

1. During microbiological inspection of crude drugs encapsulated bacteria were revealed. What method was applied for capsule detection?

- a. Ziehl-Neelsen
- b. Gram
- c. Ozheshko
- d. Burry-Gins**
- e. Neisser

2. In order to keep eubiotics viable and stable, frozen microorganisms are dried out under the conditions of high vacuum. This method is called:

- a. Inactivation
- b. Hybridization
- c. Pasteurization
- d. Tyndallization
- e. Lyophilization**

3. It is known that infectious type B hepatitis is a systemic disease caused by the type B hepatitis virus and characterized by a predominant liver affection. Choose from the below given list the drugs for the etiopathic therapy of this infection:

- a. Acyclovir**
- b. Tetracycline
- c. Fluoroquinolones
- d. Sulfanilamides
- e. Penicillin

4. In compliance with the requirements of National Pharmacopoeia of Ukraine the following drugs should be sterile: eye drops, parenteral drugs as well as substances and additives used in their production. What method is applied for control of their sterility?

- a. Serial dilution
- b. Filter paper discs
- c. Membrane filtration**
- d. Agar diffusion
- e. Two-phase fermentative

5. According to the requirements of WHO and Pharmacopoeia different drug dosage forms of unsterile preparations are allowed to have a certain quantity of bacteria and fungi. What quantity of saprophytic bacteria and fungi in 1 g (ml) of a peroral preparation will ensure its safety?

- a. 1500 bacteria and 150 mold fungi
- b. 1000 bacteria and 100 mold fungi**
- c. 250 bacteria and 25 mold fungi
- d. 500 bacteria and 50 mold fungi
- e. 500 bacteria and 200 mold fungi

6. Antibiotics can be classified according to various principles. According to the action mechanism cephalosporins relate to the following group:

- a. Inhibitors of oxidative phosphorylation
- b. Inhibitors of cytoplasmic membrane synthesis
- c. Inhibitors of protein synthesis
- d. Inhibitors of respiratory processes
- e. Inhibitors of cell wall synthesis**

7. Plant pathogenic microorganisms relate to various groups. Which of them causes diseases of medicinal plants most often?

- a. Fungi**
- b. Bacteria
- c. Mycoplasma
- d. Actinomycetes
- e. Viruses

8. Bacteric preparations are subdivided into groups according to their purpose and production principles. What group do the preparations for initiation of active immunity relate to?

a. Immunoglobulins

b. Immune sera

c. Vaccines

d. Monoclonal antibodies

e. Bacteriophages

9. During sanitary and bacteriological examination of air in a drugstore it was revealed that the air had high concentration of sanitary meaningful microorganisms. What microorganisms are these?

a. *Staphylococcus aureus* and *hemolytic streptococcus*

b. Colibacilli and blue pus bacilli

c. Enterococci and Citrobacter

d. Epidermal staphylococcus and Sarcina

e. Diphtheritic and tuberculous bacilli

10. Bacteriological control of unsterile drugs allows presence of small quantity of some microorganism groups. What group is meant?

a. Colon bacillus

b. *Staphylococcus aureus*

c. Hemolytic streptococcus

d. Sarcina

e. *Bacillus pynocyaneus*

11. For tuberculosis prevention the newborns got an injection of a vaccine. What vaccine was used?

a. Anatoxin

b. Oral polio vaccine (Sabin vaccine)

c. Mantoux

d. DTaP vaccine

e. BCG

12. In compliance with the requirements of WHO and Pharmacopoeia of Ukraine the number of microorganisms in 1 ml of ear drops shoud not exceed the following number of microbial cells (bacteria and fungi):

a. 10

b. 10 000

c. 100 000

d. 100

e. 1000

13. Drug quality is estimated by a number of factors including the "microbiologic purity". What drugs are allowed to include a greater number of saprophytic bacteria as compared to other drug forms?

a. Aerosols

b. Eye drops

c. Injection solutions

d. Tinctures

e. Suppositories

14. Bacteriological examination for bacteria carrying of drugstore workers revealed that one of the pharmacists had bacteria of genus *Staphylococcus*. What morphological peculiarities of microbial cell arrangement are typical for this genus?

a. They are arranged in tetrads

b. They are arranged in form of bunch of grapes

c. They are arranged isolatedly

d. They are arranged in form of a chain

e. They are arranged in pairs

15. Crude herbal drugs must be examined for yeastlike fungi. What agar can ensure development of these microorganisms so that associating microflora will grow very slowly or wont grow at all?

- a. Endo agar
- b. Milk-salt agar
- c. Blood agar
- d. Sabourauds peptone agar**
- e. Meat infusion agar

16. A smear from frothy and purulent vaginal discharges of a 42 y.o. woman was stained by Romanovsky-Giemsa method. Its analysis revealed some microorganisms of flagellates class. What microorganisms were the most probably revealed?

- a. Leishmania donovani
- b. Trihomonas hominis
- c. Lamblia intestinalis
- d. Trihomonas vaginaslis**
- e. Trypanosoma gambiense

17. A female patient bitten by a stray dog came to a surgery. Wide lacerated wounds were localized on the patient's face. What treatment-and prevention aid should be rendered in order to prevent rabies?

- a. Immunization with the antirabic vaccine**
- b. Hospitalization, injection of diphtheria-pertussis-tetanus vaccine
- c. Urgent injection of normal gamma-globulin
- d. Hospitalization, medical surveillance
- e. Combined antibiotic therapy

18. During bacteriological examination of sputum of a child with choking cough and fever there were revealed glossy smooth colonies growing on casein-charcoal agar and reminding of mercury drops. Microscopic examination revealed short Gram-negative bacteria. What microorganism was secured from the sputum?

- a. Corynebacterium diphtheriae
- b. Haemophilus influenzae
- c. Bordetella pertussis**
- d. Klebsiella pneumoniae
- e. Streptococcus pyogenes

19. It is suspected that the workers of a serum drugs plant at a regional hemotransfusion station are carriers of pathogenic staphylococcus aureus. In order to detect staphylococcus carriage, the material from the nasopharynx of the workers should be inoculated into the following medium:

- a. Meat infusion broth
- b. Endo agar
- c. Egg-yolk-salt agar**
- d. Kessler medium
- e. Blood agar

20. Analysis of sputum obtained from a patient with suspected pneumonia revealed gram-positive diplococci. They were slightly elongated, with the pointed opposite ends. What microorganisms were revealed in the sputum?

- a. Staphylococcus aureus
- b. Neisseria meningitidis
- c. Streptococcus pyogenes
- d. Streptococcus pneumoniae**
- e. Klebsiella pneumoniae

21. Examination of air state in drugstore premises for preparation of injection drugs was done by method of sedimentation. It revealed 5 small roundish colonies with zone of hemolysis around them. Inoculations were made on the following cultural medium:

- a. Lewins agar

**b. Blood agar**

- c. Meat infusion agar
- d. Endo agar
- e. Egg yolk and salt agar

22. According to the Pharmacopoeia requirements, all drugs for topical administration should be tested for "microbiological purity". Inapplicability of this drug group in the medical practice is indicated by presence of the following microorganisms:

**a. Staphylococcus aureus**

- b. Saprophytic staphylococci
- c. Sarcinae
- d. Mold fungi
- e. Yeast fungi

23. A pharmacy produced a batch of vials with glucose diluent for injections. What is the best way for their sterilization?

