Test items for examination Krok 1*

1. Selective medium can be used to separate various species of bacteria in a bacteriological laboratory. What medium of those listed below can be determined as selective?
   A. Alkaline peptone water
   B. Meat infusion broth
   C. Meat infusion agar
   D. Hiss’ serum water medium
   E. Endo agar

2. During examination of a patient with intestinal infection, inoculation in Endo medium resulted in multi-colored colonies: red and colorless. According to its purpose, this medium can be determined as:
   A. Differential diagnostic
   B. Universal
   C. Special
   D. Selective
   E. -

3. Microbial survival within environment is facilitated by spore formation. What microorganisms of those listed below are spore formers:
   A. Clostridia
   B. Bacteroides
   C. Staphylococci
   D. Peptococci
   E. Peptostreptococci

4. A pregnant woman was diagnosed with vaginal dysbacteriosis. What drug should be prescribed in this case?
   A. Probiotic
   B. Antibiotic
   C. Bacteriophage
   D. Interferon
   E. Polyvitamins

5. A 3,5-year-old child has been diagnosed with dysbacteriosis in the form of critical reduction of gram-positive anaerobic bacteria and increased number of staphylococci and yeast fungi. What preparation should be used for the correction of dysbacteriosis?
   A. Bifidumbacterin
   B. Colibacterin
   C. Coli-Proteus bacteriophage
   D. Furazolidone
   E. Lactoglobulin

6. Causative agents of infectious diseases can be carried both by humans and animals. Name the group of infections that affect animals and can be passed onto humans:
   A. Zooanthroponoses
   B. Sapronoses
   C. Anthroponoses
   D. Zoonoses
   E. Mixed
7. A patient developed pyoinflammatory process of periodontal tissues caused by activation of the microorganisms inherent in the body, which are a part of oral mucosal microflora. What type of infection is it?
A. Autoinfection
B. Exogenous infection
C. Reinfection
D. Superinfection
E. Relapse

8. Material obtained from a patient contains several types of microorganisms (staphylococci and streptococci) causative of the patient’s disease. Name this type of infection:
A. Mixed infection
B. Superinfection
C. Reinfection
D. Consecutive infection
E. Coinfection

9. A laboratory has been investigating virulence of a diphtheria agent. In the process of the experiment the infection was introduced intraperitoneally into test animals. The dosage of bacteria resulting in 95% mortality of test animals was found. What unit of virulence measurement was determined?
A. DLM
B. DCL
C. LD50
D. ID
E. LD5

10. Pathogenic staphylococcus was obtained from the purulent wound of the patient. Its antibiotic sensitivity was determined to be as follows: penicillin growth inhibition zone - 8 mm; oxacillin - 9 mm, ampicillin - 10 mm, gentamicin - 22 mm, lincomycin - 11 mm. What antibiotic should be chosen for treatment in this case?
A. Gentamicin
B. Oxacillin
C. Ampicillin
D. Penicillin
E. Lincomycin

11. Protective function of saliva is based on several mechanisms, including the presence of enzyme that has bactericidal action and causes lysis of complex capsular polysaccharides of staphylococci and streptococci. Name this enzyme:
A. Lysozyme
B. Alpha-amylase
C. Oligo-1,6-glucosidase
D. Collagenase
E. Beta-glucuronidase

12. Regional lymph nodes surrounding an infected wound are enlarged. Histological examination shows increased number of macrophages, lymphocytes, and lymphatic follicles, as well as a large amount of plasma cells, in the cortical layer of the lymph nodes. What process in the lymph nodes is indicated by these histologic changes?
A. Antigen stimulation
B. Acquired deficiency of lymphoid tissue
C. Congenital deficiency of lymphoid tissue
D. Neoplastic aberration
E. Transplant rejection
13. A patient with clinical signs of a primary immunodeficiency has functionally disturbed mechanism of antigen-presentation to the immunocompetent cells. What cells are likely to have structural defects?
A. Macrophages, monocytes
B. T-lymphocyte
C. B-lymphocyte
D. Fibroblasts
E. O-lymphocytes

14. A toxin neutralized with 0.4% formaldehyde under 37-40°C for 4 weeks is used for vaccination. This preparation was first used by Gaston Ramon for diphtheria prevention. Name this preparation:
A. Anatoxin
B. Immunoglobulin
C. Antitoxic serum
D. Adjuvant
E. Inactivated vaccine

