores and capsules, were mobile. What bacteria are they likely to be?

Escherichia coli.
Haemophilus influenzae.
Proteus vulgaris.
+*Campylobacter jejuni.*
Salmonella typhi.

266. Bacteriological investigation of the material obtained from the patient suggested the diagnosis of campylobacteriosis. What peculiarity of bacteria isolated from the patient was taken into consideration during cultivation?

Presence of enzymes in urease.
+Microaerophilic.
Cells of gastric type colonization.
Spores and capsules absence.
Presence of six polar flagella.

267. In the kindergarten an outbreak of gastroenteritis similar to campylobacteriosis is registered. What serological reaction can be used to confirm the diagnosis?

Haemagglutination inhibition test.
+Passive haemagglutination test.
Neutralisation test.
Precipitation test.
Haemagglutination test.

268. Microbiological investigation of the patient's feces suggested the diagnosis of campylobacteriosis. What basic method of diagnostics was used?

Microscopic.
Biological test.
+Bacteriological.
Serological (CFT).
Immunoblotting.

269. In the course of biopsy, specimen from a patient with fibroesophagogastrroduodenoscopy was studied. The patient was diagnosed with helicobacteriosis. What cultural feature of bacteria was recorded by bacteriologist during investigation?

+Microaerophilic.
The presence of the enzyme urease.
Colonization of gastric cell type.
Absence of spores and capsules.
Presence of six polar flagella.

270. A patient with gastric ulcer disease underwent fibroesophagogastrroduodenoscopy followed by biopsy of ulcerative mucous coat. Afterwards a smear stained by Gram method was prepared. Balanced biopsy was used to produce samples of urease activity. During microscopy of the smear-print bacteriologist identified Gram-negative spiral microorganisms; test revealed positive urease activity. What bacterium was detected?

+*Helicobacter pylori.*
Shigella flexneri.
Spirilla minor.

Campylobacter jejuni.

Treponema pallidum.

271. A patient is assigned for bacteriological examination to estimate the aetiology of gastric ulcer. What pathogen is likely to be identified?

+*Helicobacteria.*

Shigella.

Leptospira.

Salmonella.

Listeria.

272. A 45-year-old man is diagnosed with gastric ulcer by X-ray film. What medium will be used for inoculation of biptic material from the ulcerative wall for the bacteriological confirmation of the diagnosis?

+Medium for identification of enzyme urease.

Blood agar.

Endo agar.

MPA with bile.

Meat peptone agar.

273. A 28-year-old patient was hospitalized with signs of moderate intoxication and diarrhea. Patient's feces contained streaks of blood. Bacteriological study of feces identified spiral catalase-positive Gram-negative microaerophilic bacteria. Pathogen had urease activity, spores and capsules were mobile and not formed. What bacterium is characterized by such features?

Escherichia coli.

Haemophilus influenzae.

Proteus mirabilis.

+*Helicobacter pylori.*

Salmonella typhi.

274. A patient has been frequently relapsed with ulcerative disease. Doctor administered helicobacteriosis analysis. With the help of what microbiological method will the most reliable findings be obtained?

+Bacteriological.

Microscopic.

Biological.

Serological (ELISA).

Immunoblotting.

275. Microflora of the stomach is related directly with the acidity of gastric juice. *Helicobacter pylori* survive in gastric juice and often cause peptic ulcer. Which of the enzymes is capable to maintain survival of *Helicobacter pylori* in gastric juice?

+Urease.

Protease.

Adenylcyclase.

Lipase.

Hyaluronidase.

276. A patient is diagnosed with gastric ulcer. On the 5th day of bacteriological study of biopsy obtained from the damaged part of the stomach, small colonies of Gram-negative oxidised-positive spiral bacteria grew on chocolate agar. Which of the microorganisms is most likely to cause stomach ulcers?

+*Helicobacter pylori.*

Campylobacter jejuni.

Campylobacter fetus.

Mycoplasma hominis.

Chlamydia trachomatis.

Causative Agents of Botulism, Food Toxic Infection and Food Intoxications

277. Material obtained from a patient suspected to have botulism is sent to bacteriological laboratory. What medium should be used to isolate the agent?

+Kitt-Tarozzi medium.

1% alkaline peptone water.

Endo agar.

Sotton medium.

Löwenstein-Jensen medium.

278. A piece of home made dried fish that was likely to be the cause of severe food poisoning was sent to the bacteriological laboratory. On investigation, tennis racket-shaped microorganisms were isolated on Kitt-Tarozzi medium. For considerable proof of the diagnosis it was necessary to introduce the material to white mice through abdomen. What diagnosis did the doctor make?

Salmonellosis.

+Botulism.

Cholera.

Shigellosis.

Typhoid fever.

279. Feces of a child with enteritis are emulgated in physiological solution and the emulsion drop is plated on the selective medium: 10% milk-salt or yolk-salt agar. What microorganisms are supposed to be isolated?

+Staphylococcus.

Escherichia coli.

Streptococcus.

Klebsiella.

Enterococcus.

280. Having eaten tinned meat, a patient began to see objects doubled, developed splitting headache, swallow disturbances, difficult breathing, and muscular weakness. He was diagnosed with botulism. What pathogenic factors are related to this disease?

Haemolysin.

+Exotoxin.

Endotoxin.

Plasmocoagulase.

Fibrinolysin.

281. After eating tinned mushrooms, a patient developed symptoms of bulbar paralysis: he saw objects doubled, and had swallow disturbances. The preliminary diagnosis is botulism. With the help of what reaction is it possible to determine the type of toxin?

Agglutination reaction.

Precipitation reaction.

Complement fixation test.

Immunofluorescent test.

+Neutralisation test.

282. After eating home-made tinned meat, a student developed symptoms of food poisoning like *Clostridium botulinum*: diplopia, articulate speech disturbance and paralysis of breathing muscles. What is the cause of such symptoms of the disease?

+Neurotoxin action.

C. botulinum invasion into intestinal epithelium.

Enterotoxin secretion.

Endotoxic shock.

Adenil-cyclase activation.

283. After eating a cake which had been left on the table for 24 hours, a patient developed signs of acute intestinal poisoning 8 hours later. What microorganism could have been the cause of the disease?

Clostridium perfringens.

Escherichia coli.

+*Staphylococcus aureus*.

Salmonella enterica.

Clostridium botulinum.

284. Infectious disease agents produce exotoxins with different biological effect. Which of these toxins is activated in gastrointestinal tract?

+Botulotoxin.

Haematotoxin.

Histotoxin.

Tetanospasmin.

Cholero-gen.

285. After eating of tinned "Tourist's breakfast", a 39-year-old patient was taken to hospital 10 hours later. His vomiting discharge, feces, blood, urine, and the rest of the food stuff were sent for bacteriological investigation. Gram positive bacilli creating tennis racket-shaped spores which grew at 35 °C on blood-liver agar in anaerobic conditions were detected in Kitt-Tarozzi medium. What microorganism is it?

+*Clostridium botulinum*.

Fusobacterium nucleatum.

Clostridium novyi.

Bacillus subtilis.

Bacillus cereus.

286. Investigation of low quality food stuff revealed mobile, Gram-negative bacilli with vertiginous growth in a shape of coal dust on MPA after 18 hours of cultivation. Isolates didn't ferment lactose, but fermented glucose, maltose and sucrose producing acid and gas, hydrogen sulphide. What genus are the identified bacteria representatives of?

Escherichia.

+*Proteus*.

Pseudomonas.

Salmonella.

Shigella.

287. An outbreak of food toxic infection was registered among the citizens of a town who had eaten cakes. The rest of the cakes were investigated for pathogenic microorganisms. Which of the following microorganisms could most probably cause the disease?

Clostridium perfringens.

Escherichia coli.

Salmonella typhimurium.

+*Staphylococcus aureus*.

Salmonella enterica.

288. In the waters of Canadian lakes a great amount of *Clostridium botulinum* was isolated and in the focus of outbreak a number of deaths of waterfowl were observed. What kind of infection is it?

+Sapronosis.

Anthroponosis.

Zoonosis.

Anthropozoonosis.

Nosocomial.

289. On bacteriological investigation of vomiting mass, stomach washing waters and the rest of food, Gram-positive bacilli with round ends, polymorph, slow-mobile, anaerobic ones were isolated. Microorganisms colonized irregularly with extensions on glucose-blood agar, causing erythrocyte haemolysis and producing exotoxin. What agent was isolated?

Proteus vulgaris.

Bacteroides fragilis.

Clostridium perfringens.

+*Clostridium botulinum*.

Salmonella typhimurium.

290. It is necessary to provide express prophylaxis of botulism to a patient who has eaten contaminated food. What preparation should be used for this?

Placental γ (gamma) - globulin.

Monovalent botulinic antitoxic serum.

+Polyvalent botulinic antitoxic serum.

Toxoid.

Interferon.

291. After eating home-made tinned vegetables, 2 cases of poisoning typical for CNS infection (seeing objects doubled, swallowing pain, and aphonia) were recorded in a family. Name the probable food intoxication agent.

Staphylococcus.

+Botulism agent.

Shigella.

Salmonella.

Escherichia coli.