- a. Dry-heat sterilization
- b. Autoclave sterilization under 2 atmosphere pressure
- c. Autoclave sterilization by flowing steam (fractional method)**
- d. X-ray exposure
- e. UV exposure

24. During studying a medicinal herbal mixture a culture in form of black fluffy film grew on the nutrient medium. Examination of specimen smears revealed non-septate mycelium threads with globular thickenings at the tips. Name these microorganisms:

**a. Mucor**

- b. Candida
- c. Ray fungi
- d. Aspergill
- e. Black molds fungus

25. During bacteriological analysis of solutions prepared in a pharmacy some red colonies with metallic glitter have grown on Endo agar. What microbes were revealed?

- a. Staphylococci
- b. Shigella
- c. Escherichia**
- d. Streptococci
- e. Salmonella

26. From a patient with the symptoms of acute meningitis the spinal fluid was taken. Its smears contained gram-negative diplococci within the leukocytes and outside them. Which microorganism is the most likely cause of the disease?

**a. Neisseria meningitidis**

- b. Streptococcus pneumoniae
- c. Escherichia coli
- d. Candida albicans
- e. Haemophilus influenzae

27. Microbiological assay of a peppermint tincture established its discrepancy with the Pharmacopoeia requirements. It was found to contain pathogenic microflora. The reason for such a conclusion was the presence of the following microflora:

**a. Blue pus bacillus**

- b. Epidermal staphylococcus
- c. Micrococci
- d. Mold fungi
- e. Yeast fungi

28. Medicinal plants collected at a plantation included a lot of plants with mosaic-coloured leaves.

What is the most likely causative agent of such infection?

- a. Phytopathogenic bacteria
- b. Microscopic mites
- c. Nematode worms
- d. Phytopathogenic viruses**
- e. Toxic substances of the soil

29. A pharmaceutic factory received a batch of crude herbal drugs for phytomedicines production. To evaluate quality of these crude drugs it is necessary to determine:

- a. Coli index
- b. Coli titer
- c. Total number of microorganisms pro 1 g of the crude drug**
- d. Antimicrobial
- e. Pyrogens

30. Study of the antibioticogram of the pure salmonella culture revealed multiple antibiotic resistance. What factor might have caused this effect?

- a. Chromosomal mutations
- b. Temperate phages
- c. Transposons
- d. R-plasmids**
- e. F-plasmids

31. Staphylococci were isolated in pure culture from a patient with sepsis. These were staphylococci producing betalactamase. Such property should be taken into account when:

- a. Choosing an antibiotic for treatment**
- b. Determining the strain pathogenicity
- c. Choosing optimal conditions for cultivation
- d. Differentiating specific types of staphylococci
- e. Determining biochemical properties

32. A female patient has been treated with antibiotics for a long time. Thereafter examination of smears from vaginal secretion revealed oval cells with well-defined nucleus, some cells gemmate.

What preparations can help to confirm the diagnosis "candidosis"?

- a. Antifungal**
- b. Antichlamydial
- c. Antiprotozoal
- d. Antiviral
- e. Antibacterial

33. One of mass production drugs is produced by inactivation of bacterial exotoxin by formalin. What is this drug for?

- a. For toxinemia treatment
- b. For immunocorrection
- c. For serodiagnostic assay
- d. For passive immunization
- e. For active immunization**

34. A patient diagnosed with botulism was admitted to the infectious disease hospital. What medication should be applied in the first place?

- a. Sulfanilamides
- b. Nitrofurans
- c. Anatoxin
- d. Antibiotics
- e. Antitoxic serum**

35. A patient is suspected to have the typhoid fever. What method of laboratory diagnostics would be the most appropriate for confirmation of this diagnosis in the first week of disease?

- a. Urine culture identification
- b. Biliculture identification
- c. Coproculture identification
- d. Hemoculture identification**
- e. Myeloculture identification

36. Inoculation of hens embryos is the main method of detection of influenza virus. In order to neutralize associated bacterial flora in the material under examination (nasopharyngeal lavage) it is necessary to add beforehand:

- a. Fluorescent serum
- b. Eubiotics
- c. Antibiotics**
- d. Leukocytic interferon
- e. Ant-influenza gamma globulin

37. Presence of the pathogenic microorganisms in the air can be prognosticated according to the content of sanitary-indicative bacteria. Which bacteria indicate immediate epidemiologic danger?

- a. Mold fungi
- b. Sarcinae
- c. Haemolytic streptococci**
- d. Yeast fungi
- e. Micrococci

38. Bacteria may contain not only chromosomal but also nonchromosomal hereditary elements called plasmids. Presence of plasmid genes can show itself by:

- a. Physical factor resistance
- b. Stain resistance
- c. Multiple drug resistance**
- d. Sporogenesis ability
- e. Mobility

39. Which of the following sterilization methods ensures total death of microorganisms and their spores during one-time thermal processing of an object?

- a. -
- b. Autoclaving**
- c. Tyndallization
- d. Boiling
- e. Pasteurization

40. Aetiological factors for the infectious diseases are often microorganisms with various ultrastructure. Which of the following microorganism groups relates to the eucariots?

- a. Viruses
- b. Prions
- c. Scutobacteria
- d. Protozoa**
- e. Viroids

41. A 13 year old child complains about poor appetite, pain in the right subcostal area. Microscopical examination of duodenal contents revealed big pyriform cells with two nuclei. What microorganism was revealed?

- a. Toxoplasma
- b. Lamblia**
- c. Amoeba
- d. Trichomonad
- e. Trypanosoma

42. A plantation of medicinal plants was affected by a disease that caused yellow spots and necrotic areas on leaves. Juice of affected plants remains infectious even after bacterial filtration but after its

inoculation on cultural medium growth of causative agent wasnt observed. Causative agent of this disease relates most probably to the following group of plant pathogenic microorganisms:

- a. Bacteria
- b. Mycoplasma
- c. Fungi
- d. Actinomycetes
- e. Viruses**

43. After a bacteriological analysis a tableted medication has been found to be inapplicable, though its general microbial contamination was within the norm. The reason for such a conclusion was the presence of the following microorganisms:

- a. Actinomycetes
- b. Mold fungi
- c. Enterobacteria**
- d. Micrococci
- e. Sarcinae

44. It is known that a peroral drug contains over 1 billion of living microbial cells per 1 millilitre. Nonetheless the drug was accepted as applicable. What drug group does it relate to?

- a. Sulfanilamides
- b. Immunostimulants
- c. Antibiotics
- d. Vitamins
- e. Eubiotics**

45. From a medicinal herb a certain phytopathogenic microorganism was secured. In the nutrient medium it forms "fried egg" colonies. What is the most likely agent?

- a. Mycoplasma**
- b. Actinomycetes
- c. Pseudomonades
- d. Nocardia
- e. Yeast fungi

46. A patient was admitted to the infectious department of a hospital. His provisional diagnosis was &quotacute gastroenteritis&quot. Inoculation of feces on bismuth-sulfite agar induced growth of black colonies with metallic glitter. What microorganisms should you think of?

