PART 1. General Microbiology

1. Diploid number of chromosomes, nuclear membrane, mitochondria, Golgi apparatus, histone proteins are characteristics of ### microorganisms.

+Eucariotic

2. Choose group of microbes that doesn’t belong to prokaryotic microorganisms:

A. Bacteria

B. Actinomycetes

C. Rickettsia

+ D. Candida

E. Chlamydia

F. Spirochetes

3. Choose main groups of microorganisms that belong to prokaryotes:

+A. Bacteria

+B. Actinomycetes

+C. Rickettsia

D. Candida

4. Definition of morphological, tinctorial, enzymatic, antigenic, cultural properties, and bacteriophage sensitivity is used for ### of microorganisms species.

+Identification

5. Choose method that is not used for laboratory diagnosis of bacterial infectious disease in medical microbiology:

A. Microscopic

+B. Biotechnological

C. Allergic

D. Serological

E. Bacteriological

6. Fixation of microorganisms to the glass during slide smear preparation is used for:

A. Bacteria inactivation (killing),

B. Tight attachment of gems to the glass,

C. Better perception of dye

+D. All wrote above

7. A single chromosome, peptidoglycan, a binary type of division and absence of nuclear membrane, nucleolus and histone proteins are characteristics of ###.

+Prokaryot\*

8. Nucleoid, cytoplasm, cytoplasmic membrane, mesosomes, ribosomes are essential structures of ### cell:

+prokaryot\*

9. Nucleus, mitochondria, endoplasmic reticulum, cell wall containing cellulose or chitin are typical for:

A. Prokaryotes

B. Viruses

C. Prions

+D. Eukaryotes

10. Choose essential components providing vital activity of bacterial cell:

+A. Ribosomes

B. Capsule

C. Flagella

D. Spores

11. Name the essential structural component of bacterial cell that is responsible for storing genetic information? ###

+Nucleoid

12. The presence of the differentiated nucleus is not typical for ###.

+A. Prokaryotes

B. Eukaryotes

C. Fungi

D. Protozoa

13. What structure of the bacterial cell have following functions: permeability, osmotic barrier, transport, mesosoma formation, participation in metabolism and sporulation? ### ###

+A. Plasma membrane

B. Cell wall

C. Outer membrane

D. Outer layer

E. Cell shell

14. Choose non-motile microorganisms:

A. Vibrio

B. Spirochetes

+C. Streptococci

D. Salmonella

15. Choose motile microorganisms:

+A. Vibrio

+B. Spirochetes

C. Streptococci

D. Staphylococci

16. Bacterial ### are built from protein called flagellin.

+Flagell\*

17. ### is the fastest group of flagellated bacteria.

+Monotrich\*

18. ### is the slowest group of flagellated bacteria.