15. Lymphocytes and other cells of our body synthesize universal antiviral agents as a response to viral invasion. Name these protein factors:
A. Interferon
B. Interleukin - 2
C. Cytokines
D. Interleukin - 4
E. Tumor necrosis factor

16. Several minutes after a dentist administered novocaine for local anaesthesia of a patient’s tooth, the following symptoms sharply developed in the patient: fatigue skin itching. Objectively the following can be observed: skin hyperemia, tachycardia, BP dropped down to 70/40 mm Hg. What kind of allergic reaction is this pathology?
A. Anaphylactic
B. Cytotoxic
C. Stimulating
D. Cell-mediated immune reaction
E. Immune complex

17. During blood transfusion a patient has developed intravascular erythrocyte hemolysis. What kind of hypersensitivity does the patient have?
A. II type (antibody-dependent)
B. I type (anaphylactic)
C. III type (immune complex)
D. IV type (cellular cytotoxicity)
E. IV type (granulomatosis)

18. A patient has been hospitalized with provisional diagnosis of virus B hepatitis. Serological reaction based on complementation of antigen with antibody chemically bound to peroxidase or alkaline phosphatase has been used for disease diagnostics. What is the name of the applied serological reaction?
A. Enzyme-linked immunosorbent assay (ELISA)
B. Radioimmunoassay technique
C. Immunofluorescence test
D. Complement fixation test
E. Immobilization test
19. Significant shortcoming of microscopy in infection diagnostics is its insufficient information value due to morphological similarity between many species of microorganisms. What immunoassay can significantly increase informativity of this method?
   A. Fluorescence immunoassay (Immunofluorescence test, IFT)
   B. Coombs’ test
   C. Immune-enzyme assay
   D. Opsonization
   E. Radioimmunoassay

20. Sanitary microbiological investigation of potable water has detected coliphages. What conclusion can be made about the sanitary-hygienic status of this water?
   A. Fecal contamination
   B. The water is safe to drink
   C. The water is safe to drink after boiling
   D. Artesian water
   E. The water is for industrial use only

21. During feces analysis of a 3-monthold child with signs of enteric infection, numerous dark-red colonies has grown on Endo agar. What microorganisms can be the cause of such enteric infection?
   A. Escherichia
   B. Streptococci
   C. Gonococci
   D. Salmonellae
   E. Shigella

22. A patient with signs of intestinal infection (vomiting, diarrhea, abdominal pain) has been presenting with increasing symptoms of intoxication for three days. Papular rash appeared on the uncovered skin areas and spread to the torso. A doctor suspected pseudotuberculosis. What laboratory test allows confirming this diagnosis within the first week from the onset of disease?
   A. Bacteriological
   B. Microscopic
   C. Serological
   D. Allergic
   E. Biological

23. The disease onset occurred 3 days ago. The patient complains of body temperature up to 38°C, stomachache, and frequent loose bloody stools. Bacillary dysentery was clinically diagnosed in the patient. What method of microbiological diagnostics would be advisable in this case and what samples should be obtained from the patient to confirm this diagnosis?
   A. Bacteriology, feces
   B. Bacterioscopy, feces
   C. Bacterioscopy, blood
   D. Bacteriology, urine
   E. Serology, blood

24. Mass mortality of rodents was observed in one of the mountain villages. Simultaneously there occurred a disease outbreak in the local population. The disease manifested by rapidly progressive fever up to 40°C, marked intoxication, and enlargement of inguinal lymph nodes. Smear preparations made from autopsy specimens contained gram-negative ovoid bacilli with bipolar staining. What microorganism is the causative agent of this disease?
   A. Yersinia pestis
   B. Staphylococcus
   C. Francisella tularensis
   D. Bacillus anthracis
E. Clostridia

25. Stool culture test of a 6-month-old bottlefed baby revealed a strain of intestinal rod-shaped bacteria of antigen structure O-111. What diagnosis can be made?
A. Colienteritis
B. Gastroenteritis
C. Choleriform disease
D. Food poisoning
E. Dysentery-like disease

26. After inoculation of investigated material (feces) on 1% alkaline peptone water and 8-hour-long incubation in the thermostat under 37°C there is growth of pale bluish film observed. Such cultural properties are characteristic of the agent of the following disease:
A. Cholera
B. Dysentery
C. Plague
D. Typhoid fever
E. Paratyphoid A fever