292. A disease manifested by acute nausea, vomiting, and diarrhea was registered among the children of a kindergarten after they had eaten cottage cheese. Microscopy of preparation made of cottage cheese and vomiting discharge revealed Gram-positive microorganisms arranged in grape clusters. What is it necessary to do next for the determination of food intoxication aetiology?

+To make further bacteriological investigation.

To determine antibodies in blood serum additionally.

To make an additional skin allergic test.

To conclude that staphylococcus was the cause of the disease.

To make investigation of kitchen items.

293. Identification of food toxic infectious agent proved that the agent was related to Salmonella genus due to biochemical properties. What feature allowed identification of the specific relation most precisely?

+Antigen structure.

Study of sensitivity to antibiotics.

Pathogenesis for different species of laboratory animals.

Serological type of agent toxin.

Phage typing.

294. Having eaten cottage cheese, almost all the children of a kindergarten developed signs of gastroenteritis. Bacteriological test of vomiting discharge and the rest of cottage cheese revealed Staphylococcus aureus strains. What investigation should be performed for the establishment of the source of infection?

+Phage typing of isolated strains.

Determination of toxic creation strain ability.

Investigation of kitchen equipment.

Establishment of antibodies in sick children.

Skin allergic test.

295. A patient presented to hospital complaining of vomiting, nausea, seeing objects doubled, and difficult swallowing. Doctor suspected a case of botulism. What methods of diagnostics should be used to confirm the diagnosis?

+Biological test and bacteriological method.

Skin allergic test and serological method.

Bacteriological and mycological methods.

Protozoological and microscopic methods.

Bacteriological and microscopic methods.

296. Bacteriological investigation of food stuff (tinned quality) established the presence of microorganisms which created spores and seemed to be botulism agents. Characterize the main properties of Clostridium botulinum:

+It is a tennis racket-shaped microorganism because of subterminal spore arrangement.

C. botulinum is an obligate aerobe bacterium.

C. botulinum forms a capsule in living organisms.

C. botulinum doesn't produce exotoxin.

C. botulinum is a mobile Gram-negative bacillus.

297. Bacteriological investigation of sour cream revealed strains of Staphylococcus aureus culture. How can the aetiology of isolated culture of S. aureus be proved as food poisoning agent that attacked sour cream consumers?

+Phage type determination.

Plasmocoagulase activity determination.

Haemotoxins determination.

Determination of saccharolytic properties.

Lecithinase determination.

298. Tinned meat is investigated for the presence of botulism toxin in the bacteriological laboratory. Specimens of the investigated material and antitoxic A, B, E sera against botulism are introduced to experimental group of mice. A specimen without serum is introduced to control group of mice. What serological reaction was performed?

+Neutralisation test.

Precipitation reaction.

Complement fixation test.

Agglutination reaction.

Immune double diffusion technique.

299. A 35-year-old patient is complaining of progressive muscular weakness, slight deterioration, seeing objects doubled, "net" in front of the eyes, difficulty in swallowing food and thirst. 24 hours before he drank alcohol and ate tinned mushrooms. What preliminary diagnosis is it likely to be?

+Botulism.

Salmonellosis.

Mushrooms poisoning.

Methyl spirit poisoning.

Escherichiosis.

300. A patient is suspected of botulism since he manifests the signs of food toxic infection. It became clear from the past case history that poisoning took place during the jubilee celebration where tinned mushrooms and fish had been eaten. What biological preparation should be used for immediate prophylaxis of botulism?

+Antibotulinic serum.

Antibotulinic tetratoxoid.

Antibotulinic tritoxoid.

Eubiotics.

Gamma-globulin.

301. Examining the patient suspected of food toxic infection, doctor on duty noticed clinical features of botulism. The patient remembered the meals he had eaten the day before. What food stuff might have caused the infection by botulism agent?

+Home-made tinned meat.

Baked cakes of private producer.

Sour cream from the local milk plant.

Strawberries from dacha plot.

Fried dietetic eggs.

302. A patient is taken to the infectious department with preliminary diagnosis of botulism. What reaction should be performed to investigate botulinic toxin?

+Neutralization test.

Agglutination reaction.

Complement fixation test.

Precipitation reaction.

Immunofluorescence test.

303. A 56-year-old male is admitted to hospital with the disturbances of eye muscle coordination, difficulty with speech and swallowing. These symptoms appeared after eating home-made tinned vegetables 24 hours later. What preparation has to be administered to the patient immediately?

+Antibotulinic polyvalent serum.

Botulinic toxoid types A, B, E.

Specific serum for neutralization test.

Antihistamine preparation.

Donor γ (gamma) - globulin.

304. Home-made dried fish likely to cause severe food poisoning was sent to bacteriological laboratory. Symptoms of the disease specify the action of strong exotoxin which involves nucleus of medulla oblongata. What diagnosis did the doctor specify in a laboratory request form to the investigated material?

+Botulism.

Salmonellosis.

Dysentery.

Cholera.

Typhoid fever.

305. A patient showed signs of acute food poisoning after eating cakes that had been kept at room temperature over a day. Pure culture of Gram-positive cocci was isolated in the pustry. The selected culture created a hemolytic zone on blood agar; when cultured in yolk-salt agar it showed bacteria lecithinase activity; on milk-salt agar light pigmented colonies were created. 2 hours later they produced coagulation of plasma. What pathogen caused the disease?

+*Staphylococcus aureus*.

Staphylococcus epidermidis.
Staphylococcus saprophyticus.
Salmonella typhimurium.
Salmonella enterica.

306. Materials (washing waters, home stockfish) suspected of possessing causative agent of botulism were delivered to bacteriological laboratory. What nutrient medium is suggested to perform the primary inoculation of the material?

+Kitt-Tarozzi medium.
Blood sugar agar.
Sugar agar.
Sugar broth.
Serum agar.

307. Canned vegetables that were likely to cause botulism in several people were sent to the bacteriological laboratory. What conditions of cultivation should be followed to identify the causative agent in the target material?

+Cultivation in the absence of oxygen.
Addition of antibiotics that oppress the growth of Gram-negative microorganisms.
Creation of nutrient alkaline reaction.
Cultivation of the crop at a temperature below 35 °C.
Addition of vitamins and aminoacids.

308. A few children of the kindergarten presented to the pediatric infectious department with the signs of vomiting, high temperature, and watery stool. The onset of the disease was noted within 3 hours after lunch. At lunch the children ate mashed potatoes with sausages. What disease can be suspected in this case?

+Food born toxic infection.
Dysentery.
Cholera.
Colienteritis.
Typhoid fever.

309. Junior students ate cream cakes and candy during the break. Some time later, the majority of children complained of nausea, abdominal pain, and diarrhea. Which of the agents is most likely to cause poisoning?

+*Staphylococcus aureus.*
Pseudomonas aeruginosa.
Candida albicans.
Streptococcus pyogenes.
Neisseria catarrhalis.

310. A patient suspected of food born disease is diagnosed with botulism. What should be done initially by the doctor? What should be administered to the patient for adequate treatment?

+Washing of the stomach, antitoxin serum, antibiotics.
Antibiotics, vaccine.
Washing of the stomach, vaccine, antibiotics.
Antitoxin sera, antibiotics.
Washing of the stomach, antitoxin serum, vaccine.

311. Several people developed symptoms of food poisoning after celebrating anniversary with a festive table. Duck eggs had been used for cooking cream cake was. What genus of bacterium might cause the disease?

+*Salmonella.*
Shigella.
Clostridia.
Yersinia.
Corynebacteria.

312. Feces of a child who is diagnosed with enteritis are reconstituted in saline, and a drop of suspension grown in 10% yolk agar is added. What enzyme is found in the pathogenicity of this medium?

+*Lecithinase.*
Colicines.
Streptokinase.
Hemolysin.
Hyaluronidase.

313. An 8-month-old child suffered from intestinal disturbances. Qualitative and quantitative analysis of intestinal micro flora suggested the diagnosis of dysbacteriosis. The child was administered a number of coli protease bacteriophages for treatment. What is the mechanism of this remedy effect?

+It is conditional lysis of opportunistic enterobacteria.

It contributes to the reproduction of bifidobacteria.

It enhances antagonistic activity of lactobacilli.

It stimulates the synthesis of secretory IgA (sIgA).

It improves barrier properties of mucosal ulcers.

314. Food poisoning investigation identified a culture of anaerobic spore of Gram positive bacteria. The properties of what species are they most likely to be?

+*Clostridium perfringens*.

Proteus vulgaris.

Proteus mirabilis.

Vibrio parahaemolyticus.

Escherichia coli.

Bacteria of Clostridium Genus – Agents of Tetanus and Wound Anaerobic Gas Infection

315. Bacteriologist investigated pieces of tissue and discharge from the wound of a surgical patient. The injury had not healed for a long time and it was characterized by swollen tissues and formation of gas. What diseases are caused by Gram-positive allocated rods?

+Wound gas anaerobic infection.

Tetanus.

Skin diphtheria.

Anthrax.

Erysipelas.

316. 3000 IU of antitetanic serum had been previously introduced by Bezredko method to a patient with leg injury. 9 days later there appeared signs of serum illness. What type of allergic reactions is the course of the disease likely to be?

+Type III – Immune Complex Hypersensitivity.

Autoallergic disease.

Type I – Anaphylactic.

Type II – Cytotoxic.