- a. Brucella
- b. Salmonellae**
- c. Shigella
- d. Escherichia
- e. Yersinia

47. Antibiotics are classified by sources of production. Name an antibiotic of bacterial origin:

- a. Penicillin
- b. Lysozyme
- c. Gentamycin
- d. Gramicidin**
- e. Tetracycline

48. Production of a number of drugs requires sterile isotonic solution. Choose the optimal method of its sterilization:

- a. Dry heat sterilization
- b. Direct flame sterilization
- c. Pasteurization
- d. Steam under pressure sterilization**
- e. Boiling

49. A pharmaceutical company received from a laboratory a delivery order of diagnostic medications

used for studying antigenic properties of causative agent. Name these preparations:

- a. Diagnostic sera
- b. Diagnosticums
- c. Bacteriophages
- d. Immunoglobulins
- e. Allergens

50. When a smear is stained by Burry-Gins method a mucous structure that is tightly bound with the cellular wall of bacteria and has well-defined outer boundaries can be detected. This element of a bacteria cell is called:

- a. Ribosomes
- b. Episomes
- c. Spore
- d. Filaments
- e. Capsule

51. Sanitary-biologic examination of air in a drugstore revealed a sanitary-indicative microorganism. Name it:

- a. Staphylococcus aureus
- b. Fecal enterococcus
- c. Citrobacter
- d. Alpha-haemolytic streptococcus
- e. Colon bacillus

52. A bacterial cell obtains nutrients by different ways. One of them is the facilitated diffusion that is realized by special membrane carrier proteins. What are these proteins called?

- a. Isomerizing enzymes
- b. Ligases
- c. Lyases
- d. Oxidoreductases
- e. Permeases

53. Medical examination of a dairymaid revealed affection of the locomotive system, vision impairment, disorder of the nervous and other systems. To confirm the diagnosis the patient was referred for a serological assay (Wright's reaction) and Burnets skin allergy test. What was the provisional diagnosis?

- a. Leptospirosis
- b. Brucellosis
- c. Anthrax
- d. Tularemia
- e. Rheumatism

54. A patient presents with fever, chill and cough. From his sputum the ovoid Gram-negative bipolar-stained bacilli with a delicate capsule were secured. What is the most likely diagnosis?

- a. Toxoplasmosis
- b. Plague
- c. Leptospirosis
- d. Tuberculosis
- e. Brucellosis

55. A patient was prescribed with an antitumoral antibiotic that inhibits synthesis of nucleic acids in the cells. What of the following antibiotics has such a mechanism of action?

- a. Nystatin
- b. Tetracycline
- c. Actinomycin
- d. Lincomycin
- e. Erythromycin

56. A drugstore received a supply of a drug that is widely used for treatment of many virus diseases since it is not virus specific. What drug is it?

- a. Vaccine
- b. Interferon**
- c. Metisazone
- d. Remantadin
- e. Immunoglobulin

57. A patient was administered an antibiotic of animal origin for the corneal ulcer treatment. What is it called?

- a. Chlorophyllipt
- b. Imanin
- c. Gramicidin
- d. Lysozyme**
- e. Nystatin

58. Epidemic of influenza was announced in a town. Which drug can be recommended for the nonspecific prophylaxis of influenza?

- a. Anti-influenza vaccine
- b. Anti-influenza immunoglobulin
- c. Anti-influenza serum
- d. Leukocytic interferon**
- e. Antibiotics

59. What method ensures reliable sterilization of biological fluids (sera, solutions, enzymes, vitamines etc.) that cant stand high temperatures?

- a. Tyndallization**
- b. Flowing steam
- c. Flaming
- d. Moist steam under pressure
- e. Dry-heat sterilization

60. A 6-month old child has been administered a peroral drug. What is the maximal number of bacteria and fungi that is permissible in 1 g of this drug in compliance with the requirements of WHO and Pharmacopoeia?

- a. No more than 1000 bacteria and fungi in total
- b. No more than 500 bacteria and fungi in total
- c. No more than 50 bacteria and fungi in total**
- d. No more than 1000 bacteria and 100 fungi
- e. No more than 500 bacteria and 50 fungi

61. During microbiological inspection of crude drugs encapsulated bacteria were revealed. What method was applied for capsule detection?

- a. Ozheshko
- b. Burry-Gins**
- c. Neisser
- d. Ziehl-Neelsen
- e. Gram

62. In order to keep eubiotics viable and stable, frozen microorganisms are dried out under the conditions of high vacuum. This method is called:

- a. Tyndallization
- b. Pasteurization
- c. Lyophilization**
- d. Inactivation
- e. Hybridization

63. According to the requirements of WHO and Pharmacopoeia different drug dosage forms of

unsterile preparations are allowed to have a certain quantity of bacteria and fungi. What quantity of saprophytic bacteria and fungi in 1 g (ml) of a peroral preparation will ensure its safety?

- a. 250 bacteria and 25 mold fungi
- b. 500 bacteria and 50 mold fungi
- c. 1000 bacteria and 100 mold fungi**
- d. 500 bacteria and 200 mold fungi
- e. 1500 bacteria and 150 mold fungi

64. Antibiotics can be classified according to various principles. According to the action mechanism cephalosporins relate to the following group:

- a. Inhibitors of protein synthesis
- b. Inhibitors of oxidative phosphorylation
- c. Inhibitors of cytoplasmic membrane synthesis
- d. Inhibitors of cell wall synthesis**
- e. Inhibitors of respiratory processes

65. Plant pathogenic microorganisms relate to various groups. Which of them causes diseases of medicinal plants most often?

- a. Micoplasma
- b. Fungi**
- c. Bacteria
- d. Viruses
- e. Actinomycetes

66. Bacteritic preparations are subdivided into groups according to their purpose and production principles. What group do the preparations for initiation of active immunity relate to?

- a. Bacteriophages
- b. Vaccines**
- c. Immunoglobulins
- d. Immune sera
- e. Monoclonal antibodies

67. During sanitary and bacteriological examination of air in a drugstore it was revealed that the air had high concentration of sanitary meaningful microorganisms. What microorganisms are these?

- a. Epidermal staphylococcus and Sarcina
- b. Enterococci and Citrobacter
- c. Diphtheritic and tuberculous bacilli
- d. Colibacilli and blue pus bacilli
- e. Staphylococcus aureus and hemolytic streptococcus**

68. Bacteriological control of unsterile drugs allows presence of small quantity of some microorganism groups. What group is meant?

- a. Bacillus pynocyanus
- b. Colon bacillus
- c. Sarcina**
- d. Staphylococcus aureus
- e. Hemolytic streptococcus

69. For tuberculosis prevention the newborns got an injection of a vaccine. What vaccine was used?

- a. BCG**
- b. DTaP vaccine
- c. Oral polio vaccine (Sabin vaccine)
- d. Anatoxin
- e. Mantoux

70. In compliance with the requirements of WHO and Pharmacopoeia of Ukraine the number of microorganisms in 1 ml of ear drops shoud not exceed the following number of microbial cells (bacteria and fungi):

- a. 10 000
- b. 100 000
- c. 10
- d. 1000
- e. 100**

71. Drug quality is estimated by a number of factors including the microbiologic purity. What drugs are allowed to include a greater number of saprophytic bacteria as compared to other drug forms?

- a. Injection solutions

- b. Tinctures**

- c. Suppositories
- d. Aerosols
- e. Eye drops

72. Bacteriological examination for bacteria carrying of drugstore workers revealed that one of the pharmacists had bacteria of genus *Staphylococcus*. What morphological peculiarities of microbial cell arrangement are typical for this genus?

- a. They are arranged isolatedly
- b. They are arranged in form of a chain

- c. They are arranged in form of bunch of grapes**

- d. They are arranged in pairs
- e. They are arranged in tetrads

73. Crude herbal drugs must be examined for yeastlike fungi. What agar can ensure development of these microorganisms so that associating microflora will grow very slowly or wont grow at all?

- a. Milk-salt agar
- b. Blood agar
- c. Endo agar
- d. Meat infusion agar

- e. Sabourauds peptone agar**

74. A smear from frothy and purulent vaginal discharges of a 42 y.o. woman was stained by Romanovsky-Giemsa method. Its analysis revealed some microorganisms of flagellates class. What microorganisms were the most probably revealed?