+Peritrich\*

19. Amphitrichous are bacteria with bipolar located ###:

+A. Flagella

B. Pili

C. Spores

D. Mesosomes

20. Choose basic forms of microorganisms:

+A. Spherical

+B. Rod-shaped

+C. Spiral

D. Star-shaped

21. According to shapes all medically important microorganisms are divided into:

A. Spherical

B. Rod-shaped

C. Spiral

+G. All of above are correct

22. Choose bacteria that are not spherical (cocci):

A. Staphylococcus aureus

+B. Escherichia coli

C. Streptococcus pyogenes

D. Neisseria meningitidis (meningococcal disease pathogen)

23. Choose non spherical-shaped microorganisms:

A. Staphylococcus epidermidis

+ B. Corynebacterium diphtheriae

C. Streptococcus pyogenes

D. Neisseria gonorrhoeae

E. Sarcina flava

24. Meningococci of the genus ### are diplococci. (Latin name)

+Neisseria\*

25. Choose microorganisms which belong to diplococci:

A. Staphylococcus aureus

B. Mycobacterium leprae

C. Streptococcus pyogenes

D. Escherichia coli

+E. Neisseria gonorrhoeae

F. Clostridium tetani

26. Choose spiral-shaped microorganisms:

A. Streptococcus pyogenes

+ B. Borrelia burgdorferi

+C. Leptospira interrogans

D. Salmonella typhi

E. Escherichia coli

27. Choose non spiral-shaped microorganisms:

A. Treponema pallidum

B. Borrelia burgdorferi

+C. Corynebacterium diphtheriae

+D. Shigella sonnei

+E. Clostridium perfringens

28. In microscope testing Streptococci are arranged in ###.

+Chain\*

29. In microscope testing Staphylococci are arranged:

A. Randomly

B. In pairs

+С. In grape-like clusters

D. In tetrads

E. In the form of packages

F. In chains

30. In microscope testing diplococci are arranged:

A. Randomly

+B. In pairs

С. In grape-like clusters

D. In tetrads

E. In the form of packages

F. In chains

31. Choose rod-shaped bacteria:

+A. Enterobacteria

B. Spirochetes

+C. Bacillus, Clostridium

D. Treponema

E. Actinomycetes

32. Choose rod-shaped microorganisms:

A. Staphylococci

B. Spirochetes

+C. Mycobacteria

D. Yeasts

E. Neisseria

33. What kind of shape group spirochetes belong to?

A. Spherical

B. Rod-shaped

+C. Spiral

D. Branching

34. Choose microorganisms lacked cell wall:

A. Spirochetes

B. Rickettsia

+C. L-forms

D. Vibrios

+E. Mycoplasmas

35. In microscope testing ### causative agent is arranged like bamboo-sticks.

+Anthrax\*

36. The maintenance of cell shape of bacteria is provided by ### ### of the cell.

+Cell wall

37. Choose characteristics NON-TYPICAL for L-form of bacteria:

A. Partial or complete absence of the cell wall

+B. Sensitivity to bacteriophages

C. Spherical form

D. Ability to reproduce

38. The difference of bacteria in Gram staining is due to chemical composition and structure of ### ###.

+Cell wall

39. What unique substance is the basis of bacteria cell walls ###?

+Peptidoglycan

40. What substance (bioheteropolymer) is the basis of bacteria cell wall?

A. Chitin

B. Cellulose

C. Glycogen

D. Starch

+E. Peptidoglycan

41. Choose chemical components of the Gram-negative bacteria cell wall:

A. Multilayer peptidoglycan

B. Teichoic acids

+C. Thin peptidoglycan layer

+D. Lipopolysaccharide

E. Mycolic acids

42. Choose chemical components of Gram-positive bacteria cell wall:

A. Monolayer peptidoglycan

+B. Teichoic acids

+C. Thick peptidoglycan layer

D. Mycolic acids

E. Lipopolysaccharide

43. The mechanism of Gram-negative bacteria staining includes:

A. Formation of the complex of gentian violet and iodine solution, which cannot be washed out from multilayer peptidoglycan by alcohol

B. Oxidation of the surface structures by iodine

+ C. Denaturation of protein components with ethyl alcohol, after which the aniline dyes can be washed out from cell wall easily.

D. Destruction of the outer membrane with 5% sulfuric acid

E. Formation of strong complex of fuchsine and peptidoglycan which cannot be washed out by alcohol

44. The mechanism of Gram-positive bacteria staining includes:

+A. Formation of the complex of gentian violet and iodine solution, which cannot be washed out from multilayer peptidoglycan by alcohol

B. Oxidation of the surface structures by iodine

C. Formation of the complex of gentian violet and iodine solution, which can be washed out from peptidoglycan cell wall easily.

D. Denaturation of protein components with ethyl alcohol, after which the aniline dyes are not perceived

E. Destruction of the outer membrane with 5% sulfuric acid

45. Choose substance that isn’t used in Gram staining method:

+ A. Methylene blue

B. Fuchsine

C. Gentian violet

D. Lugol's iodine

E. Ethyl alcohol

46. Choose substance used in Gram staining method for discoloration of Gram-negative bacteria

A. Fuchsine

+B. Ethyl alcohol

C. Methylene blue

D. Lugol's iodine

E. Gentian violet

47. Tight attachment of microorganisms to the glass during microscope slide preparation is due to:

A. Application of dye

B. Application of alcohol

+C. Fixation

D. Application of Lugol’s iodine

48. According to Gram staining Gram-negative bacteria are stained in:

A. Purple color

+B. Red color

C. Blue color

D. Yellow color

E. Black color

49. Choose substances forming complex that cannot be washed out from peptidoglycan by alcohol during staining of Gram-positive bacteria:

A. Methylene blue and fuchsine

+B. Gentian violet and Lugol's iodine

C. fuchsine and Ethyl alcohol

50. Absence of teichoic acids in cell wall structure is typical for:

A. Gram-negative bacteria

+B. Gram-positive bacteria

C. Both are correct

51. Choose Gram-negative cocci:

A. Staphilococci

B. Streptococci

C. Sarcina

+D. Meningococci and gonococci

E. Enterococci

52. Choose Gram-negative bacteria:

+A. Neisseria

+B. Treponema

C. Clostridia

D. Mycobacteria

E. Enterococci

53. All of following microorganisms are Gram-negative, except:

A. Spirochetes

B. Bordetella

C. Neisseria

+D. Corynebacterium

E. Salmonella

54. Choose Gram-positive microorganisms:

A. Escherichia

B. Salmonella

+C. Mycobacteria

D. Bordetella

E. Brucella

55. Choose Gram-negative microorganisms:

+A. Yersinia pestis

B. Bacillus anthracis

C. Corynebacterium diphtheriae

D. Clostridium perfringens

E. Mycobacterium tuberculosis

56. All of following microorganisms are Gram-positive, except:

A. Clostridia

B. Bacillus anthracis

C. Mycobacterium

+D. Treponema

E. Actynomycetes

57. Under microscopy Gram-positive rods placed at an angle to each other forming like letters X and Y is characteristic of the causative agents of ###.