27. A patient was brought into the infectious diseases hospital on the 8th day since the disease onset. The patient complains of headache, malaise, and weakness. A sample of blood was taken for the serological test. Widal agglutination test results with blood sample diluted 1:200 and typhoid fever O-diagnosticum were positive. What diagnosis can be made based on the results of this test?
A. Typhoid fever
B. Dysentery
C. Cholera
D. Leptospirosis
E. Tuberculosis

28. Autopsy of a 9-year-old child shows numerous irregular defects of varying depth with uneven margins and gray-white films tightly attached to the underlying tissue on the rectal mucosa of the body. What disease can be suspected?
A. Dysentery
B. Salmonellosis
C. Cholera
D. Typhoid fever
E. Amebiasis

29. During fibrogastroscopy of a patient with ulcer disease of the stomach, the mucosal biopsy material is taken from the area of an ulcer. Impression smear is prepared from the biopsy material and stained by Gram method; the rest of the biopsy material is tested for urease activity. Microscopy of the impression smear revealed gram-negative spiral-shaped microorganisms, urease activity test is positive. What bacteria were detected?
A. Helicobacter pylori
B. Spirilla minor
C. Shigella flexneri
D. Treponema pallidum
E. Campylobacter jejuni

30. Analysis of sputum taken from a patient with suspected pneumonia revealed slightly elongated gram-positive diplococci with pointed opposite ends. What microorganisms were revealed in the sputum?
A. Streptococcus pneumoniae
B. Staphylococcus aureus
C. Klebsiella pneumoniae
D. Neisseria meningitidis  
E. Neisseria gonorrhoeae

31. A 9-year-old boy has acute onset of disease: sore throat, body temperature rise up to 39.5°C; on the second day diffuse skin rash was detected all over his skin except for nasolabial triangle. On examination of oral cavity: crimson tongue, "flaming pharynx", necrotic tonsillitis. What diagnosis is the most likely?  
A. Scarlet fever  
B. Measles  
C. Diphtheria  
D. Influenza  
E. Meningococcemia

32. Microscopy of a female patient’s swabs made from vaginal secretion revealed gramnegative bean-shaped diplococci. What provisional diagnosis can be made?  
A. Gonorrhoea  
B. Syphilis  
C. Clamidiosis  
D. Mycoplasmosis  
E. Toxoplasmosis

33. While studying blood and mucus samples from the nasopharynx, a bacteriologist took certain measures to conserve the pathogens in the material. Bacterioscopic study revealed the presence of gram-negative cocci resembling coffee beans and arranged in pairs or tetrads. Name the pathogen that was isolated by the bacteriologist:  
A. Neisseria meningitidis  
B. Staphilococcus aureus  
C. Neisseria gonorrhoeae  
D. Moraxella lacunata  
E. Acinetobacter calcoaceticus

34. An ophthalmologist suspects blennorrhea (gonococcal conjunctivitis) in a child with signs of suppurative keratoconjunctivitis. What laboratory diagnostics should be conducted to confirm the diagnosis?  
A. Microscopy and bacteriological analysis  
B. Serum diagnostics and allergy test  
C. Biological analysis and phagodiagnostics  
D. Biological analysis and allergy test  
E. Microscopy and serum diagnostics

35. What diagnostic method should be used in industry to test the raw leather for presence of B. antracis?  
A. Ascoli’s thermo precipitation test  
B. Microscopy with Burry-Gins stain  
C. Microscopy with Aujeszky stain  
D. Bacteriological analysis  
E. Serological test

36. In a village a case of anthrax has been registered. Medical services began epidemiologically indicated specific prophylaxis of population against anthrax. What preparation was used for this purpose?  
A. Live vaccine  
B. Inactivated vaccine  
C. Chemical vaccine  
D. Genetically engineered vaccine  
E. Anatoxin
37. During bacteriological examination of the purulent discharge obtained from a postoperative wound an inoculation on meat infusion agar has been performed. The inoculation has resulted in large colorless mucous colonies that in 24 hours with exposure to sunlight developed green-blue pigmentation and smell of honey or jasmine. Bacterioscopy revealed gram-negative lophotrichia. What bacterial culture is contained in purulent discharge?
   A. Pseudomonas aeruginosa  
   B. Proteus vulgaris  
   C. Klebsiella osaenae  
   D. Streptomyces griseus  
   E. Brucella abortus