- a. *Trypanosoma gambiense*
- b. *Leishmania donovani*

- c. *Trichomonas vaginaslis***

- d. *Trichomonas hominis*
- e. *Lamblia intestinalis*

75. A female patient bitten by a stray dog came to a surgery. Wide lacerated wounds were localized on the patient's face. What treatment-and prevention aid should be rendered in order to prevent rabies?

- a. Hospitalization, medical surveillance
- b. Urgent injection of normal gamma-globulin
- c. Combined antibiotic therapy
- d. Hospitalization, injection of diphtheria-pertussis-tetanus vaccine

- e. Immunization with the antirabic vaccine**

76. During bacteriological examination of sputum of a child with choking cough and fever there were revealed glossy smooth colonies growing on casein-charcoal agar and reminding of mercury drops. Microscopic examination revealed short Gram-negative bacteria. What microorganism was secured from the sputum?

- a. *Bordetella pertussis***

- b. *Corynebacterium diphtheriae*
- c. *Streptococcus pyogenes*
- d. *Klebsiella pneumoniae*
- e. *Haemophilus influenzae*

77. It is suspected that the workers of a serum drugs plant at a regional hemotransfusion station are carriers of pathogenic staphylococcus aureus. In order to detect staphylococcus carriage, the material from the nasopharynx of the workers should be inoculated into the following medium:

- a. Blood agar
- b. Egg-yolk-salt agar**
- c. Meat infusion broth
- d. Endo agar
- e. Kessler medium

78. Analysis of sputum obtained from a patient with suspected pneumonia revealed gram-positive diplococci. They were slightly elongated, with the pointed opposite ends. What microorganisms were revealed in the sputum?

- a. Neisseria meningitidis
- b. Streptococcus pyogenes
- c. Staphylococcus aureus
- d. Klebsiella pneumoniae
- e. Streptococcus pneumoniae**

79. Examination of air state in drugstore premises for preparation of injection drugs was done by method of sedimentation. It revealed 5 small roundish colonies with zone of hemolysis around them. Inoculations were made on the following cultural medium:

- a. Meat infusion agar
- b. Endo agar
- c. Blood agar**
- d. Egg yolk and salt agar
- e. Lewins agar

80. According to the Pharmacopoeia requirements, all drugs for topical administration should be tested for microbiological purity. Inapplicability of this drug group in the medical practice is indicated by presence of the following microorganisms:

- a. Yeast fungi
- b. Mold fungi
- c. Sarcinae
- d. Staphylococcus aureus**
- e. Saprophytic staphylococci

81. A pharmacy produced a batch of vials with glucose diluent for injections. What is the best way for their sterilization?

- a. Autoclave sterilization by flowing steam (fractional method)**
- b. Dry-heat sterilization
- c. UV exposure
- d. X-ray exposure
- e. Autoclave sterilization under 2 atmosphere pressure

82. During studying a medicinal herbal mixture a culture in form of black fluffy film grew on the nutrient medium. Examination of specimen smears revealed non-septate mycelium threads with globular thickenings at the tips. Name these microorganisms:

- a. Ray fungi
- b. Mucor**
- c. Candida
- d. Black molds fungus
- e. Aspergill

83. During bacteriological analysis of solutions prepared in a pharmacy some red colonies with metallic glitter have grown on Endo agar. What microbes were revealed?

- a. Shigella
- b. Streptococci
- c. Salmonella

d. Escherichia

e. Staphylococci

84. From a patient with the symptoms of acute meningitis the spinal fluid was taken. Its smears contained gram-negative diplococci within the leukocytes and outside them. Which microorganism is the most likely cause of the disease?

a. Escherichia coli

**b. Neisseria meningitidis**

c. Streptococcus pneumoniae

d. Haemophilus influenzae

e. Candida albicans

85. Microbiological assay of a peppermint tincture established its discrepancy with the Pharmacopoeia requirements. It was found to contain pathogenic microflora. The reason for such a conclusion was the presence of the following microflora:

a. Micrococci

**b. Blue pus bacillus**

c. Epidermal staphylococcus

d. Yeast fungi

e. Mold fungi

86. The causative agent of botulism causes severe food poisoning. Specify the most characteristic morphological feature of botulism causative agent:

a. Thick gram-positive non-spore-forming bacillus

b. Thin mobile bacillus with central spore

c. Thick gram-positive bacillus without spores and flagella

**d. Gram-positive bacillus with subterminal spore**

e. Gram-positive bacillus with terminal spore

87. Medicinal plants collected at a plantation included a lot of plants with mosaic-coloured leaves.

What is the most likely causative agent of such infection?

a. Toxic substances of the soil

b. Phytopathogenic bacteria

**c. Phytopathogenic viruses**

d. Microscopic mites

e. Nematode worms

88. A pharmaceutic factory received a batch of crude herbal drugs for phytomedicines production. To evaluate quality of these crude drugs it is necessary to determine:

a. Antimicrobial

b. Pyrogens

c. Coli titer

d. Coli index

**e. Total number of microorganisms pro 1 g of the crude drug**

89. Study of the antibioticogram of the pure salmonella culture revealed multiple antibiotic resistance. What factor might have caused this effect?

a. F-plasmids

b. Chromosomal mutations

**c. R-plasmids**

d. Temperate phages

e. Transposons

90. Staphylococci were isolated in pure culture from a patient with sepsis. These were staphylococci producing betalactamase. Such property should be taken into account when:

a. Determining the strain pathogenicity

b. Determining biochemical properties

**c. Choosing an antibiotic for treatment**

- d. Differentiating specific types of staphylococci
- e. Choosing optimal conditions for cultivation

91. A female patient has been treated with antibiotics for a long time. Thereafter examination of smears from vaginal secretion revealed oval cells with well-defined nucleus, some cells gemmate. What preparations can help to confirm the diagnosis "candidosis"?

- a. Antibacterial
- b. Antiviral
- c. Antiprotozoal
- d. Antifungal**
- e. Antichlamydial

92. One of mass production drugs is produced by inactivation of bacterial exotoxin by formalin. What is this drug for?

- a. For active immunization**
- b. For passive immunization
- c. For immunocorrection
- d. For toxinemia treatment
- e. For serodiagnostic assay

93. A patient diagnosed with botulism was admitted to the infectious disease hospital. What medication should be applied in the first place?

- a. Antibiotics
- b. Anatoxin
- c. Antitoxic serum**
- d. Sulfanilamides
- e. Nitrofurans

94. A patient is suspected to have the typhoid fever. What method of laboratory diagnostics would be the most appropriate for confirmation of this diagnosis in the first week of disease?

- a. Coproculture identification
- b. Hemoculture identification**
- c. Myeloculture identification
- d. Urine culture identification
- e. Biliculture identification

95. Inoculation of hens embryos is the main method of detection of influenza virus. In order to neutralize associated bacterial flora in the material under examination (nasopharyngeal lavage) it is necessary to add beforehand:

- a. Leukocytic interferon
- b. Anti-influenza gamma globulin
- c. Eubiotics
- d. Fluorescent serum
- e. Antibiotics**

96. Quite often, the soil may contain a number of pathogenic microorganisms. The causative agents of the following disease may exist in the soil for a long time:

- a. Pertussis
- b. Dysentery
- c. Diphtheria
- d. Viral hepatitis
- e. Anthrax**

97. Pathogenic microorganisms are characterized by presence of aggression enzymes that determine their virulence. Select an aggression enzyme:

- a. Hyaluronidase**
- b. Transferase
- c. Lyase

- d. Oxidase
- e. Carbohydrase

98. Presence of the pathogenic microorganisms in the air can be prognosticated according to the content of sanitary-indicative bacteria. Which bacteria indicate immediate epidemiologic danger?