+Diphtheria

58. Установить соответствие: Establish a correspondence between microorganism species, bacteria shape and Gram staining: 1) Treponema pallidum 2) Neisseria meningitidis 3) Mycobacterium tuberculosis

+3. Gram-positive rods

+1. Gram-negative spirals

+2. Gram-negative diplococci

59. Spherical-shaped bacteria arranged in chains are:

A. Diplococci

+B. Streptococci

C. Staphylococci

D. Tetrads

E. Sarcina

60. Spherical-shaped bacteria arranged in grape-like clusters are:

A. Diplococci

B. Streptococci

+C. Staphylococci

D. Tetrads

E. Sarcina

61. The stage of Gram staining that allows to differentiate bacteria in Gram-positive and Gram-negative is discoloration by ###.

A. Sulfuric acid

B. Lugol’s iodine

C. Water

+D. Ethyl alcohol

E. Heating

62. Choose acid-fast microorganisms:

A. Staphylococcus aureus

B. Clostridium perfringens

+C. Mycobacterium leprae

D. E. coli

+E. Mycobacterium tuberculosis

F. Bacillus anthracis

63. Choose non acid-fast microorganisms:

+А. Corynebacterium diphtheriae

+B. Clostridium perfringens

C. Mycobacterium leprae

+D. Escherichia coli

E. Mycobacterium tuberculosis

64. Name the property of bacterial cells that depend upon high content of lipids, wax, mycolic acids in the cell? ###

+Acid-fast

65. Protection of bacteria from drying, phagocytosis and ability to adhere to various surfaces are functions of:

A. Spore

B. Flagella

C. Nucleoid

+D. Capsule

E. Mesosome

66. Choose substances using for Ziehl-Neelsen staining:

A. Gentian violet

+B. Methylene blue

+C. carbolic fuchsine

+D. Ethyl alcohol

E. 0.5 % acetic acid

+F. 5 % sulfuric acid

67. During Ziehl-Neelsen staining, carbolic fuchsine and heating are used to:

A. Kill microorganisms

B. Attach microorganisms to the glass

+C. Lose a tight layer and facilitate the penetration of dye and its interaction with a cell wall

D. Neutralize previously applied dye

68. What component of the bacterial cell does appear as colorless bezel around the red bodies of the bacteria in black background when stained by Burri-Gins? ###

+Capsul\*

69. The functions of bacterial ### are protection from drying, phagocytosis and antibodies action.

+Capsul\*

70. Choose possible materials of bacterial capsule composition:

+A. Polysaccharides

B. Lipid

+C. Peptide

D. Lipopolisaccharide

E. Histone proteins

71. Capsules of most of the microorganisms consist of ###. (Substance)

+Polysaccharid\*

72. Microcapsule differs from macrocapsule in:

+A. Thickness

+B. Detection by Burri-Gins method

C. Lipopolysaccharides content

D. All of above are correct

73. Choose characteristics of macrocapsule (true capsule):

+A. Size is larger than the diameter of the bacterial cells

+B. Ordered fibrillar structure

+C. Tight adhesion to the cell wall

+D. Microscope indication by Burri-Gins stain

E. Nucleoproteids composition

F. All of above are correct

74. Choose characteristics of Burry-Gins staining:

A. Ink and fuchsine are applied on fixed glass slide

+B. A drop of culture is mixed with the ink. Fixed smear of the mixture is stained with fuchsine

C. Fixed slide is treated with acetic methylene blue. Then slide is stained with chrysoidin

D. A “hanging” or “crushed” drop with the addition of fuchsine is prepared

75. Choose substances used during Burry-Gins staining:

A. Gentian violet

B. Methylene blue

+C. Ink

D. Chrysoidin

+E. Diluted fuchsine

F. Ethyl alcohol

76. ### bodies of bacterial cells are responsible for energy and nutrients storing. (Put correct word)

+Inclusi\*

77. Diphtheria rods contain volutine grains:

+A. On the poles of the cell in the cytoplasm

B. In the center of the cell in the cytoplasm

C. In the cell wall

D. In nucleoide

78. Choose microorganisms that are not obligate intracellular parasites:

A. Rickettsia

+B. Mycobacteria

C. Chlamydia

D. Viruses

E. Toxoplasma

79. Chlamydia and Rickettsia are obligate intracellular parasites because:

A. They grow only on media with human blood or serum

+B. They are not able to synthesize high-energy compounds so energy metabolism is carried out only inside host cells

C. They do not have their own metabolic activity

D. They are not able to reproduce by binary fission

80. Choose structural components that Rickettsia do not have:

A. Nucleoid

B. Ribosomes

+C. Spores, flagella

D. Cytoplasm

E. Cell wall

F. Cytoplasmic membrane

81. Choose disease that is caused by Rickettsia:

A. Typhoid fever

+B. Epidemic typhus

C. Relapsing fever

D. Whooping cough

E. Diphtheria

F. Trachoma

82. Choose morphological forms presented in Chlamydia infection causative agents only:

A. Nucleoid

B. Cytoplasmic membrane, cytoplasm

C. Ribosomes

D. Distinct capsule

E. Flagella, pili

+F. Elementary bodies and reticulate ones

83. Choose functions of bacterial spores:

A. Way of reproduction

B. Nutrients storing

+C. Preservation of species, protection from external action

D. Protect from phagocytosis

E. Participate in metabolism

F. Participate in breathing

84. Choose bacteria spore-forming conditions:

A. When bacteria get into the human or animal body

+B. When factors of the external environment are unfavorable

C. Both are correct

85. Minimal content of free water, high lipid content, high content of calcium salts, the presence of dipicolinic acid determine the stability of the ### of bacteria in the environment:

+Spore\*

86. What morphological groups of bacteria can form spores? ###

+Rod\*

87. What group of bacteria (according to their shape) can form spores?

А. Spherical-shaped

+B. Rod-shaped

C. Spiral-shaped

D. Branching

88. Choose microorganisms that cannot form spores:

A. Bacillus anthracis

B. Clostridium perfringens

+C. Salmonella typhi

D. Clostridium tetani

E. Clostridium botulinum

89. Choose microorganisms that can form spores:

A. Vibrio cholerae

+B. Clostridium perfringens

C. Corуnebacterium diphtheria

+D. Clostridium botulinum

E. Staphylococcus aureus

F. All of above are correct

90. Choose non spore-forming microorganisms:

A. Clostridium botulinum

+B. Mycobacterium tuberculosis

+C. Mycobacterium leprae

D. Clostridium tetani

E. Bacillus anthracis

93. Rod-shaped spore-forming microorganisms are included into genera :

+A. Bacillus

+B. Clostridium

C. Corynebacterium

D. Borrelia

94. Name the microorganisms with spore smaller than a bacterial cell in diameter. ###

+Bacill\*

95. Name the microorganisms with spore larger than a bacterial cell in diameter. ###

+Clostridi\*

96. Choose the Genus of spore-forming microorganisms with spore smaller than a bacterial cell in diameter:

A. Clostridium

B. Corуnebacterium

+C. Bacillus

D. Mycobacterium

E. Staphylococcus

F. Escherichia

97. Choose the Genus of spore-forming microorganisms with spore bigger than a bacterial cell in diameter:

+A. Clostridium

B. Corуnebacterium

C. Bacillus

D. Mycobacterium

E. Staphylococcus

F. Escherichia

98. Name the microorganisms (Latin) with terminal- located spore. ### ###

+Clostridium tetani

99. Choose bacteria with subterminal-located (rarely central) spore bigger that a cell diameter:

A. Klebsiella pneumoniae

B. Corуnebacterium diphtheriae

+C. Clostridium perfringens

D. Clostridium tetani

+E. Clostridium botulinum

F. Bacillus anthracis

100. ### bacteria have central-located spore smaller than bacteria diameter that don't deform the cell.

+Bacill\*

101. Choose structural components that Spirochetes do not have:

+A. Flagella, spores

B. Nucleoid

C. Ribosomes

D. Cytoplasm, CPM

E. Cell wall

F. Endoflagella

102. Spirochetes move due to:

A. Flagella

+B. Endoflagella

C. Pili

D. Adhesins

103. Name Spirochetes genus (Latin) that is characterized by numerous primary curvs and the secondary curvs in the forms of letters S and C. ###

+Leptospir\*

104. Name Spirochetes genus (Latin) that is characterized by 3-10 large uneven curvs.###

+Borreli\*

105. Name Spirochetes genus (Latin) that is characterized by 8-12 small even curvs. ###

+Treponema\*

106. Name Spirochetes genus that shows pale pink color in Romanowsky-Giemsa stain. ###

+Treponema\*

107. Name Spirochetes genus that shows blue-purple color in Romanowsky-Giemsa stain. ###

+Borreli\*

108. Human pathogenic Spirochetes belong to genera Treponema, Borrelia and ### .

+Leptospira\*

109. Choose Spirochetes genus that is characterized by presence of the secondary curves in the forms of letters S and C:

+A. Leptospira

B. Borrelia

C. Treponema

D. Vibrio

E. Actinomyces

110. Choose color of Treponema pallidum according to results of Romanowsky-Giemsa stain. ###

A. Blue

B. Green

+C. Pale pink

D. Violet

E. Black

111. Choose color of Borrelia reccurentis according to results of Romanowsky-Giemsa stain. ###

+A. Blue-purple

B. Green

C. Pale pink

D. Yellow

E. Black

112. Choose color of Leptospira interrogans according to results of Romanowsky-Giemsa stain. ###

A. Blue

B. Green

+C. Yellow

D. Pink

E. Orange

113. Choose Treponema species that is pathogenic for human:

+А. Treponema pallidum

B. Treponema macrodentium

C. Treponema denticola

D. Treponema orale

114. Human pathogenic species of Spirochetes belong to 3 genera: Treponema, Borrelia and ###

A. Clostridium

+B. Leptospira

C. Corynebacterium

D. Vibrio

E. Escherichia

115. Syphilis, relapsing fever, leptospirosis are diseases caused by pathogenic ###.

+Spirochet\*

116. Bacterial flagella are built from ###:

A. Pillin

+B. Flagellin

C. Miosin

D. Actin

E. Porin

117. The fastest moving group of flagellate microorganisms:

+A. Monotrichous

B. Lophotrichous

C. Amphitrichous

D. Peritrichous

118. The slowest moving group of flagellate microorganisms:

A. Monotrichous

B. Lophotrichous

C. Amphitrichous

+D. Peritrichous

119. A culture of microorganisms of the same species obtained from a single bacterial cell is a ### ###.

+Pure culture

120. A species population isolated from different sources or from one object at different times is called ###.

+Strain\*

121. ### ### is a set of bacteria cells of the same species grown on nutrient medium.