Type IV – Delayed Hypersensitivity.

317. A patient presented to a surgical unit with suppuration of deep tissues of the limb. What is the purpose of investigating the patient's material?

To identify the causative agent toxicity.

+To establish the ethiology of purulent process and determine the causative agent's sensitivity to antibiotics.

To identify pathogenic staphylococcus.

To confirm anaerobic infection.

To identify the causative agent so that to prevent the hospital infection.

318. A patient presented to the surgical unit with gas anaerobic infection of the wound. The etiology of the disease has not been established yet. What medication should be administered for a specific prevention of the disease?

+Polivalent antigas gangrene serum.

Antitetanus antitoxic serum.

Adsorbing sextatoxoid.

Type specific antigas gangrenous serum.

Antibotulinic antitoxic serum.

319. A patient has got a deep suppurated wound. A pus swab from the wound yields staphylococci and clostridia. What remedy should be used urgently for prophylaxis of the disease?

+Donor γ (gamma) - globulin.

Staphylococcal toxoid.

Tetanus toxoid.

Sextatoxoid.

Staphylococcal bacteriophage.

320. After an automobile accident a patient was admitted to the clinic with multiple wounds contaminated with soil. What medication should be used for specific prophylaxis?

+Tetanus toxoid and antitetanus serum or γ (gamma)-globulin.

Bacteriophage.

Antibiotics.

Antibacterial serum.

Antiseptic for the debridement of the wound.

321. A farmer working in the field injured his leg with a shovel. Two weeks later he developed signs of anaerobic infectious gangrene. Which factor played a major part in the pathogenesis of the disease?

+Exotoxin.

Enterotoxin.

Hyaluronidase.

Neuraminidase.

Endotoxin.

322. A patient with injured foot presented to a casualty department. A complete course of immunization had been performed before. What medication has to be administered for the prophylaxis of tetanus?

+Antitoxic serum.

Sulfonamides.

Antibiotics.

Corpuscular vaccine.

Immunoglobulin.

323. A soldier failed to clear explosives properly and injured his thigh. He was given primary care but two days later blisters filled with tissue fluid appeared on the surface of the thigh. The skin became stretched with bronze tone. The patient's condition developed growing intoxication. What microorganism was likely to cause such case of the disease?

+Clostridia.

Yeast.

Escherichia coli.

Staphylococcus.

Pseudomonas aeruginosa.

324. A man with deep "contaminated" wound of the calf was administered a remedy for the prevention of tetanus. A few minutes after the injection the patient developed pain in the substernal area, shortness of breath, tachycardia, and reducing blood pressure. What remedy is likely to cause such a reaction of the organism?

+Antitetanus antitoxic serum.

Tetanus toxoid.

Antitetanus immunoglobulin.

Antibiotic.

Measles γ (gamma) - globulin.

325. A patient who got injured in a car accident manifested the first symptoms of tetanus seven days later: spasms of chewing muscles and cramps of the injured limb. The patient was administered a course of treatment with tetanus serum and his condition improved. Two weeks later the patient's temperature elevated; enlarged lymph nodes, swollen joints, rash, itching and disturbances of the cardiovascular system were observed. What was the patient's condition likely to be?

+Serum disease.

Urticaria.

Anaphylactic shock.

Dysbacteriosis.

Quincke's edema.

326. A 40-year-old man injured his arm working in the field. What kind of medical care should be provided to the patient?

+Initial surgical cleanness of the wound and injection of antitetanus serum.

Initial surgical cleanness of the wound.

Initial surgical cleanness of the wound and injection of tetanus toxoid.

Initial surgical cleanness of the wound and injection of antirabic serum.

Initial surgical cleanness of the wound and injection of antirabic vaccine.

327. A 40-year-old patient presented to the surgical department of the hospital with the injured lower limb. The patient was diagnosed with wound gas anaerobic infection and administered polyvalent antigas gangrenous serum. What precautions are necessary to be followed while introducing serum to the patient to prevent complications?

+Serum must be introduced fractionally by Bezredko method.

Serum must be introduced simultaneously with antibiotics.

Serum must be incubated at 70 °C water bath.

Serum must be processed by proteolytic enzymes.

Serum must be introduced intravenously.

328. During a game a piece of glass cut a child's leg and he was sent to the polyclinic where he was introduced tetanus toxoid vaccine. To prevent anaphylactic shock serum was injected by Bezredko method. What mechanism is at the basis of desensibilization of the organism?

Blocking the synthesis of mast cell mediators.

Stimulation of synthesis of antigen-specific IgG.

+Binding IgE, fixed on the mast cells.

Stimulation of immunological tolerance to antigen.

Binding the receptors to IgE on the mast cells.

329. A laboratory studied the material for diagnostics of tetanus. Which method of sterilization should be applied to eliminate the isolated culture?

+Autoclaving.

Boiling.

Tindalization.

Dry heat sterilization.

Pasteurization.

330. A victim of a car accident is suspected of anaerobic gas infection of the wound. What medication should be administered to the victim for a specific treatment until diagnosis is confirmed?

Toxoid.

Type specific immune serum.

Native plasma.

Placental γ (gamma) - globulin.

+Polyvalent specific serum.

331. Contents of the patient's anaerobic wound infection revealed large quantities of Gram-positive rods surrounded by gentle capsule. Rods were arranged chaotically. On the growth media in aerobic conditions one of the microorganisms did not grow. What microorganism was found in the wound?

Clostridium histolyticum.

Clostridium tetani.

+*Clostridium perfringens*.

Clostridium novyi.

Clostridium septicum.

332. Discharge from the patient's wound revealed Gram-positive rods forming capsules. The causative agent is anaerobic, stationary, collapses milk producing large quantities of gas. Think of the causative agent of gas anaerobic infections.

Clostridium septicum.

Clostridium sordellii.

Clostridium histolyticum.

+*Clostridium perfringens*.

Clostridium novyi.

333. A patient got a deep suppurated wound made by a fishing hook on his palm. A pus swab revealed Gram-positive cocci forming irregularly shaped settlers, and long Gram-positive rods with terminally located spores, the diameter of which exceeded the diameter of rods. What medication should be applied urgently to prevent the disease?

Staphylococcal toxoid.

Tetanus toxoid.

Sextatoxoid.

Staphylococcal bacteriophage.

+Donor γ (gamma) - globulin.

334. What vaccine is used to prevent tetanus?

+Toxoid.

Live (attenuated) vaccine.

Chemical vaccine.

Inactivated vaccine.

Engineered vaccine.

335. A patient with gangrenous calf presented to the surgical department. The etiology of the disease has not been established yet. What is the specific treatment for the patient?

Cleaning of the wound.

High dose of sulfanilamide.

Vaccination.

High dose of antibiotics.

+Introduction of polyvalent antitoxic antigas gangrenous serum and effective antibiotic therapy.

336. A patient with a stab wound of the foot that he had injured during hay making presented to the surgical department. What specific medication is to be administered for the effective passive immune prophylaxis of anaerobic infection?

+Antitoxic serum.

Antibiotics.

Toxoids.

DTP vaccine.

Tetanus vaccine.

337. A soldier got a deep lacerated wound in the war battle. He did not get any medical care for a long time; it resulted in the development of gas anaerobic infection. What is the way of transmission of this infection?

+Indirect contact.

Alimentary pathway.

Air born pathway.

Transmissible.

Direct contact.

338. A specimen of the patient's wound has been sent to the laboratory. Preliminary diagnosis is gas gangrene. By what microbiological method is it possible to establish the etiology of the disease?

+Bacteriological.

Skin allergic test

Bacterioscopic.

Serological.

Express-method (RIA).

339. While investigating the sterility of the dressings bacteriologist established mobile Gram-positive rods with rounded spores located terminally in a shape of drum sticks. Bacterium was anaerobe. Which anaerobic bacterium is characterized by such properties?

+*Clostridium tetani*.

Clostridium histolyticum.

Clostridium septicum.

Clostridium novyi.

Clostridium perfringens.

340. A filtrate of broth culture with anaerobic infection pathogens was spilled in test tubes. Species of antitoxic serum was then added in each tube and they were kept for 40 minutes at room temperature. What is necessary to do next to identify the type of anaerobe?

+To introduce the contents of the tubes to experimental animals.

To add diagnostic agglutination serum into the tubes.

To inoculate the contents of tubes on the diagnostic media.

To add diagnostic precipitation serum into the tubes.

To add erythrocyte diagnosticum into the tubes.

341. 48-hour incubation of the necrotic tissue culture in blood Zeissler's agar in a gas pack stimulated the growth of large flat rough colonies tending to creep. What properties of bacteria on the nutrient medium were investigated by bacteriologist?

+Cultural.

Morphological.

Tinctural.

Proteolytic.

Hemolytic.

342. While working on the ground one of the workers injured himself badly. In the hospital he got medical care and was administered penicillin. 2 weeks later the patient developed cramps. What additional medication did the victim have to be introduced with?

+Antitoxin.

Donor γ (gamma) - globulin.

Interferon.

Antibiotic of aminoglycosides.

Antibiotic of tetracycline group.

343. A bacterium is isolated from the wound of a patient with gas anaerobic infection. It possesses such qualities as: it is a Gram-positive bacterium ($6.0 \times 1, 5 \mu\text{m}$), its disposition is subterminal; it forms a capsule in the human body. Name the type of microorganism.