38. In a microslide of the patient’s regional lymph node stained with Giemsa method a doctor detected thin microorganisms with 12-14 uniform tendrils with pointed tips, 10-13 micrometers in length, pale pink in color. In this case they can be identified as infectious agents of the following disease:
   A. Syphilis  
   B. Trypanosomiasis  
   C. Leptospirosis  
   D. Relapsing fever  
   E. Leishmaniasis

39. A patient had been provisionally diagnosed with syphilis. A laboratory assistant took the blood serum for an immunologic test based on the detection of antibodies preventing the movement of treponemes and causing their death. What reaction was used to make the diagnosis?
   A. Immobilization  
   B. Complement binding  
   C. Agglutination  
   D. Precipitation  
   E. Neutralization

40. A group of children in the kindergarten (6-year-olds) received Mantoux test; 15 children presented with negative results. What measures should be taken towards these children?
   A. BCG vaccination  
   B. Tuberculosis antitoxin  
   C. Isolation  
   D. Repeat the test  
   E. Referral for fluorography

41. A 6-year-old child with suspected active tuberculous process has undergone diagnostic Mantoux test. What immunobiological preparation was injected?
   A. Tuberculin  
   B. BCG vaccine  
   C. DTP vaccine  
   D. Tularinum  
   E. Td vaccine

42. During the skill-building session in microbiology the students need to stain the prepared and fixed sputum smears obtained form a tuberculosis patient. What staining technique should be used in this case?
   A. Ziehl-Neelsen  
   B. Burry  
   C. Giemsa  
   D. Gins  
   E. Gram
43. First-year schoolchildren have received tuberculin skin test (Mantoux test) at the school nurse’s office. The purpose of this test was:
   A. To determine the children that need to receive BCG vaccination
   B. To preventively vaccinate against tuberculosis
   C. To measure immunity stress toward diphtheria
   D. To measure allergization rate toward ricketsia
   E. To detect parotitis in the schoolchildren

44. There are several cases of children from boarding school suffering from sore throat. Microscopy of tonsil smears stained according to Neisser method has revealed thin yellow bacilli with dark brown grains on their ends situated in the shape of the Roman numeral five. What infection can be suspected in this case?
   A. Diphtheria
   B. Infectious mononucleosis
   C. Listeriosis
   D. Tonsillitis
   E. Scarlet fever

45. A student in severe condition was delivered into a contagious isolation ward of a hospital. He is diagnosed with toxic diphtheria of the pharynx. What drug should be administered immediately for specific treatment and prevention of complications?
   A. Antidiphtheric serum
   B. Diphtheria and tetanus toxoids and pertussis adsorbed vaccine
   C. Diphtheria anatoxin
   D. Penicillin antibiotic
   E. -

46. A child had been administered antidiphtheric serum. What resistance was formed in the child?
   A. Passive
   B. Active
   C. Primary
   D. Pathologic
   E. Physiological

47. A 10-month-old child is fussy, refuses to eat. Disease onset was 2 days ago. The child is been treated by a pediatrician for pneumonia, receives antibiotics and sulfanilamides. Objectively: the oral mucosa is hyperemic, swollen; there is whitish coating on the mucosa of the cheeks, lips, soft and hard palate; coating removal can cause erosions. Submandibular lymph nodes are enlarged. What is the most likely diagnosis?
   A. Acute candidal stomatitis
   B. Acute herpetic stomatitis
   C. Geographic tongue
   D. Allergic contact stomatitis
   E. Chronic candidal stomatitis

48. Typical manifestations of food poisoning caused by *C. botulinum* are double vision, abnormal functioning of the swallowing and breathing. These symptoms develop as the result of:
   A. Exotoxin action
   B. Enterotoxin action
   C. Enterotoxic shock development
   D. Activation of adenylate cyclase
   E. Pathogen adhesion to the enterocyte receptors
49. A bacteriological laboratory has been investigating a sample of homemade dried fish that was the cause of severe food poisoning. Microscopy of the culture inoculated in Kitt-Tarozzi medium revealed microorganisms resembling a tennis racket. What diagnosis can be made?
A. Botulism
B. Salmonellosis
C. Cholera
D. Dysentery
E. Typhoid fever