+Pure culture

122. Установите соответствие Establish a correspondence between microorganism species, shape and bacteria arrangement in a smear: 1) Neisseria meningitidis 2) Staphylococcus epidermidis 3) Bacillus anthracis

+1. The bean-shaped diplococci

+2. Cocci arranged in grape-like clusters

+3. Large rods arranged in the chain (Streptobacillus)

123. Установите соответствие Establish a correspondence between microorganism species and Gram staining: 1) Vibrio cholera 2) Treponema pallidum 3) Corynebacterium diphtheriae

+2. Gram staining is not used

+1. Gram-negative

+3. Gram-positive

124. Установите соответствие Establish a correspondence between microorganism species and spore location: 1) Clostridium perfringens 2) Bacillus anthracis 3) Clostridium tetani 4) Mycobacterium tuberculosis

+4. Non-spore forming

+1. Sub-terminal, in the form of “spindles”

+2. Central

+3. Terminal, in the form of “drum sticks”

125. Установите соответствие Establish a correspondence between microorganism species and capsule: 1) Staphylococcus aureus 2) Bacillus anthracis 3) Neisseria meningitides 4) Escherichia coli

+4. No capsule

+1. Microcapsule

+3. Distinct polysaccharide capsule

+2. Distinct peptid containing capsule

126. Установите соответствие Establish a correspondence between microorganism species and disease: 1) Coxiella burneti 2) Salmonella Typhi 3) Borrelia recurrentis

+2. Typhoid fever

+1. Q-fever

+3. Relapsing fever

127. Установите соответствие Establish a correspondence between microorganism species and bacteria arrangement in a smear: 1) E. coli 2) Corinebacterium diphtheriae 3) Streptococcus pyogenes 4) Neisseria meningitidis

+4. In pairs

+3. Chain

+2. At an angle forming letters X, V

+1. Randomly

128. Установите соответствие Establish a correspondence between microorganism species and means of motility: 1) Spirochetes 2) Vibrio 3) Chlamydia 4) Escherichia coli

+2. Monotrichious located flagella

+3. Non-motile

+1. Endoflagella

+4. Peritrichious located flagella

129. Establish a correspondence between structure or properties of microorganisms and diseases caused by these microbes: 1) Volutine granules, 2) Acid-fastness, 3) Motility

+3. Cholera

+1. Diphtheria

+2. Tuberculosis, leprosy

130. The main tasks of medical Microbiology:

+A. Study of human pathogenic microorganisms

B. Study of virus animal diseases pathogens and methods of their diagnostics and prevention

C. Development of methods of prevention of infectious diseases spreading

D. Development of methods of etiotropic treatment of infectious diseases

E. Study of microorganisms involved in the synthesis of biologically active compounds, and study of biotechnologies for their production

F. Study of microorganisms involved in matter cycling

G. All of above are correct

131. Choose characteristics of microorganisms that are not in the basis of modern taxonomy:

A. Morphological

B. Serological

C. Biochemical

G. Physiological

D. Molecular biological

+E. Clinical

132. Choose microorganisms:

+A. Prokaryotes

B. Prions

+C. Eukaryotes

+D. Viruses

E. All of above are correct

133. Choose cellular microorganisms:

+A. True bacteria (eubacteria)