+*Clostridium perfringens*.

Clostridium tetani.

Clostridium botulinum.

Clostridium histolyticum.

Bacillus anthracis.

344. Microscopy of bacterial culture revealed microorganisms in a shape of spindle which took on blue-violet color by Gram stain. What type of microorganism is it?

+Clostridia.

Streptococci.

Spirochetes.

Actinomyces.

Diplococci.

345. A patient with the suspicion of gas anaerobic infection presented to the hospital. What nutrient medium should be used to grow the material obtained from the patient?

+Kitt-Tarozzi medium.

EMB medium.

Endo agar.

Muller medium.

TSI-medium (Triple Sugar Iron agar).

346. A patient presented to the infectious unit complaining of facial muscles cramps. From a scratch on the right lower extremity there were isolated bacteria with terminally arranged spores in a shape of "drum sticks". What species of bacteria is characterized by such properties?

+*Clostridium tetani*.

Clostridium botulinum.

Clostridium perfringens.

Bacillus anthracis.

Bacillus cereus.

347. A specimen from a wound of the patient suspected of anaerobic gas infection was inoculated on Kitt-Tarozzi medium that had been previously warmed up to boiling. For what purpose was the medium warmed?

+To release oxygen.

To kill bacteria.

To dissolve salts.

To sterilize the medium.

To oxygenate the medium.

348. Bacteriologist isolated Gram-positive rods with spores from the contaminated wound under favorable anaerobic conditions. When bacteria were inoculated in sugar-blood agar, colonies surrounded by a hemolytic zone grew there. Name the species of pathogens isolated from the wound.

+*Clostridium perfringens*.

Staphylococcus aureus.

Clostridium botulinum.

Escherichia coli.

Pseudomonas aeruginosa.

349. To prevent the development of tetanus a patient must be introduced 3000 IU of tetanus toxoid vaccine by Bezredko method. The mechanism of desensibilization with the introduction of fractional heterologous (horse) serum explains:

- + Gradual binding of human antibodies to the horse protein without acute allergic reaction.
- Accumulation of antibodies to horse protein as a result of fractional introduction of antigen.
- Formation of artificial immunological tolerance to horse proteins.
- Formation of resistant immunity to horse proteins as a result of immunization.
- Breaking the rules of temperature conditions while performing the reaction.

350. A worker got injured while working on the ground. The wound was contaminated with soil. What specific measures should be undertaken for urgent prophylaxis?

- Vaccination by inactivated vaccine.
- + Vaccination by tetanus antitoxin with antitetanic serum or γ -globulin.
- Introduction of antibacterial serum.
- Bacteriophage.
- Antibiotics.

351. Antitoxic serum is the most effective remedy against such toxic infections as tetanus, botulism and diphtheria. Which of the techniques is able to produce specific prophylactic serum?

- + Hyperimmunization of horses by toxoids.
- Fermentative dialysis (diaferm).
- Immunization of horses by toxigenic bacteria.
- Hyperimmunization of rabbits by corresponding toxoids followed by clearance.
- Usage of recombinant vaccines.

352. Children of 4, 5, 6 months age are vaccinated with DTP adsorbed vaccine to prevent tetanus. What type of vaccination is indicated?

- + Planned vaccination.
- Due to epidemiologic situation.
- Urgent vaccination.
- Noncompulsory.
- Therapeutic.

353. A causative agent of tetanus produces exotoxin with various biological effects. What clinical symptoms may develop in an individual under the influence of this toxin?

- Diplopia.
- + Dysfunction of chewing muscles.
- Diarrhea.
- Rash on the skin.
- Nausea.

Facultative-anaerobic Nonsporeforming Gram-positive Rods: Corynebacteria. Causative Agents of Whooping Cough

354. A preliminary diagnosis of the patient is diphtheria. Bacterioscopy of the pharyngeal smear yields Gram-positive rods. What remedy is to be prescribed for treatment?

- + Antitoxic antidiphtheric serum.
- Interferon.
- DTP.
- DTt.
- Polyvalent serum.

355. A child of a large family got ill with diphtheria. What should be administered to other kids to prevent the spread of infection?

- + Antidiphtheric immunoglobulin.
- Antidiphtheric serum.
- DTP vaccination.
- Vaccination by DT toxoid.
- Vaccination by live (attenuated) vaccine.

356. Specific prophylaxis of diphtheria is scheduled in the kindergarten. What is the preparation of choice?

+Toxoid.
Antibiotics.
Corpuscular vaccine.
Immunomodulators.
Serum.

357. Bacteriologist revealed *Corynebacterium diphtheriae* in the material obtained from a sick child initially diagnosed with diphtheria. What method of investigation will confirm or disprove the diagnosis?

+Study of isolate for toxigenicity.
Infecting of rabbits.
Agglutination test.
Burri-Gins staining.
Inoculation of the studied material on blood agar.

358. An outbreak of diphtheria was registered in one of the kindergartens. As it appeared, two of children who had been in contact with the sick, were not vaccinated against diphtheria. What preparation will be administered to the children for prophylaxis?

+Specific antitoxic antidiphtheric serum.
Diphtherial toxoid.
Interferon.
Lactobacterin.
DTP vaccine.

359. For prophylactics and treatment of what disease is antitoxic serum indicated?

+Diphtheria.
Tuberculosis.
Dysentery.
Gonorrhea.
Whooping cough.

360. It is necessary to provide specific prophylaxis of diphtheria in the children's group. What is the preparation of choice?

+Toxoid.
Subunit vaccine.
Engineered vaccine.
Inactivated vaccine.
Live (attenuated) vaccine.

361. One of the children of the kindergarten got ill with diphtheria. What immunological remedy is to be administered for express prophylaxis of diphtheria?

+Antitoxic serum.
Tetracycline.
Interferon.
Erythromycin.
DTP vaccine.

362. A patient had been burning with fever for ten days. A physician noted attacks of typical spasmodic cough and administered inoculation of pharyngeal sputum on casein-charcoal agar. What microorganism is suggestive to be identified in the sputum?

+Causative agent of whooping cough.
Klebsiella.
Haemophilus influenzae.
Staphylococcus.
Listeria.

363. Toxigenic strains of *Corynebacterium diphtheriae* contain *tox+* gene of prophage. Characterize prophage.

+DNA phage, integrated into DNA bacteria.
Prophage, capable to replicate with bacterial cells.
DNA of prophage, replicated independently.
Prophage, destroying bacterial cells.
Autophage.

364. A boy with catarrhal inflammation of trachea and bronchi is presented with the occasional attacks of cough. What nutrient agar is used to inoculate the studied material for isolation the pure culture of the causative agent of whooping cough?

+Bordert-Gengou medium.

Endo agar.

MPA with bile.

Tumansky agar³.

Buchin agar.

365. *Corynebacterium diphtheriae* is identified in one of the personnel staff of the children's group. Research of the causative agent for toxigenity showed that the strain produced exotoxin. What test was performed by bacteriologist to determine toxigenicity?

Agglutination test.

Ring test.

Immune fluorescent test.

+Precipitation test in gel.

Complement fixation test.

366. Children of the kindergarten are scheduled for vaccination against whooping cough. What is the preparation of choice?

BCG vaccine.

Type-specific serum.

DT vaccine.

Donor γ (gamma) - globulin.

+DTP vaccine.

367. Examining the patient, ETS specialist noted hyperemia and swelling of the tonsils covered with yellow-grayish coat. Microscopy of the swab revealed Gram-positive rods arranged angular to each other. What is the initial diagnosis of the disease?

+Diphtheria.

Angina.

Scarlet fever.

Meningococcal nasopharyngitis.

Epidemic parotitis.

368. A patient presented to the clinic in poor condition, with high temperature and difficulty breathing. Bacterioscopic research of the swab allowed making an initial diagnosis of diphtherial croup. What method of staining was used by bacteriologist?

+Neisser method.

Ziele-Nielson method.

Burri-Gins method.

Peshkov method.

Ojeshko method.

369. A child with diphtheria developed rash with itching on the skin within ten days after introduction of antidiphtherial serum. The child also complained of muscle pain and fever (38 °C). What is likely to be the cause of the developed symptoms?

+Serum disease.

Anaphylactic reaction.

Atopia.

Delayed hypersensitivity.

Contact allergy.

370. A patient was initially diagnosed with diphtheria. Microscopy of the patient's material revealed rods of yellow-brown pigmentation with dark-blue thickenings at the ends. What method of staining was used?

+Neisser method.

Leoffler method.

Ziele-Nielson method.

Kozlovsky method.

Romanovsky method.

³ Tumansky-Korobkova medium – MPA with the additionally warmed blood and gentian violet used for isolation of *Yersinia pestis*.

371. A patient was initially diagnosed with diphtheria. Microscopy of the material revealed fine rods of yellow-brown pigmentation with dark-blue thickening at the ends (Neisser staining) as well as rods of blue color with blue thickening at the end (Leoffler staining). Rods were settled angular to each other. What was the conclusion based on microscopic findings?

- +Identification of pathogenic corynebacteria.
- Absence of pathogenic corynebacteria.
- Identification of *Corynebacterium xerosis*.
- Identification of *Corynebacterium pseudodiphtheriticum*.
- Identification of *Mycobacterium tuberculosis*.