- a. Sarcinae
- b. Yeast fungi
- c. Micrococci
- d. Haemolytic streptococci**
- e. Mold fungi

99. Bacteria may contain not only chromosomal but also nonchromosomal hereditary elements called plasmids. Presence of plasmid genes can show itself by:

- a. Sporogenesis ability
- b. Mobility
- c. Stain resistance
- d. Physical factor resistance
- e. Multiple drug resistance**

100. A 13 year old child complains about poor appetite, pain in the right subcostal area. Microscopical examination of duodenal contents revealed big pyriform cells with two nuclei. What microorganism was revealed?

- a. Amoeba
- b. Trichomonad
- c. Lamblia**
- d. Trypanosoma
- e. Toxoplasma

101. A plantation of medicinal plants was affected by a disease that caused yellow spots and necrotic areas on leaves. Juice of affected plants remains infectious even after bacterial filtration but after its inoculation on cultural medium growth of causative agent wasn't observed. Causative agent of this disease relates most probably to the following group of plant pathogenic microorganisms:

- a. Mycoplasma
- b. Viruses**
- c. Actinomycetes
- d. Fungi
- e. Bacteria

102. After a bacteriological analysis a tableted medication has been found to be inapplicable, though its general microbial contamination was within the norm. The reason for such a conclusion was the presence of the following microorganisms:

- a. Mold fungi
- b. Micrococci
- c. Sarcinae
- d. Enterobacteria**
- e. Actinomycetes

103. It is known that a peroral drug contains over 1 billion of living microbial cells per 1 millilitre. Nonetheless the drug was accepted as applicable. What drug group does it relate to?

- a. Vitamins
- b. Antibiotics
- c. Eubiotics**
- d. Sulfanilamides
- e. Immunostimulants

104. From a medicinal herb a certain phytopathogenic microorganism was secured. In the nutrient medium it forms fried egg colonies. What is the most likely agent?

- a. Nocardia**

b. Pseudomonades

c. Yeast fungi

d. Actinomycetes

e. Mycoplasma

105. Bacteriological inspection of disinfection quality at a pharmacy revealed a microorganism in an utility room (in the sink). The microorganism has the following properties: mobile nonspore-forming gram-negative bacteria that form capsular substance, grow well on ordinary nutrient media, secrete the blue-green pigment. This microorganism is most likely to be of the following genus:

a. Clostridium

b. Proteus

c. Pseudomonas

d. Shigella

e. Vibrio

106. Microbiological analysis of medicinal raw materials revealed capsular bacteria. What stain method was used to detect the capsules?

a. Neissers

b. Ziehl-Neelsens

c. Gins

d. Grams

e. Ozheshkos

107. A patient was admitted to the infectious department of a hospital. His provisional diagnosis was acute gastroenteritis. Inoculation of feces on bismuth-sulfite agar induced growth of black colonies with metallic glitter. What microorganisms should you think of?

a. Yersinia

b. Brucella

c. Escherichia

d. Shigella

e. Salmonellae

108. Antibiotics are classified by sources of production. Name an antibiotic of bacterial origin:

a. Lysozyme

b. Gentamycin

c. Penicillin

d. Tetracycline

e. Gramicidin

109. In accordance with the requirements of the pharmacopoeia, the non-sterile medicinal preparations may include microorganisms. What micro-organisms MUST NOT be present in them?

a. Ascomycetes

b. Mold fungi

c. Sarcinae

d. Enterobacteria

e. Micrococci

110. Production of a number of drugs requires sterile isotonic solution. Choose the optimal method of its sterilization:

a. Direct flame sterilization

b. Pasteurization

c. Dry heat sterilization

d. Boiling

e. Steam under pressure sterilization

111. When a smear is stained by Burry-Gins method a mucous structure that is tightly bound with the cellular wall of bacteria and has well-defined outer boundaries can be detected. This element of a bacteria cell is called:

- a. Spore
- b. Ribosomes
- c. Episomes
- d. Capsule**
- e. Filaments

112. Sanitary-biologic examination of air in a drugstore revealed a sanitary-indicative microorganism.

Name it:

- a. Citrobacter
- b. Staphylococcus aureus**
- c. Fecal enterococcus
- d. Colon bacillus
- e. Alpha-haemolytic streptococcus

113. A bacterial cell obtains nutrients by different ways. One of them is the facilitated diffusion that is realized by special membrane carrier proteins. What are these proteins called?

- a. Ligases
- b. Permeases**
- c. Oxidoreductases
- d. Lyases
- e. Isomerizing enzymes

114. Medical examination of a dairymaid revealed affection of the locomotive system, vision impairment, disorder of the nervous and other systems. To confirm the diagnosis the patient was referred for a serological assay (Wrights reaction) and Burnets skin allergy test. What was the provisional diagnosis?

- a. Anthrax
- b. Tularemia
- c. Brucellosis**
- d. Rheumatism
- e. Leptospirosis

115. A patient presents with fever, chill and cough. From his sputum the ovoid Gram-negative bipolar-stained bacilli with a delicate capsule were isolated. What is the most likely diagnosis?

- a. Plague**
- b. Leptospirosis
- c. Toxoplasmosis
- d. Brucellosis
- e. Tuberculosis

116. A drugstore received a supply of a drug that is widely used for treatment of many virus diseases since it is not virus specific. What drug is it?

- a. Remantadin
- b. Immunoglobulin
- c. Vaccine
- d. Interferon**
- e. Metisazone

117. A patient was administered an antibiotic of animal origin for the corneal ulcer treatment. What is it called?

- a. Gramicidin
- b. Lysozyme**
- c. Nystatin
- d. Chlorophyllipt
- e. Imanin

118. Epidemic of influenza was announced in a town. Which drug can be recommended for the nonspecific prophylaxis of influenza?

- a. Anti-influenza serum
- b. Leukocytic interferon**
- c. Antibiotics
- d. Anti-influenza vaccine
- e. Anti-influenza immunoglobulin

119. What method ensures reliable sterilization of biological fluids (sera, solutions, enzymes, vitamines etc.) that cant stand high temperatures?

- a. Moist steam under pressure
- b. Flaming
- c. Dry-heat sterilization
- d. Flowing steam
- e. Tyndallization**

120. Bacterioscopic examination of chancre material revealed some mobile, long, convoluted microorganisms with 8-12 regular coils. These features are typical for:

- a. Campylobacter
- b. Treponema**
- c. Leptospira
- d. Borrelia
- e. Vibrios

121. Before a surgical operation, a surgeon treated his hands with an alcohol-containing solution. Which group of drugs does this solution relate to?

- a. Surface-active substances
- b. Antiseptics**
- c. Sterilizing solutions
- d. Disinfectants
- e. Detergents

122. A 6-month old child has been administered a peroral drug. What is the maximal number of bacteria and fungi that is permissible in 1 g of this drug in compliance with the requirements of WHO and Pharmacopoeia?

- a. No more than 1000 bacteria and 100 fungi
- b. No more than 500 bacteria and 50 fungi
- c. No more than 500 bacteria and fungi in total
- d. No more than 1000 bacteria and fungi in total
- e. No more than 50 bacteria and fungi in total**

123. In order to establish the possible contamination of a medication with fungi, a nutrient medium was inoculated, which resulted in growth of large cream-like colonies. What nutrient medium was used in this case?