B. Prions

+C. Archaebacteria

+D. Eukaryotes

E. Viruses

F. All of above are correct

134. Domain “Eucarya” (eukaryotes) includes:

+А. Fungi

+B. Protozoa

C. Bacteria

D. All of above are correct

135. Choose prokaryotic domains:

А. Fungi

+B. Bacteria

+C. Archaea

D. All of above are correct

136. Preservation of genetic information, participation in cell division are functions of bacterial:

A. Mesosomes

B. Ribosomes

+C. Nucleoid

D. Nucleus

E. Spore

F. Cytoplasm

137. Choose main functions of bacterial spore:

A. Provides adhesiveness

+B. Protects from adverse environmental factors

C. Participates in genetic material transfer process

D. Produce enzymes

138. What method of staining is used for capsule detection ? ###

+Burri-Gins

139. Choose organoids that prokaryotic cells do not have:

A. Plasmid

B. Mesosoma

+C. Mitochondria

D. Nucleoid

140. Choose organoids that eukaryotic cells do not have:

A. Mitochondria

B. Endoplasmic reticulum

+C. Plasmid

D. Nucleus

141. Plasmids are typical for ###:

A. Prions

B. Viruses

C. Fungi

D. Protozoa

+E. Bacteria

142. Choose functions of intracellular inclusions of bacterial cells:

A. Protection from phagocytosis

B. Protection from adverse environmental factors

+C. Source of nutrients

D. Source of oxygen

E. Place of sporulation

143. Flagella are built from protein called ###.

+Flagellin

144. Name the disease caused by microorganism have the highest speed among bacteria:

A. Meningitis

B. Syphilis

+C. Cholera

D. Salmonellosis

E. Tetanus

F. Scarlet fever

145. Method of staining used for identification of acid-fast bacteria:

A. Burri-Gins method

B. Gram staining

C. Romanowsky-Giemsa staining

+D. Ziehl-Neelsen staining

146. Method of staining used for identification of encapsulated bacteria:

+A. Burri-Gins method

B. Gram staining

C. Romanowsky-Giemsa staining

D. Ziehl-Neelsen staining

147. Acid-fast bacteria are detected with ### method.

+Ziehl-Neelsen

148. Bacterial capsules are stained by Burri-Gins method :

A. Purple

B. Red

+C. Not painted

D. Blue

E. Yellow

149. Acid-fast bacteria are stained by Ziehl-Neelsen method in ### color.

+Red

150. Non acid-fast bacteria are stained by Ziehl-Neelsen method in ### color.

+Blue

151. The main chemical component of bacteria cell wall is ###.

+peptidoglycan

152. In microscope slides Streptococci are arranged:

A. In grape-like clusters

B. In pairs

+C. In chains

D. In tetrads

E. In the form of packages

153. Optical microscope provides a magnification of bacteria in:

+A. 1000x

B. 10000x

C. 100000x

154. In immersion microscopy is used the objective lens of ### magnification.

+100\*

155. A drop of ### is applied on glass slide to microscopic examination of bacteria.

+Oil

156. What type of microscope is used to distinguish cellular structures with nanometric size? ###

+Electronic

157. Immersion oil is used with objective lens of ### magnification.

+100\*

158. The cell wall of Gram-### bacteria contains 1-3 layers of peptidoglycan and lipopolysaccharides.

+Negative

159. The result of bacteria staining by Gram method depends on the type of ### ### presence.

+Cell wall

160. Gram-negative bacteria with partially absent of cell wall and unable to reproduce are called ###.

+protoplast\*

161. What is pure culture of bacteria:

А. A culture of microorganisms of the same species obtained from a single bacterial cell

+B. Set of individuals of the same species of microbes grown on nutrient medium

C. A species population isolated from different sources or from one object at different times

162. What is bacterial colony:

+А. A culture of microorganisms of the same species obtained from a single bacterial cell

B. Set of individuals of the same species of microbes grown on nutrient medium

C. A species population isolated from different sources or from one object at different times

163. What is strain:

А. A culture of microorganisms of the same species obtained from a single bacterial cell

B. Set of individuals of the same species of microbes grown on nutrient medium

+C. A species population isolated from different sources or from one object at different times

164. Choose optional component of bacterial cell structure:

A. Nucleoid

+B. Capsule

C. Cytoplasmic membrane

165. Choose characteristics of smear preparation:

A. Drying after fixation

B. Staining after drying

+C. Fixation after drying

D. Fixation after staining

E. All of the answers are wrong

166. Discoloration by ### is the stage of Gram staining that allows to differ bacteria in Gram-positive and Gram-negative.

+alcohol

167. Attaching of the smear to the glass, killing bacteria and making them more susceptible to a dye are purposes of:

+A. Fixation

B. Discoloration

C. Both are correct

167. Spherical bacteria arranged in chains are called ###.

+Streptococc\*

169. Spherical bacteria arranged grape-like clusters are called ###.

+Staphylococc\*

170. Choose spore-forming bacteria:

+A. Botulism causative agents

B. Typhoid bacillus

C. Escherichia coli

D. Vibrio cholerae

171. Choose non spore-forming bacteria:

+A. Borrelia burgdorferi

B. Clostridium perfringens

C. Bacillus anthracis

+D. Shigella dysenteriae

172. Gram-negative bacteria are stained in ### colour by Gram staining.

+red

173. Spherical bacteria arranged in packages are called ###.

+Sarcina

174. Name the bacteria existing in the form of elementary body and reticulate one that can reproduce within the host cell only. ###

+Chlamydia

175. Undulating membrane, cilia and pseudopodia are motility organelles of ###.

+Protozoa

176. Causative agent of ### has the highest speed.

+Cholera

177. The body of a fungus composed of interwoven threads (hyphae) is called ###.

+Mycelium

178. Higher fungi are those which have ### mycelium.

+Septate

179. Single-celled fungi which are usually round in shape are called ###.

+Yeast

180. Name Gram-positive soil bacteria growing in the form of thin filaments resembling the fungi mycelium, antibiotics producers.

+Actinomycet\*

181. ### differ from most of bacteria in cell wall absence.