372. Mucus from the pharynx of a sick child suspected of diphtheria is investigated under the microscope. Microscopy yields rods of yellow-brown pigmentation with dark-blue thickening at the end. What structural component of a microbial cell was identified?

- +Volutine.
- Plasmids.
- Capsules.
- Spores.
- Flagella.

373. A two-year-old child who had been in contact with the diphtherial sick person, was introduced a definite dose of toxin (1/40 MLD for sea pig) subcutaneously in the forearm. What is diphtherial toxin aimed to produce?

- +Antidiphtheric antitoxic immunity.
- Active immunity.
- Passive artificial immunity.
- Allergic reaction.
- Antidiphtheric antibacterial immunity.

374. Because of the increased morbidity rate of diphtheria it has become necessary to vaccinate a group of students. What preparation will be used to produce artificial active immunity?

- +Diphtheric toxoid.
- Antidiphtheric serum.
- Specific immunoglobulin.
- DTP vaccine.
- Inactivated vaccine.

375. To assure the necessity of vaccination against diphtheria, epidemiologist has to estimate the level of immunity of the personnel. What has he to do?

- +To determine the titer of antitoxins by PHAT.
- To reveal bacteria carrier among the members of the collective.
- To evaluate the level of antibodies against the causative agent of diphtheria.
- To check medical documents dealing with the recorded vaccination against diphtheria.
- To evaluate the immunity against the causative agent of diphtheria.

376. A pure culture of corynebacteria was isolated by bacteriologist during microscopy. What immunologic reaction was used by the specialist for identification of bacterial toxigenicity?

- +Reaction of precipitation in gel.
- Reaction of agglutination.
- Complement fixation test.
- Hemagglutination inhibition test.
- Passive hemagglutination test.

377. Exotoxin is considered to be the basic factor of *Corynebacteria diphtheriae* pathogenicity. What immunologic reaction will be used by bacteriologist to evaluate the capability of bacteria to produce exotoxin?

- +Reaction of precipitation in gel.
- Reaction of agglutination.
- Complement fixation test.
- Reaction of flocculation.
- Reaction of thermal ring precipitation due to Ascoli.

378. Introduction of antidiphtherial serum is a part of therapy suggested to the patient. What is the initial diagnosis of the disease?

+Diphtheria.

Angina.

Exacerbation of chronic tonsillitis.

Scarlet fever.

Anginoid form of tularemia.

379. A patient presented to the infectious department complaining of moderately sore throat. Objectively: elevated body temperature (39 °C), slight hyperemia of the mucous membrane of the pharynx; tonsils are covered with yellow-gray coat that is followed by bleeding when it is stripped off. What is the initial diagnosis of the disease?

+Diphtheria.

Angina.

Exacerbation of chronic tonsillitis.

Scarlet fever.

Anginoid form of tularemia.

380. A group of military men were immunized by associated vaccine containing toxoid of tetanus and diphtheria. Among the immunized there were revealed two bacteria carriers of toxigenic diphtherial bacillus. How can this episode be interpreted?

+Diphtherial toxoid does not produce antimicrobial immunity.

Dose of vaccine was not enough for bacterial carriers.

Vaccine was of inadequate quality.

Identified causative agents of bacteria had different antigenic structure.

Immunized persons could have been contaminated by the causative agent of diphtheria before vaccination.

381. To evaluate the toxigenicity of the causative agent of diphtheria bacteriologist put a streak of filterable paper wetted with antitoxic antidiphtherial serum, next to it there was plated a pure culture of bacterium that looked like spots and tested toxigenic strain of bacteria. If the tested culture produces exotoxin, then:

+Lines of precipitation become infused.

Lines of precipitation become crossed.

Zones of opacity.

Lines of precipitation are absent.

Rings of precipitation.

382. To evaluate the level of antidiphtherial immunity in a child, reaction of passive hemagglutination is suggested. What are erythrocytes sensibilized by to perform the reaction?

+Diphtherial toxoid.

Diphtherial antitoxin.

Antigens of diphtherial bacillus.

Antidiphtheric serum.

Hemolytic serum.

383. A patient with diphtheria has to be introduced antitoxic serum immediately. What is the way to prevent anaphylactic shock, if the patient's allergic response to the serum appears to be positive?

+Serum should be introduced only after the organism of the patient is sensibilized due to Bezredky method.

Serum is not introduced.

Serum is introduced avoiding venous bloodstream.

Serum should be introduced through the skin.

Serum should be introduced simultaneously with the diphtherial toxoid.

384. To identify toxigenic strains of *Corynebacterium diphtheriae* pure cultures are plated on nutrient agar of Petri dish. In the centre there is a streak of filterable paper wetted with antitoxic serum, and on both sides pure cultures of *Corynebacterium diphtheriae* are inoculated. What is the type of reaction used by bacteriologist?

+Reaction of precipitation in gel.

Coomb's test.

Reaction of agglutination.

Reaction of thermal ring precipitation.

Reaction of opsonization.

385. A 7-year-old girl presented to the infectious department with high temperature, sore throat and general malaise. An initial diagnosis is "diphtheria". A swab from the pharynx is to be studied for isolation of pure culture of the causative agent. What method of research seems to be preferable to confirm the diagnosis?

+Test for toxigenicity.

Identification of volutine granules in the causative agent.

Cistinase test.

Identification of hemolytic features of the causative agent.

Study of phagolisability.

386. DTP vaccine is used for effective prophylaxis of diphtheria, tetanus and whooping cough. What component of the vaccine protects the organism from the influence of the causative agent of whooping cough?

+Inactivated *Bordetella pertussis*.

Exotoxin of whooping cough.

Attenuated (live) *Bordetella pertussis*.

Endotoxin of whooping cough.

Toxoid.

387. What nutrient agar will the studied material for identification of the causative agent of diphtheria be inoculated on?

Meat peptone agar.

Egg yolk agar.

Casein-charcoal agar.

+Coagulated serum (Ru agar).

Differential-diagnostic Hiss media.

388. A 5-year-old boy presented to the hospital with the inflammation of the upper respiratory tract, attacks of cough that occurred under the influence of various specific and nonspecific stimuli. An initial diagnosis of whooping cough was made on the basis of obtained data. Sputum of the back palate of the pharynx had to be studied. What nutrient agar should be used by bacteriologist for isolation and identification of pure culture of the causative agent?

EMB agar.

+Bordet-Gengou medium.

Endo agar.

Serum agar.

Tumansky agar.

389. Among the children of a boarding school there were registered some episodes of angina. The children were examined and the swab from the tonsils was taken for investigation by Neisser staining. Microscopy revealed rods of yellow-brown pigmentation with dark blue thickening at the end arranged like the letter "V". What preliminary diagnosis based on the obtained data can be made?

Infectious mononucleosis.

Listeriosis.

Tonsillitis.

+Diphtheria.

Scarlet fever.

390. Toxin of diphtheria is produced particularly by the strains of *Corynebacterium diphtheriae* which:

Ferment glucose.

+Are lysogenic ones.

Are biovar of *mitis*.

Ferment sucrose.

Do not have capsule.

391. What is the most frequent case of diphtheria nowadays?

Diphtheria of the eye.

Diphtheria of the ear.

+Diphtheria of fauces.

Nasal diphtheria.

Diphtheria of a wound.

392. A patient presented to the hospital on the second day of illness complaining of severe headache, sore swallowing, fatigue and loss of appetite. The onset of the disease was acute, with the rise of body temperature to 39 °C. Tonsils became enlarged and coated with yellow-gray incrustation followed by bleeding on the attempt to strip it off. Neisser staining of the micropreparation revealed bacilli arranged angular to each other and with binary volutine granules. What is the causative agent of the disease?

+*Corynebacterium diphtheriae*.

Legionella pneumophila.

Bordetella parapertussis.

Erysipelothrix rhusiopathiae.

Candida albicans.

393. A child diagnosed with diphtheria is presented to the hospital. What medication is of choice for specific therapy?

Diphtheria toxoid, antibiotics.

Kodivac vaccine, sulfonamides.

+Antidiphtherial antitoxic serum, antibiotics.

DTP vaccine, DTt, Dt.

Diphtheria bacteriophage.

394. A patient is initially diagnosed with diphtheria of fauces. Bacteriologist isolated a pure culture with morphologic, tinctorial, cultural and biochemical properties typical for the causative agent of diphtheria. What method of research should be used to approve that it is a causative agent of diphtheria?

To determine the capability of bacteria to ferment starch.

To study proteolytic properties of bacteria.

To perform urease test.

To perform cistinase test.

+To estimate toxigenicity of bacteria.

395. To estimate the activity of antitoxic antidiphtherial serum, which term of validity is over, bacteriologist performed the reaction based on the interaction of various doses of serum with the definite dose of diphtherial toxin or toxoid. What is the reaction called?

Reaction of precipitation.

Reaction of bacteriolysate.

Complement fixation test.

Reaction of hemagglutination.

+Reaction of flocculation.

396. Bacterioscopic research of the material obtained from the fauces of the patient suspected of diphtheria revealed rod-shaped bacilli arranged in parallels. What aetiotropic remedy will be administered to the patient?