- a. Roux
- b. Lowenstein-Jensen
- c. Sabouraud**
- d. Loeffler
- e. Finn-2

124. Dysbiosis can be treated with drugs that contain living representatives of normal microflora as well as their metabolic products. Select the microorganisms that are used for the production of such drugs:

- a. Providencia
- b. Yersinia
- c. Staphylococcus aureus
- d. Proteus
- e. Bifidus bacteria**

125. Medicinal plants infected by microorganisms cannot be used in the pharmaceutical industry.

Invasive properties of phytopathogenic micro-organisms are due to the following enzymes:

- a. Hydrolytic
- b. Transferase
- c. Lyase
- d. Oxidoreductase
- e. Isomerase

126. The medicinal plants growing on a plantations were found to have mosaic patterns on leaves.

What microorganisms caused this affection?

- a. Rickettsiae
- b. Phytopathogenic viruses
- c. Phytopathogenic fungi
- d. Phytopathogenic bacteria
- e. Protozoa

127. Bacteria eventually become resistant to antibacterial agents. Resistance of gram-positive bacteria to penicillin antibiotics is caused by:

- a. Active transport of antibiotic
- b. Protein synthesis
- c. Permeability of the cell wall
- d. Active synthesis of peptidoglycan
- e. Beta-lactamase production

128. A laboratory received a sample of water used in drug production for sanitary and virological analysis. What group of viruses will indicate faecal contamination of water and thus the need for its additional purification?

- a. Retroviridae
- b. Flaviviridae
- c. Herpesviridae
- d. Orthomyxoviridae
- e. Picornaviridae

129. A patient with tuberculosis has been prescribed some anti-TB preparations. Which of the following chemotherapeutic drugs has an effect on the tuberculosis pathogen?

- a. Phthalylsulfathiazole
- b. Ftivazide
- c. Methisazonum
- d. Furacilinum
- e. Sulfadimezinum

130. The causative agents of intestinal infections can grow at refrigerator temperatures, which may cause infection in people. What type of temperature optimum do these microorganisms relate to?

- a. Mesophilic
- b. Anthropophilic
- c. Necrophilic
- d. Psychrophilic
- e. Thermophilic

131. A patient was taken to a hospital with acute food poisoning caused by home-made canned mushrooms. The product analysis revealed some microorganisms that develop only in the absence of oxygen. What microorganisms caused the poisoning?

- a. Facultative anaerobes
- b. Obligate aerobes
- c. Capnophiles
- d. Obligate anaerobes
- e. Microaerophiles

132. During a survey of the sanitary state of an environment object perfringens titre was determined.

What object was studied?

- a. Soil
- b. Water from an open water reservoir
- c. Indoor pharmacy air
- d. Tap water
- e. Outdoor air

133. Seroprophylaxis and serotherapy of infectious diseases involves using immune sera. What type of immunity is thus acquired?

- a. Passively acquired natural immunity
- b. -
- c. Actively acquired artificial immunity
- d. Actively acquired natural immunity
- e. Passively acquired artificial immunity

134. During microbiological inspection of crude drugs encapsulated bacteria were revealed. What method was applied for capsule detection?

- a. Gram
- b. Ozheshko
- c. Ziehl-Neelsen
- d. Neisser
- e. Burry-Gins

135. It is known that infectious type B hepatitis is a systemic disease caused by the type B hepatitis virus and characterized by a predominant liver affection. Choose from the below given list the drugs for the etiopathic therapy of this infection:

- a. Penicillin
- b. Sulfanilamides
- c. Fluoroquinolones
- d. Acyclovir
- e. Tetracycline

136. In compliance with the requirements of National Pharmacopoeia of Ukraine the following drugs should be sterile: eye drops, parenteral drugs as well as substances and additives used in their production. What method is applied for control of their sterility?

- a. Two-phase fermentative
- b. Membrane filtration
- c. Serial dilution
- d. Filter paper discs
- e. Agar diffusion

137. Plant pathogenic microorganisms relate to various groups. Which of them causes diseases of medicinal plants most often?

- a. Bacteria
- b. Viruses
- c. Fungi
- d. Actinomycetes
- e. Micoplasma

138. Bacteritic preparations are subdivided into groups according to their purpose and production principles. What group do the preparations for initiation of active immunity relate to?

- a. Vaccines
- b. Immunoglobulins
- c. Bacteriophages
- d. Monoclonal antibodies
- e. Immune sera

139. During sanitary and bacteriological examination of air in a drugstore it was revealed that the air

had high concentration of sanitary meaningful microorganisms. What microorganisms are these?

a. Enterococci and Citrobacter

**b. Staphylococcus aureus and hemolytic streptococcus**

c. Colibacilli and blue pus bacilli

d. Diphtheritic and tuberculous bacilli

e. Epidermal staphylococcus and Sarcina

140. For tuberculosis prevention the newborns got an injection of a vaccine. What vaccine was used?

a. Mantoux

b. Anatoxin

c. Oral polio vaccine (Sabin vaccine)

**d. BCG**

e. DTaP vaccine

141. In compliance with the requirements of WHO and Pharmacopoeia of Ukraine the number of microorganisms in 1 ml of ear drops should not exceed the following number of microbial cells (bacteria and fungi):

a. 1000

b. 10

**c. 100**

d. 10 000

e. 100 000

142. Drug quality is estimated by a number of factors including the "microbiologic purity". What drugs are allowed to include a greater number of saprophytic bacteria as compared to other drug forms?

a. Aerosols

b. Eye drops

c. Injection solutions

**d. Tinctures**

e. Suppositories

143. Crude herbal drugs must be examined for yeastlike fungi. What agar can ensure development of these microorganisms so that associating microflora will grow very slowly or won't grow at all?

a. Blood agar

**b. Sabouraud's peptone agar**

c. Meat infusion agar

d. Endo agar

e. Milk-salt agar

144. A smear from frothy and purulent vaginal discharges of a 42 y.o. woman was stained by Romanovsky-Giemsa method. Its analysis revealed some microorganisms of flagellates class. What microorganisms were the most probably revealed?

**a. Trichomonas vaginalis**

b. Trypanosoma gambiense

c. Lamblia intestinalis

d. Trichomonas hominis

e. Leishmania donovani

145. A female patient bitten by a stray dog came to a surgery. Wide lacerated wounds were localized on the patient's face. What treatment-and prevention aid should be rendered in order to prevent rabies?

a. Combined antibiotic therapy

b. Hospitalization, medical surveillance

c. Urgent injection of normal gamma-globulin

**d. Immunization with the antirabic vaccine**

e. Hospitalization, injection of diphtheria-pertussis-tetanus vaccine

146. During bacteriological examination of sputum of a child with choking cough and fever there were

revealed glossy smooth colonies growing on casein-charcoal agar and reminding of mercury drops. Microscopic examination revealed short Gram-negative bacteria. What microorganism was secured from the sputum?

- a. Haemophilus influenzae
- b. Klebsiella pneumoniae
- c. Streptococcus pyogenes
- d. Bordetella pertussis**
- e. Corynebacterium diphtheriae

147. It is suspected that the workers of a serum drugs plant at a regional hemotransfusion station are carriers of pathogenic staphylococcus aureus. In order to detect staphylococcus carriage, the material from the nasopharynx of the workers should be inoculated into the following medium:

- a. Endo agar
- b. Kessler medium
- c. Blood agar
- d. Egg-yolk-salt agar**
- e. Meat infusion broth

148. Analysis of sputum obtained from a patient with suspected pneumonia revealed gram-positive diplococci. They were slightly elongated, with the pointed opposite ends. What microorganisms were revealed in the sputum?