+Mycoplasma

182. Name bacteria that are obligate intracellular parasites causing eyes and urogenital tract lesions in humans. ###

+Chlamydia

183. The mobility of the most of bacteria is due to ### presence.

+Flagell\*

184. The purposes of ### are the following: attaching of the smear to the glass, killing of bacteria and making them more susceptible to a dye.

+Fixation

185. The presence of a membrane bound nucleus is not typical for ###.

+Prokaryotes

186. Gram-negative bacteria do not have ### acids in the cell wall unlike Gram-positive bacteria.

+Teichoic

187. What is the most homogenious taxon of prokaryotes ? ###

+Species

188. Microorganisms can not differ within the species in :

+A. Gram-stain

B. Virulence

C. Antigenic structure

D. Biochemical properties

E. Bacteriophage sensetivity

189. The bundle of shrinking fibers extending along the microbial cells in the periplasmic space and performing locomotor functions is characteristic of ### bacteria.

+Spirochet\*

190. Amphitrichious bacteria are those with bipolar located ###.

+Flagella

191. Mycosis is infectious disease caused by pathogenic ###.

+Fung\*

192. Protein-like infectious particles without nucleic acids are called ###.

+Prions

193. The fungi sporulation is the way of ###.

+Reproduction

194. Choose features of opportunistic microorganisms (compared with the strictly pathogenic microorganisms):

+A. have low virulence to humans or show it only under certain conditions

B. cause dangerous infections

+C. don't have a strict organ tropism, that is they can cause infectious inflammation in any organs and tissues

+D. are able to penetrate the macroorganism almost all possible mechanisms and pathways

E. have a high variability in the environment

195. Essential component of bacterial cell consisting of colloid phase, DNA, RNA and ribosomes is called ###.

+Cytoplasm

196. Most of microorganisms form capsule, consisting of:

A. Lipid

B. Lipopolisaccharide

+C. Polysaccharides

D. Peptide

E. Histone proteins

197. What shapes of bacteria are able to sporulate? ###

+Rod\*

198. What property of microbial cells is due to high content of lipids, wax, phtionic acids and mycolic acids in the cell wall? ### ###