Interferon.

Eubiotic.

Bacteriophage.

+Antibiotic.

Antitoxic antibacteriac serum.

397. Clinical signs of a sick child include elevated body temperature to 38 °C, yellow-grayish fibrinolytic coat on the tonsils and adynamy. The child complains of a sore throat. An initial diagnosis of the disease is "diphtheria". Which of the following microbiological methods are likely to confirm the preliminary diagnosis?

Microscopic + skin allergic test.

Biological + serological.

Skin allergic test + serological.

+Microscopic + bacteriological.

Microscopic + serological.

398. Exotoxin, processed by 0,4% of formalin solution at $t = 37-40$ °C within four weeks, is utilized for vaccination. Processed toxin loses its toxic properties completely, but preserves antigenic and immunogenic features. Ramon was the first to utilize such preparation in prophylaxis of diphtheria. What is this preparation called?

+Toxoid.

Immunoglobulin.

Antitoxic serum.

Adjuvant.

Inactivated vaccine.

399. A 5-year-old girl complains of a sore throat and chills (body temperature is elevated to 38 °C). Notifiable swelling of the neck and signs of general intoxication of the organism are observed. Tonsils are covered with

yellow-greyish fibrinolytic coat joined firmly to the surrounding tissues and which is followed by bleeding on the attempt to strip it off. What initial diagnosis of the disease is likely to be suggested?

+Diphtheria.

Scarlet fever.

Meningococcal nasopharyngitis.

Influenza.

Measles.

400. A family has got two kids. A 1-year-old child is manifested with spasmodic attacks of cough on the background of elevating body temperature. Typical clinical signs were observed in the older preschool child a month before. What method of diagnostics will allow the pediatrician to diagnose the disease in a younger child retrospectively?

+Serological.

Bacteriological.

Biological.

Microscopic.

Molecular and biological.

401. Examining a 6-year-old child, a pediatrician revealed yellow-grayish fibrinolytic coat on the tonsils. A specimen of the sputum swabbed from the tonsils on the border of healthy and damaged areas was studied in the bacteriological laboratory by Neisser staining which revealed Corynebacterium diphtheriae in the micropreparation. Which of the morphological properties is the most important in identification of the causative agent of the disease?

+Polar arranged volutine granules.

Localization of the causative agent inside macrophages.

Spores, diameter of which prevails the diameter of the cell.

Cells of the causative agent are arranged in the form of stockade.

Presence of capsule.

402. Tonsils of the fauces of a 6-year-old child are covered with yellow-grayish fibrinolytic coat followed by moderate bleeding on the attempt to strip it off. Neisser staining of the micropreparation revealed a number of Gram-positive bacteria like drumsticks with volutine inclusions on the poles. What symptoms can develop in the nearest time if specific treatment is not provided?

+Toxic impairment of the cardiac muscle and kidneys.

Edema of the lungs.

Attacks of bad cough.

Papules on the skin.

Indigestion.

403. A group of children were vaccinated by diphtherial toxoid to prevent the development of diphtheria. Vaccination was provided due to all the requirements. A number of blood tests were performed to estimate the level of acquired postvaccinal antitoxic immunity. The research showed a small number of antitoxins. What is the reason of such findings?

+Bad reaction of immune response genes to diphtheria toxoid.

The patients appeared to have contracted diphtheria before vaccination.

The patients had already been vaccinated by diphtheria toxoid.

The patients are sensibilized to diphtherial antigens.

The patients have got normal antibodies to diphtheria toxoid.

404. Microscopy of the material obtained from the patient diagnosed with diphtheria revealed bacilli with thickened ends. What method of staining was used by bacteriologist to identify volutine granules?

+Neisser staining.

Gram staining.

Ojeshko method.

Ziehl-Neelsen method.

Burri-Gins method.

405. Condition of a sick child was characterized by attacks of spasmodic cough typical for whooping cough. Sputum of the fauces was sent to the laboratory. The studied material was plated on casein-carchcoal agar. Then it was cultivated in the thermostat within 72 hours at the $t = 37^{\circ}\text{C}$ and small humid colonies which looked like drops of mercury grew on the nutrient medium. What is the causative agent of the disease?

+Bordetella pertussis.

Staphylococcus aureus.

Neisseria meningitides.

Haemophilus influenza.

Bordetella parapertussis.

406. A 6-year-old girl with angina was examined by the pediatrician and was initially diagnosed with diphtheria. Sputum of the tonsils had to be tested. What are morphological and tinctorial properties of the causative agent of diphtheria?

+Gram-positive rods arranged angular to each other.

Gram-positive cocci arranged in chains.

Gram-negative cocci arranged in pairs.

Gram-negative rods arranged chaotically.

Gram-negative rods arranged in pairs.

407. What is the objective of studying cultural properties, capability to ferment starch and hemolytic activity of bacteria on identification the pure culture of *Corynebacterium diphtheriae*?

+To reveal biovar of the causative agent.

To reveal serovar of the causative agent.

To reveal toxigenicity of bacteria.

For phagotyping.

To reveal bacteriocynes.

408. Because of the unfavorable epidemiological situation with morbidity rate of diphtheria, DT-vaccine was used for immunization of adults. What type of immunity does it produce?

+Antitoxic.

Natural.

Cellular.

Passive.

Postinfectious.

409. A 5-year-old child presented to the hospital with a sore throat and fever. An initial diagnosis of diphtheria seems to be suggested. A causative agent of diphtheria is known to trigger toxin which destroys the process of translocation⁴. What is the mechanism of the process?

+The agent modifies protein factor of translocation.

The agent inhibits translocase.

The agent leads to wrong translation.

The agent inhibits elongation⁵.

The agent destroys functioning of aminoacyl-tRNA -synthetase.

410. A pure culture of *Corynebacterium diphtheriae* is isolated in the material obtained from the patient and stained by Neisser method. What inclusion is likely to be revealed in the causative agent?

+Volutine (polymetaphosphate).

Starch.

Glycogen.

Sulfur.

Drops of neutral lipids.

411. A patient is initially diagnosed with diphtheria. A culture of bacteria is isolated from the coat of tonsils. Characterize morphological properties of the causative agent of bacteria.

+Rod-shaped microorganism with a thickening at the end.

Microorganism of spherical shape.

Rod-shaped microorganism.

Curved microorganism.

Rod-shaped microorganism with sharp ends.

412. In the material obtained from the patient initially diagnosed with "diphtheria of fauces" there was isolated a culture with the following characteristics: Gram-positive rods (3,0 × 0,6 μm) with thickening at the end arranged in a shape of stockade. What species of bacteria is it likely to be?

+*Corynebacterium pseudodiphtheriticum*.

Corynebacterium diphtheriae.

Streptococcus pyogenes.

⁴ The basis of translocation is introduced by the exchange of nonhomologous sites of chromosomes.

⁵ Escalating of new polypeptide chains on ribosomes.

Actinomycetes.

Bordetella pertussis.

413. Microscopy of a nasopharyngeal swab obtained from a 5-year-old child revealed a microbe identical to nonproducing exotoxin *Corynebacterium diphtheriae* due to morphological and biochemical properties. What are the favorable conditions for microorganism to become toxigenic?

Chromosomal mutation.

Cultivation on medium with tellurite.

Passage through the organism of sensitive animals.

Growth in the presence of antitoxic serum.

+Phage conversion.

414. For prophylaxis of infectious diseases according to the immunization schedule a child is to be vaccinated with DTP vaccine. Characterize the components that compose vaccine:

+Inactivated pertussis vaccine, diphtheria and tetanus toxoids.

Live (attenuated) pertussis vaccine, diphtheria and tetanus toxoids.

Pertussis, diphtheria and tetanus toxoids.

Inactivated pertussis, diphtheria and tetanus vaccines.

Pertussis vaccine, diphtheria and tetanus antitoxic sera.

415. Several children from the boarding school contracted tonsillitis. Swabs obtained from the tonsils were stained by Neisser method; microscopy of the preparation revealed rods of yellow-brown pigmentation with dark blue thickening at the end. They seemed to be identical to the causative agent of diphtheria and were arranged in the form of the Latin letter "V". What additional investigation should be performed to make a final diagnosis of the disease?

+To isolate pure culture and study its toxigenicity.

To perform Schick test⁶.

To perform serological investigation of the blood serum for the presence of antibodies.

To isolate pure culture of diphtheria and identify its biovar.

To use other methods of staining.

416. A 5-year-old child presented to the hospital in a state of asphyxia. Examining the patient, pediatrician revealed yellow-grayish coat obstructing the lumen of the pharynx. What disease are such clinical features typical for?

+Diphtheria.

Scarlet fever.

Whooping cough.

Measles.

Meningococcal infection.

417. What component of vaccine is used by a physician for prophylaxis and production of antidiphtherial antitoxic immunity?

+Diphtheria toxoid.

A small dose of diphtheria toxin.

Diphtheria toxoid together with antidiphtherial serum.

Attenuated causative agent of diphtheria.

Inactivated causative agent of diphtheria.

418. A patient initially diagnosed with tonsillitis was presented to the hospital. A swab from the fauces had to be investigated. The studied material was inoculated on meat tellurite agar on which large (d = 3-4 mm) radial crossed colonies of gray pigmentation and cut wavy margin grew. Microscopy of the obtained material revealed Gram-positive rods with drumstick thickening at the end arranged in a shape of digital fingers. What species of bacteria was identified by bacteriologist?