- a. Klebsiella pneumoniae
- b. Staphylococcus aureus
- c. Streptococcus pneumoniae**
- d. Neisseria meningitidis
- e. Streptococcus pyogenes

149. Examination of air state in drugstore premises for preparation of injection drugs was done by method of sedimentation. It revealed 5 small roundish colonies with zone of hemolysis around them. Inoculations were made on the following cultural medium:

- a. Lewin's agar
- b. Blood agar**
- c. Meat infusion agar
- d. Endo agar
- e. Egg yolk and salt agar

150. According to the Pharmacopoeia requirements, all drugs for topical administration should be tested for "microbiological purity". Inapplicability of this drug group in the medical practice is indicated by presence of the following microorganisms:

- a. Yeast fungi
- b. Mold fungi
- c. Sarcinae
- d. Staphylococcus aureus**
- e. Saprophytic staphylococci

151. A pharmacy produced a batch of vials with glucose diluent for injections. What is the best way for their sterilization?

- a. UV exposure
- b. Autoclave sterilization by flowing steam (fractional method)**
- c. Dry-heat sterilization
- d. Autoclave sterilization under 2 atmosphere pressure
- e. X-ray exposure

152. During studying a medicinal herbal mixture a culture in form of black fluffy film grew on the nutrient medium. Examination of specimen smears revealed non-septate mycelium threads with globular thickenings at the tips. Name these microorganisms:

- a. Aspergill
- b. Ray fungi**

c. Black molds fungus

d. Candida

**e. Mucor**

153. During bacteriological analysis of solutions prepared in a pharmacy some red colonies with metallic glitter have grown on Endo agar. What microbes were revealed?

a. Salmonella

**b. Escherichia**

c. Staphylococci

d. Shigella

e. Streptococci

154. From a patient with the symptoms of acute meningitis the spinal fluid was taken. Its smears contained gram-negative diplococci within the leukocytes and outside them. Which microorganism is the most likely cause of the disease?

a. Candida albicans

b. Escherichia coli

c. Haemophilus influenzae

d. Streptococcus pneumoniae

**e. Neisseria meningitidis**

155. Microbiological assay of a peppermint tincture established its discrepancy with the Pharmacopoeia requirements. It was found to contain pathogenic microflora. The reason for such a conclusion was the presence of the following microflora:

a. Mold fungi

b. Micrococci

c. Yeast fungi

d. Epidermal staphylococcus

**e. Blue pus bacillus**

156. The causative agent of botulism causes severe food poisoning. Specify the most characteristic morphological feature of botulism causative agent:

**a. Gram-positive bacillus with subterminal spore**

b. Gram-positive bacillus with terminal spore

c. Thick gram-positive bacillus without spores and flagella

d. Thin mobile bacillus with central spore

e. Thick gram-positive non-spore-forming bacillus

157. Medicinal plants collected at a plantation included a lot of plants with mosaic-coloured leaves. What is the most likely causative agent of such infection?

**a. Phytopathogenic viruses**

b. Toxic substances of the soil

c. Nematode worms

d. Microscopic mites

e. Phytopathogenic bacteria

158. Study of the antibioticogram of the pure salmonella culture revealed multiple antibiotic resistance. What factor might have caused this effect?

**a. R-plasmids**

b. F-plasmids

c. Transposons

d. Temperate phages

e. Chromosomal mutations

159. Staphylococci were isolated in pure culture from a patient with sepsis. These were staphylococci producing betalactamase. Such property should be taken into account when:

a. Differentiating specific types of staphylococci

b. Choosing optimal conditions for cultivation

- c. Determining biochemical properties
- d. Determining the strain pathogenicity
- e. Choosing an antibiotic for treatment**

160. A female patient has been treated with antibiotics for a long time. Thereafter examination of smears from vaginal secretion revealed oval cells with well-defined nucleus, some cells gemmate. What preparations can help to confirm the diagnosis "candidosis"?

- a. Antichlamydial
- b. Antibacterial
- c. Antifungal**
- d. Antiviral
- e. Antiprotozoal

161. One of mass production drugs is produced by inactivation of bacterial exotoxin by formalin. What is this drug for?

- a. For passive immunization
- b. For serodiagnostic assay
- c. For active immunization**
- d. For toxinemia treatment
- e. For immunocorrection

162. A patient is suspected to have the typhoid fever. What method of laboratory diagnostics would be the most appropriate for confirmation of this diagnosis in the first week of disease?

- a. Biliculture identification
- b. Coproculture identification
- c. Urine culture identification
- d. Myeloculture identification
- e. Hemoculture identification**

163. Inoculation of hen's embryos is the main method of detection of influenza virus. In order to neutralize associated bacterial flora in the material under examination (nasopharyngeal lavage) it is necessary to add beforehand:

- a. Antibiotics**
- b. Fluorescent serum
- c. Ant-influenza gamma globulin
- d. Leukocytic interferon
- e. Eubiotics

164. Pathogenic microorganisms are characterized by presence of aggression enzymes that determine their virulence. Select an aggression enzyme:

- a. Lyase
- b. Hyaluronidase**
- c. Transferase
- d. Carbohydrase
- e. Oxidase

165. Presence of the pathogenic microorganisms in the air can be prognosticated according to the content of sanitary-indicative bacteria. Which bacteria indicate immediate epidemiologic danger?

- a. Micrococci
- b. Haemolytic streptococci**
- c. Mold fungi
- d. Sarcinae
- e. Yeast fungi

166. Bacteria may contain not only chromosomal but also nonchromosomal hereditary elements called plasmids. Presence of plasmid genes can show itself by:

- a. Mobility
- b. Multiple drug resistance**

- c. Physical factor resistance
- d. Stain resistance
- e. Sporogenesis ability

167. Which of the following sterilization methods ensures total death of microorganisms and their spores during one-time thermal processing of an object?

- a. Pasteurization
- b. -
- c. Boiling
- d. Tyndallization
- e. Autoclaving**

168. Aetiological factors for the infectious diseases are often microorganisms with various ultrastructure. Which of the following microorganism groups relates to the eucariots?

- a. Viroids
- b. Viruses
- c. Protozoa**
- d. Prions
- e. Scotobacteria

169. A 13 year old child complains about poor appetite, pain in the right subcostal area. Microscopical examination of duodenal contents revealed big pyriform cells with two nuclei. What microorganism was revealed?

- a. Lamblia**
- b. Amoeba
- c. Toxoplasma
- d. Trypanosoma
- e. Trichomonad

170. A plantation of medicinal plants was affected by a disease that caused yellow spots and necrotic areas on leaves. Juice of affected plants remains infectious even after bacterial filtration but after its inoculation on cultural medium growth of causative agent wasn't observed. Causative agent of this disease relates most probably to the following group of plant pathogenic microorganisms:

- a. Mycoplasma
- b. Viruses**
- c. Actinomycetes
- d. Fungi
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171. It is known that a peroral drug contains over 1 billion of living microbial cells per 1 millilitre. Nonetheless the drug was accepted as applicable. What drug group does it relate to?

- a. Antibiotics
- b. Sulfanilamides
- c. Immunostimulants
- d. Eubiotics**
- e. Vitamins

172. From a medicinal herb a certain phytopathogenic microorganism was secured. In the nutrient medium it forms "fried egg" colonies. What is the most likely agent?

- a. Actinomycetes
- b. Yeast fungi
- c. Mycoplasma**
- d. Nocardia
- e. Pseudomonades

173. Microbiological analysis of medicinal raw materials revealed capsular bacteria. What stain method was used to detect the capsules?