50. A pregnant woman was detected to have IgM to rubella virus. An obstetrician gynecologist recommended therapeutic abortion due to the high risk of teratogenic affection of the fetus. Detection of IgM was of great importance as it is these specific immunoglobulins that:
A. Indicate recent infection
B. Penetrate placental barrier
C. Have the largest molecular weight
D. Are associated with anaphylactic reactions
E. Are the main factor of antiviral protection

51. Various biological preparations can be used for poliomyelitis prevention. What drug induces the type of local intestinal mucosal immunity that lasts the longest?
A. Oral vaccination with live vaccine
B. Parenteral vaccination with inactivated vaccine
C. Oral introduction of poliovirus-specific immunoglobulin
D. Parenteral vaccination with live vaccine
E. Parenteral introduction of normal human immunoglobulin

52. The children attending a kindergarten were hospitalized with diagnosis of poliomyelitis. What was the route of infection transmission in this case?
A. Fecal-oral transmission
B. Alimentary transmission
C. Direct contact transmission
D. Transmission via airborne dust particles
E. Vector-borne transmission

53. In a township there was registered an outbreak of hepatitis, which was attributed to water supply. What hepatitis virus could be the cause of the outbreak in this township?
A. Hepatitis E virus
B. Hepatitis C virus
C. Hepatitis D virus
D. Hepatitis G virus
E. Hepatitis B virus

54. Immune-enzyme assay (Enzyme-linked immunoabsorbent assay, ELISA) has detected HBs antigen in blood serum. What disease is it characteristic of?
A. Viral hepatitis type B
B. Viral hepatitis type A
C. AIDS
D. Tuberculosis
E. Syphilis

55. Dentists have high risk of contracting viral hepatitis type B in the course of their duties and therefore are subject to mandatory vaccination. What vaccine is used in such cases?
A. Recombinant vaccine
B. Chemical vaccine
56. HIV-infection occupational risk groups include people of various professions, healthcare workers included. Specify the most likely route of infection transmission for healthcare workers:
A. Parenteral transmission
B. Fecal-oral transmission
C. Droplet transmission
D. Transmission via airborne dust particles
E. Vector-borne transmission

57. T-lymphocytes are determined to be affected with HIV. In this case viral enzyme reverse transcriptase (RNA-dependent DNA-polymerase) catalyzes the synthesis of:
A. DNA based on the viral RNA matrix
B. Viral RNA based on the DNA matrix
C. Viral protein based on the viral RNA matrix
D. Viral DNA based on the DNA matrix
E. Informational RNA based on the viral protein matrix

58. An HIV-positive patient’s cause of death is acute pulmonary insufficiency resulting from pneumonia. Pathohistological investigation of lungs has revealed interstitial pneumonia, alveolocyte desquamation and methamorphoses: alveolocyte enlargement, large intranuclear inclusions surrounded by lightly-coloured areas. Transformed cells resemble owl’s eye. Name the causative agent of pneumonia:
A. Cytomegalovirus
B. Pneumococcus
C. Influenza virus
D. Candida fungi
E. Toxoplasma

59. A 28-year-old man presents with profuse caseous coating on the posterior third of the back of his tongue, soft palate, tonsils, and posterior wall of the pharynx. Submandibular, submental and deep cervical lymph nodes have been enlarged for 4 months. Two weeks ago the patient developed intermittent fever and general fatigue. Select the correct sequence of HIV diagnosing:
A. Enzymoimmunoassay, immunoblotting (Western-Blot)
B. CD4 cell count, enzymoimmunoassay
C. Complete blood count, viral load
D. Complete blood count, enzymoimmunoassay
E. Viral cultivation, enzymoimmunoassay

60. A medical student was hospitalized into the infectious diseases unit on the 2nd day after the disease onset; the patient is suspected to have infectious mononucleosis. What results of laboratory analysis can confirm this diagnosis immediately on the day of the hospitalization?
A. IgM antibodies to Epstein-Barr virus were detected
B. IgM antibodies to herpes simplex virus were detected
C. Fourfold increase in number of antibodies to Epstein-Barr virus was detected
D. Herpesvirus was isolated
E. Cytomegalovirus antibodies were detected

*у кожному тестовому завданні правильна відповідь А