Corynebacterium pseudodiphtheriticum.

Streptococcus pyogenes.

Bacillus anthracis.

+*Corynebacterium diphtheriae.*

Clostridium botulinum.

⁶ Intracutaneous test is performed to establish the presence of antibodies to *C.diphtheriae* toxin. It includes intracutaneous introduction of 1/4 LMD toxin in 0.2 ml; if antibodies are not produced, on the place of toxin introduction an inflammatory infiltrate with the diameter of 2 cm is created within 48-72 hours.

Pathogenic Mycobacteria

419. Microscopy of the sputum obtained from the patient diagnosed with chronic pneumonia was performed. The preparation was stained by Ziehl-Neelsen method which revealed rods of red pigmentation localized separately or in settlers. What diagnosis would you make?

- +Pulmonary tuberculosis.
- Pneumococcal pneumonia.
- Pulmonary actinomycosis.
- Pulmonary candidiasis.
- Influenza.

420. A patient is diagnosed with meningitis of unknown aetiology. Red bacilli were found in preparation made of cerebrospinal fluid and stained by Zeihl-Neelsen. What microorganisms are the ethnologic factors of meningitis?

- +*Mycobacterium tuberculosis*.
- Streptococcus pyogenes*.
- Salmonella typhi*.
- Rickettsia prowazekii*.
- Neisseria meningitidis*.

421. A patient suspected of tuberculosis visited a doctor. What method of diagnostics has to be used?

- +Microscopic (Zeihl-Neelsen stain).
- Bacteriological (isolation of pure culture).
- Serological (PHAT, to reveal specific antibodies).
- Biological method.
- Mantoux test.

422. Mantoux test (intracutaneous test) was introduced to the children of the kindergarten. What preparation was used?

- +Tuberculin.
- Tularin.
- Toxoplasmin.
- Brucellin.
- Anthraxin.

423. For prevention of what infectious disease is live (attenuated) vaccine used?

- +Tuberculosis.
- Pertussis.
- Diphtheria.
- Tetanus.
- Botulism.

424. Scheduled medical check up of the residents of rural region revealed a 16-year-old boy with negative tuberculin skin test. What was the doctor's decision?

- +To vaccinate the boy with BCG⁷ vaccine.
- To conduct express diagnostics by Price-method.
- To repeat Mantoux test in a month.
- To conduct serological diagnostics of tuberculosis.
- To isolate the boy from educational surrounding immediately.

425. A patient is suspected of tuberculosis. Microscopy of the puncture of knee joint did not reveal any microorganisms. What is the purpose of introducing the material obtained from the patient to laboratory animals?

- +For biological method of diagnostics.
- To study virulence of microorganisms.
- To study reaction of immune system to introduction of infected material.
- To study variability of microorganisms.
- To study pathogenesis of the disease.

426. Considerable number of vaccine preparations is used to produce active human immunity. What preparation contains attenuated (live) microorganisms?

- +BCG vaccine.

⁷ BCG – (*Bacillus Calmette-Guerin*), a virulent attenuated (live) strain of *Mycobacterium bovis*.

TABTe vaccine.

DTP vaccine.

Salk vaccine.

Hepatitis A vaccine.

427. What test can help to differentiate mycobacterium tuberculosis from other mycobacteria?

+Formation of niacin.

Staining by Zeihl-Neelsen method.

Formation of pigment.

Hydrolysis of phthyonic acid.

Urease secretion.

428. Mantoux test was introduced to a child suspected of tuberculosis. Oedema, hyperaemia, and tenderness appeared in the region of allergen introduction 24 hours later. By what components is the reaction determined?

+Macrophages, T-lymphocytes and lymphokines.

Granulocytes, T-lymphocytes and IgG.

Plasmocytes, T-lymphocytes and lymphokines.

B-lymphocytes, IgM.

Macrophages, B-lymphocytes, monocytes.

429. Price method of examination the patient's sputum revealed red bacilli creating twisting shaft braces. What substance stipulates gluing microorganisms and their growth in a shape of serpentine cords?

+Cord-factor.

Alt-tuberculin.

Phthyonic acid.

Tuberculostearic acid.

PPD (purified protein derivative).

430. Mantoux test was introduced to the school children of the 1st form. After their examination, the results of 15 out of 35 pupils appeared negative. What was the doctor's decision?

+To vaccinate pupils with negative test with BCG vaccine.

To introduce antitoxic serum to pupils with negative test.

To vaccinate pupils with negative test with antirabic vaccine.

To repeat Mantoux test.

To examine blood serum of all the pupils.

431. Mantoux test was introduced to a 5-year-old child suspected of active form of tuberculosis. Mild hyperaemia was observed in the region of injection 30 minutes after performing the test. Hyperaemia disappeared in 24 hours. Estimate the results of the test.

+Test is negative.

Presence of postvaccinal immunity.

Active form of tuberculosis.

Latent form of tuberculosis.

Test is positive.

432. Mantoux test has to be introduced to a 6-year-old child suspected of active form of tuberculosis. What immunological preparation will be introduced?

+Tuberculin.

BCG vaccine.

DTP vaccine.

Tularine.

DT vaccine.

433. What method allows establishing the presence of cord factor in case of Mycobacterium tuberculosis?

+Growth of bacteria like serpentine cords in microculture.

Gram stain.

Zeihl-Neelsen stain.

Phase-contrast microscopy.

Bacilli are arranged angularly to each other in the micropreparations.

434. Complex examination of the patient suggested the diagnosis of leprosy. What skin allergic test is of significant importance for making such a diagnosis?

+Mitsuda test.

Molony test.

Dick test⁸.

Coombs test.

Shick test.

435. Presence of lipid "cord-factor" in the cell wall of Mycobacterium tuberculosis prevents digestion of microorganisms by phagocytes. Which of the terms gives the most complete definition of it?

+Aggressiveness.

Pathogenicity.

Invasiveness.

Colonysative resistance.

Toxigenicity.

436. Mantoux test was introduced to a 14-year-old boy. The result was estimated in 72 hours: creation of the papule with the diameter of 3 mm. The former anamnesis read that last year the diameter of the papule was 15 mm. Insufficient number of what cells stipulated the changes?

+CD4-lymphocytes and macrophages.

B-lymphocytes and macrophages.

Eosinophils and mast cells.

T-inhibitors and T-helpers.

NK-cells and basophiles.

437. A healthy mature boy weighing 3500 g was born in the maternity home. What vaccine must be introduced to the child before discharge?

+BCG.

DTP.

Live (attenuated) poliomyelitis vaccine.

EV 76 vaccine.

Live (attenuated) influenza vaccine.

438. Mantoux test (with tuberculin) was introduced to a 10-year-old child. Papule of 8 mm in diameter was created 48 hours later in the place of injection. What type of hypersensitivity did the child develop?

+Delayed hypersensitivity (type IV).

Artus phenomenon.

Serum sickness.

Atopic reaction.

II type of hypersensitivity.

439. A patient is diagnosed with chronic pulmonary disease. Microscopy of the preparation obtained from the patient's sputum and stained by Ziehl-Neelsen method revealed bacilli of red pigmentation. What properties of the infecting agent of tuberculosis were identified?

+Acid resistance.

Alkaline resistance.

Resistance to alcohol.

Sensitivity to acids.

Sensitivity to alkali.

440. Acute positive reaction on Mantoux test with tuberculin was first observed at the age of 7. What does it testify?

+Tuberculosis infection.

Infection of the child with Hansen bacillus⁹.

Previous vaccination with BCG vaccine.

Previous Mantoux test.

Tuberculosis.

441. Mantoux test was introduced to a child to make a conclusion about further vaccination. The result appeared to be negative. What did it testify?

+Absence of cellular immunity to causative agent of tuberculosis.

Presence of cellular immunity to causative agent of tuberculosis.

⁸ Intracutaneous test to establish the presence of antibodies against erythrogenic *S.pyogenes* toxin; if an inflammatory infiltrate with d > 10 mm is created in the place of toxin introduction within 1-4 hours, a person is susceptible to the causative agent of scarlet fever (positive reaction).

⁹ *Hansen bacillus* – the agent of leprosy (rod-shaped Hansen-Neisser disease).

Absence of antibodies to causative agent of tuberculosis.

Absence of antitoxic immunity to causative agent of tuberculosis.

Presence of antibodies to causative agents of tuberculosis.

442. Initial diagnosis of the patient is tuberculosis. The sputum is to be investigated in the laboratory by Zeihl-Neelsen staining. What results of examination will testify the diagnosis?

+Thin red bacteria on the blue background.

Microorganisms with red nucleus and blue cytoplasm.

Red bacteria on the white background.

Violet bacteria forming chains.

Red bacteria on the green background.

443. A patient is diagnosed with the open form of pulmonary tuberculosis. Microscopy of the sputum was executed. What method of staining is worth being used?

Gram stain.

Burri-Gins method.

Romanovsky-Giemsa staining.

+Ziehl-Neelsen technique of staining.

Neisser's method.

444. Micropreparation was made of centrifugated urine of the patient suspected of renal tuberculosis. What method of staining is worth being used?