- a. Ziehl-Neelsen's**

- b. Gram's
- c. Ozheshko's
- d. Gin's**
- e. Neisser's

174. A patient was admitted to the infectious department of a hospital. His provisional diagnosis was "acute gastroenteritis". Inoculation of feces on bismuth-sulfite agar induced growth of black colonies with metallic glitter. What microorganisms should you think of?

- a. Brucella
- b. Salmonellae**
- c. Shigella
- d. Escherichia
- e. Yersinia

175. Antibiotics are classified by sources of production. Name an antibiotic of bacterial origin:

- a. Gramicidin**
- b. Tetracycline
- c. Gentamycin
- d. Lysozyme
- e. Penicillin

176. In accordance with the requirements of the pharmacopoeia, the non-sterile medicinal preparations may include microorganisms. What micro-organisms MUST NOT be present in them?

- a. Sarcinae
- b. Enterobacteria**
- c. Micrococci
- d. Ascomycetes
- e. Mold fungi

177. A pharmaceutical company received from a laboratory a delivery order of diagnostic medications used for studying antigenic properties of causative agent. Name these preparations:

- a. Diagnosticums
- b. Allergens
- c. Diagnostic sera**
- d. Immunoglobulins
- e. Bacteriophages

178. A bacterial cell obtains nutrients by different ways. One of them is the facilitated diffusion that is realized by special membrane carrier proteins. What are these proteins called?

- a. Permeases**
- b. Oxidoreductases
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179. Medical examination of a dairymaid revealed affection of the locomotive system, vision impairment, disorder of the nervous and other systems. To confirm the diagnosis the patient was referred for a serological assay (Wright's reaction) and Burnet's skin allergy test. What was the provisional diagnosis?

- a. Rheumatism
- b. Leptospirosis
- c. Tularemia
- d. Anthrax
- e. Brucellosis**

180. A patient was prescribed with an antitumoral antibiotic that inhibits synthesis of nucleic acids in the cells. What of the following antibiotics has such a mechanism of action?

- a. Tetracycline**

- b. Lincomycin
- c. Erythromycin
- d. Actinomycin**
- e. Nystatin

181. A drugstore received a supply of a drug that is widely used for treatment of many virus diseases since it is not virus specific. What drug is it?

- a. Immunoglobulin
- b. Vaccine
- c. Remantadin
- d. Metisazone
- e. Interferon**

182. A patient was administered an antibiotic of animal origin for the corneal ulcer treatment. What is it called?

- a. Nystatin
- b. Chlorophyllipt
- c. Lysozyme**
- d. Imanin
- e. Gramicidin

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- a. Tyndallization**
- b. Flowing steam
- c. Flaming
- d. Moist steam under pressure
- e. Dry-heat sterilization

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- a. Vibrios
- b. Campylobacter
- c. Borrellia
- d. Leptospira
- e. Treponema**

185. Before a surgical operation, a surgeon treated his hands with an alcohol-containing solution. Which group of drugs does this solution relate to?

- a. Disinfectants
- b. Detergents
- c. Surface-active substances
- d. Antiseptics**
- e. Sterilizing solutions

186. A 6-month old child has been administered a peroral drug. What is the maximal number of bacteria and fungi that is permissible in 1 g of this drug in compliance with the requirements of WHO and Pharmacopoeia?

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- b. No more than 1000 bacteria and 100 fungi
- c. No more than 500 bacteria and 50 fungi
- d. No more than 50 bacteria and fungi in total**
- e. No more than 1000 bacteria and fungi in total

187. In order to establish the possible contamination of a medication with fungi, a nutrient medium was inoculated, which resulted in growth of large cream-like colonies. What nutrient medium was used in this case?

- a. Finn-2

b. Sabouraud

c. Roux

d. Lowenstein-Jensen

e. Loeffler

188. Dysbiosis can be treated with drugs that contain living representatives of normal microflora as well as their metabolic products. Select the microorganisms that are used for the production of such drugs:

a. Proteus

b. Staphylococcus aureus

**c. Bifidus bacteria**

d. Providencia

e. Yersinia

189. Medicinal plants infected by microorganisms cannot be used in the pharmaceutical industry.

Invasive properties of phytopathogenic micro-organisms are due to the following enzymes:

a. Transferase

b. Isomerase

**c. Hydrolytic**

d. Oxidoreductase

e. Lyase

190. The medicinal plants growing on a plantations were found to have mosaic patterns on leaves.

What microorganisms caused this affection?

a. Phytopathogenic bacteria

b. Protozoa

c. Rickettsiae

**d. Phytopathogenic viruses**

e. Phytopathogenic fungi

191. Bacteria eventually become resistant to antibacterial agents. Resistance of gram-positive bacteria to penicillin antibiotics is caused by:

**a. Beta-lactamase production**

b. Active synthesis of peptidoglycan

c. Protein synthesis

d. Active transport of antibiotic

e. Permeability of the cell wall

192. The causative agents of intestinal infections can grow at refrigerator temperatures, which may cause infection in people. What type of temperature optimum do these microorganisms relate to?

a. Necrophilic

**b. Psychrophilic**

c. Thermophilic

d. Mesophilic

e. Anthropophilic

193. A patient was taken to a hospital with acute food poisoning caused by home-made canned mushrooms. The product analysis revealed some microorganisms that develop only in the absence of oxygen. What microorganisms caused the poisoning?

a. Capnophiles

**b. Obligate anaerobes**

c. Microaerophiles

d. Facultative anaerobes

e. Obligate aerobes

194. During a survey of the sanitary state of an environment object perfringens titre was determined. What object was studied?

a. Outdoor air

- b. Tap water
- c. Indoor pharmacy air

**d. Soil**

- e. Water from an open water reservoir

195. Antibiotics produced by fungi belonging to *Penicillium* and *Aspergillus* genera are widely used in medicine. What class do these genera belong to?

- a. Basidiomycetes
- b. Deuteromycetes
- c. Chytridiomycetes
- d. Ascomycetes**
- e. Zygomycetes

196. Infectious agents of various ultrastructures can be etiological agents of infectious diseases. Which of the groups named below HAS NO cellular structure, protein synthesizing, enzyme and energy systems?

- a. Rickettsia
- b. Viruses**
- c. Bacteria
- d. Fungi
- e. Protozoa

197. Pathogenic microorganisms produce various enzymes in order to penetrate body tissues and spread there. Point out these enzymes among those named below.

- a. Hyaluronidase, lecithinase**
- b. Transferase, nuclease
- c. Esterase, protease
- d. Oxydase, catalase
- e. Lyase, ligase

198. The patient has been prescribed oral drug to treat diarrhea. In accordance with WHO and Pharmacopoeia demands 1 g (ml) of drug has to contain the following number of microorganisms:

- a. 1000 bacteria and 200 mold fungi
- b. 1000 bacteria and 100 mold fungi**
- c. 10 bacteria and no mold fungi
- d. 100 bacteria and 10 mold fungi
- e. No bacteria and no mold fungi

199. Pharmacy has received viricides. Choose the viricide used for influenza treatment from the list given below.

- a. Acyclovir
- b. Rimantadine**
- c. Levamisole
- d. Metisazone
- e. Azidothimidine

200. The following have been detected in hand lavage of the kindergarten chef: colibacilli, ray fungi, staphylococci, bacilli, mold fungi. What microbes are evidential of fecal contamination of hands?

- a. Mold fungi
- b. Colibacilli**
- c. Staphylococci
- d. Ray fungi
- e. Bacilli

201. A person has been in contact with influenza patient. What drug should be administered for specific passive influenza prophylaxis?

- a. Leukocytic interferon
- b. Vaccine influenza virus inactivated

c. Antigrippal immunoglobulin

d. Amizon

e. Anaferon