Burri-Gins stain.

+Ziehl-Neelsen technique of staining.

Gram stain.

Leoeffler's stain.

Neisser's stain.

445. Bright red bacilli located separately or in settlers and resistant to acids were identified in micropreparations made of the sputum and stained by Zeihl-Neelsen method. Pathological material created "serpentine cords" and grew slowly on cultural medium. First signs of their growth appeared in 10-15 days. Microorganisms did not produce spores and capsules. What species do the microorganisms belong to?

Yersinia pseudotuberculosis.

+*Mycobacterium tuberculosis*.

Histoplasma duboisii.

Klebsiella rhinoscleromatis.

Coxiella burnetii.

446. Mycobacterium wasn't identified in micropreparation of the sputum obtained from the patient with tuberculosis. What method is preferable in bacterioscopic identification of the causative agent in the sputum?

+Methods of concentration of the studied material: centrifugation and floatating.

Biological method.

Inoculation on enriched medium.

Enzyme-linked immunosorbent assay.

Serological method.

447. Mycobacterium wasn't identified in micropreparation of the sputum obtained from the patient with tuberculosis. What methods can increase probability of bacterioscopic revealing of the causative agent in the sputum?

+Homogenization and floating.

Price method and Shkolnikova method.

Dark field microscopy.

Microscopy of micropreparation stained by Zeihl-Neelsen.

Microscopy of vital preparation.

448. Frequent bacterial infections have been observed in a 2-year-old child within two months. Tuberculin skin test is positive (4th type). What type of immune deficiency is it likely to be?

+Congenital T-cellular immunodeficiency.

Acquired immunodeficiency.

Congenital B-cellular immunodeficiency.

Congenital defection of T-suppressors.

Congenital total immunodeficiency.

449. Mantoux test was introduced to 35 pupils of the 1st form after they had been examined. 15 pupils responded positively. What specific factors stipulated positive reaction?

Antibodies.

Leucocytes.

Erythrocytes.

+T-lymphocytes.

B-lymphocytes.

450. A boy was vaccinated with BCG vaccine on the 5th day of life. Revaccination was administered at the age of 7. The results of what examination appeared to be reasonable for such decision?

+Tuberculin skin allergic test.

Study of titre of antitubercular antibodies.

Medical-genetic examination.

Bacterioscopy of the sputum.

X-ray examination of the lungs.

451. A 40-year-old man suffers from chronic kidney infection. An examination of ureal sediment revealed resistant to acids bacteria in a shape of fine a bit curved bacilli that didn't grow on universal cultural media. On potato glycerine agar bacteria created dry wrinkled colonies with yellow-rose pigment. What group do those microorganisms belong to?

+Mycobacterium.

Mycoplasma.

Chlamydia.

Trichomonas.

Gardnerella.

452. Bacteriologist proceeded micropreparation of the sputum by 1% carbolic Zeihl fuchsine and then heated it three times till evaporation. Then he took off paper, plunged the micropreparation in a glass with 5% sulfuric acid and finally washed it out with water. After that the micropreparation was proceeded by Loeffler's blue. To identify what species of bacteria was such method used by bacteriologist?

+Mycobacterium tuberculosis.

Staphylococcus aureus.

Streptococcus pneumoniae.

Streptococcus viridans.

Klebsiella pneumoniae.

453. Bacterioscopy of the sputum, initially cultivated in the blood revealed bacilli arranged in a shape of "serpentine cords". What method of diagnosing tuberculosis was used?

+Method of microcultures (Price method).

Shkolnikova method.

Method of plaques.

Method of serial dilution.

Cocks method.

454. Microscopy of the material obtained from the patient suspected of leprosy revealed bright red bacilli arranged in parallel groups (pack of cigars). What method of staining was used?

+Ziehl-Neelsen technique of staining.

Gram stain.

Loeffler's stain

Neisser's stain

Romanovsky-Giemsa stain.

455. What remedy will be administered to the patient diagnosed with pulmonary tuberculosis?

+Isoniazid.

Penicillinum.

Erythromycin.

Tetracycline.

Chloromphenicol.

456. A patient complained of persistent cough with purulent sputum. Bacteriologist revealed blue pigmented cocci and red thin curved rods at bacterioscopy of micropreparations stained by Zeihl-Neelsen. What microorganism is the causative agent of the disease?

+Mycobacterium tuberculosis.

Actinomyces bovis.

Staphylococcus aureus.

Escherichia coli.

Corynebacterium diphtheriae.

457. What is the aim of introducing Mantoux test with tuberculin intracutaneously to the pupils of the first form?

+To identify pupils subjective to revaccination with BCG vaccine.

For prophylaxis of tuberculosis.

To study immunity to causative agents of diphtheria.

To study the level of allergy or rickettsia.

To identify pupils with epidemic parotitis.

458. In 1874 Gerhard Hansen described a causative agent of a very dangerous infectious chronic disease that was contracted only by humans. The disease is characterized by a prolonged incubation period and formation of infiltrate (leproma). What genus does the causative agent of this disease represent?

+*Mycobacterium.*

Corynebacterium.

Enterobacter.

Actinomyces.

Rickettsia.

459. Soil is not considered to be so favourable for the development of many pathologic bacteria, viruses, fungi, and protozoa. However, it is important for the transmission of some agents of infectious diseases. What microorganisms can survive in the soil for a long period of time?

+*Mycobacterium tuberculosis.*

Causative agents of plague.

Causative agents of cholera.

Causative agents of tularaemia.

Shigella.

460. Initial diagnosis of the disease is "tuberculosis". Microscopy of the preparation made from the patient's sputum was stained by Zeihl-Neelsen method. What characteristics of the causative agent were studied?

+Morphological and tinctorial.

Cultural and enzymic.

Pathogenic and virulent.

Biological and antigenic.

Toxigenic and immunogenic.

461. To stain the micropreparation made from the patient's sputum the following reagents were used: solution of Zeihl fuschine, methylene blue, and 5% solution of sulphuric acid. What method of staining was used?

+Zeihl-Neelsen technique of staining.

Burri-Gins method.

Gram method.

Peshkov method.

Neisser's method.

462. Sputum of the patient with tuberculosis was delivered to the bacteriological laboratory. One of the methods to reveal the causative agent of tuberculosis was enriching the sputum by means of caustic soda. What method was used?

+Homogenization.

Inactivation

Floating.

Filtration

Sterilization.

463. Scheduled vaccination of newborns (on the 5th-7th day of life) plays a significant role in prophylaxis of tuberculosis. What test is used to monitor the effectiveness of vaccination against tuberculosis?

+Mantoux test with tuberculin.

Schick test.

Zacks test.

Allergic test.

Dick test.

464. Immunity against tuberculosis is preserved after vaccination until there are live bacteria of the same strain in the organism. What is the type of immunity?

Type-specific.

Humoral.

+Nonsterile (infection immunity).

Innate.

Crossed.

465. Introduction of Mantoux test to a child resulted in the production of papule, 10 mm in diameter, in the place of injection 48 hours later. What is the mechanism of producing hypersensitivity as a result of changes in the organism?

Anaphylaxis.

+Cellular cytotoxicity.

Granulematosis.

Antibody depending cytotoxicity.

Immunocomplex cytotoxicity.

466. A patient is diagnosed with active form of focal pulmonary tuberculosis. What is the preparation of choice for treatment?

Cycloserinium.

Etionamide.

+Isoniazid.

Ethoxide.

Sulfaline.

467. Pupils of the first form were examined before revaccination against tuberculosis. What test was used?

Burne test.

Schick test.

Skin test with tularin.

+Mantoux test.

Test with anthraxin.

468. Urine of the patient with renal tuberculosis was delivered to bacteriological laboratory, there it was proceeded on centrifuge and the obtained sediment was grown in 10% solution of sulphuric acid and then inoculated on potato-yolk medium. There was no growth of microorganisms on the medium 3 days later. What is the reason why microbes did not grow on the plate?

+Very slow growth of the causative agent.

The nutrient medium was not favorable for cultivation of bacteria.

Microorganisms died under procedure of bisulphuric acid.

Microorganisms remained in suprasedimental fluid.

Microorganisms had to be activated in anaerobic conditions.

469. A patient is administered intracutaneous Mantoux test for diagnostics of tuberculosis. What can be dedicated in favour of Mantoux test?

+Infection of organisms with mycobacterium.

Natural resistance to tuberculosis.

Patient's sensitivity to antibiotics.

Condition of acquired immunity against tuberculosis.

Barrier functions of tissues and organs.

470. Bacteriologist used one of the methods for collection of mycobacteria and their more effective identification during microscopy. What method did he use?

+Floating.

Pure culture isolation.

Price method.

Biological method.

Tuberculin skin test.

471. Sputum of the patient suspected of pulmonary tuberculosis was taken for isolation of Mycobacterium tuberculosis. What factor of pathogenicity of the causative agent is it possible to determine by Price method?

+'Cord-factor'.

Endotoxin.

Exotoxin.

Aggressiveness.

Adhesiveness.

472. A patient is diagnosed with pulmonary tuberculosis. What antibiotic will be prescribed to the patient alongside with other antitubercular preparations?

Chloromphenicol.

Azytromycine

+Rifampin.

Tetracycline.

Kefsol.