А. Resistance to antibiotics

B. Motility

C. Ability to endospore formation

D. Ability to form a pseudocyst

+E. Acid-fastness

199. High content of calcium salts, the presence of dipicolinic acid are features of bacterial ###:

А. Capsule

+B. Spore

C. Endoflagella

D. Flagella

200. Mycota is a scientific name of ###.

+Fung\*

201. Single-celled fungi round shaped are called ###.

A. Molds

+B. Yeasts

C. Both are correct

202. Choose characteristics of viruses:

A. Cellular structure

+B. DNA or RNA presence

C. DNA and RNA presence

+D. Intracellular parasitism

+E. Absence of protein synthesis system and accumulating energy system

203. Viruses differ from bacteria in:

A. Size

B. Way of reproduction

C. Respiration absence

+D. All of above are correct

204. Choose characteristics of virion:

+A. Nucleocapsid

B. Mitochondria

C. Intracellular inclusions

D. Nucleus

205. Virion is:

A. Active form of the virus

+B. Inactive form of the virus

C. Pure viruses culture

+D. Extracellular form

E. Accumulation of viruses

206. Choose characteristics of simple viruses:

+A. Genome

B. Nucleus

+C. Capsid shell

D. Matrix proteins

E. Mitochondria

207. Choose characteristics of complex viruses:

+A. DNA or RNA

B. Nucleoid

+C. Supercasid shell

D. Cell wall

208. Viral reproduction is based on:

A. Division

B. Conjugation

C. Mitosis

+D. Disjunction

D. Segmentation

209. Choose growth media for viruses:

A. Loewenstein-Jensen medium

+B. Developing chick enembryo

C. 199 medium

+D. Tissue culture cells

+E. Body of the sensitive laboratory animal

210. Choose the main pathogenicity factors of Gram-negative bacteria:

A. Spores

+B. Endotoxin

C. Cytoplasm

D. Inclusions

E. Flagella

211. Choose the main pathogenicity factors of Gram-positive bacteria:

A. Cell form

B. Spores

+C. Exotoxin

D. Endotoxin

E. Flagella

212. Choose microorganisms pathogenicity measure:

+A. Virulence

B. Specificity

C. Commensalism

D. Organitropic factor

E. Parasitism

213. Choose possible sources of infection:

A. Dirty dishes

B. Domestic usage

+C. Bacilli carrier

D. Milk

E. Toys

214. Choose the term that characterizes the pathogen circulation in the bloodstream:

A. Exogenous infection

B. Autoinfection

C. Reinfection

+D. Bacteremia

E. Sepsis

215. Choose the term characterized by pathogens circulation and reproduction in the bloodstream:

A. Exogenous infection

B. Autoinfection

C. Reinfection

D. Bacteremia

+E. Sepsis

216. Repeated symptoms of infectious disease caused by the same pathogen without repeated contamination is called:

A. Monoinfection

B. Secondary infection

C. Superinfection

+D. Relapse

E. Reinfection

B. Sources of hydrogen and oxygen

С. Sources of carbon and oxygen

В. Sources of carbon and nitrogen, amino acids, blood serum

217. Name the microbes which require the presence of oxygen in the environment ###.

+aerobe\*

218. Name the microbes that exist only in anoxic conditions ###.

+anaerobes

219. Choose impossible mechanism of nutrients transport into the cell:

A. Active transport

B. Simple diffusion

+C. Transduction

D. Facilitated diffusion

220. Choose process with bacteriophage participation:

A. Reparation

+B. Transduction

C. Transformation

D. Conjugation

221. Choose treatment that do not use for complete sterilization :

+A. Boiling

B. Treatment with dry heat

C. Treatment with steam under pressure

D. Irradiation by Gamma rays

222. Choose treatment that is used to sterilize disposable instruments in industry:

A. Steam under pressure

B. Fluid vapor

C. Dry heat

+D. Gamma radiation

223. Choose bacteria that are not sanitary significant microbes of water:

A. General coliform bacteria

B. Thermotolerant coliform bacteria

C. Coli-phages

+D. Hemolytic Streptococci

224. Choose antibiotics violating the synthesis of peptidoglycan:

+A. Ampicillin, oxacillin, penicillin

B. Tetracycline, oleandomycin, cephalosporins

C. Erythromycin, chloramphenicol, polymixin

225. Choose fluoroquinolones action mechanism:

A. Violation of protein synthesis on the ribosomes of bacterial cells

B. Violation of protein synthesis at the transcriptional level

+C. Violation of the structure and function of bacterial DNA

D. Violation of the permeability of bacterial cytoplasmic membrane

226. The first antibiotic – penicillin was discovered by:

A. Ehrlich

B. Paster

C. Ivanovsky

+D. Fleming

227. Choose components of prokaryotic cell:

A. Nucleus is morphologically distinct

B. Golgi Apparatus

C. Nuclear membrane

+D. Mesosome

E. Mitochondria

228. The morphological study of bacteria requires:

A. High-magnification electronic microscope

B. Unstained smears

+C. Immersion microscopy method

D. Low magnification microscope

229. Choose essential components of bacterial cell:

A. Flagella

+B. Nucleoid

C. Spore

+D. Cytoplasmic membrane

+E. Cytoplasm

230. Choose main forms of bacteria:

+A. Spirochetes

+B. Cocci

+C. Rods

D. Vibrio

E. Curved

231. Choose basis of cocci classification:

A. Size

B. Number and location of flagella

+C. Division in different planes

D. Differences in capsule formation

E. Gram staining.

232. Choose characteristics of Streptococci:

A. Sporulation

+B. Division in one plane

C. Presence of flagella

D. Grapes-like form

+E. Chain-like form

233. Choose characteristics of Bacilli:

A. Inclusion of volutine grains

+B. Cylindrical shape

C. Gram-negative stain

+D. Spores

+E. Gram-positive stain

234. Choose the stages of stained smear preparation:

A. Use of pre-heat killed bacteria

+B. Fixation by the flame

+C. Drying the smear in air

D. Drying the smear in the flame

E. Fixation by the drying in air

235. Choose characteristics of a typical bacteria cell:

A. Differentiated nucleus

+B. Diffuse-located nuclear substance

C. Cell wall absence

+D. Cytoplasm is surrounded by a multilayered shell

E. Presence of spare nutrients in the cytoplasm

236. Choose inclusions of microbial cell:

A. Vacuoles

+B. Lipid drops

+C. Volutin granules

D. Ribosomes

+E. Glycogen and starch granules

237. Choose characteristics of cytoplasmic membrane:

A. Participates in protein synthesis

B. Shape bacteria

+C. Osmotic barrier of the cell

+D. Regulates cell metabolism

E. Protects bacteria from negative external influence

238. Acid-fast bacteria are due to:

A. Cytoplasmic membrane

B. Capsules

+C. Lipid and wax content

D. Carbohydrates

E. Сhitin-like substances

239. Choose stain method that is used to detect acid-fast bacteria:

A. Gram stain

B. Romanowsky-Giemsa stain

+C. Ziehl-Neelsen stain

D. Loeffler stain

E. Neisser stain

240. Choose bacilli spore significance:

A. Reproduction

B. Accumulation of reserve nutrients

+C. Conservation of the species in adverse conditions

D. Protective response when injected into the host

E. Sign of cell degeneration

241. Choose sporulation conditions:

+A. Unfavorable external environment

B. Getting into the human or animal body

C. Getting into the soil

+D. Prolonged cultivation on nutrient media without reseeding

+E. Drying

242. Choose bacteria that are able to sporulate:

A. Cocci

B. Rickettsia

+C. Bacillus

D. Viruses

+E. Clostridium

243. Choose diseases that are caused by spore-forming causative agents:

A. Diphtheria

B. Typhoid

+C. Tetanus

+D. Anthrax

+E. Botulism

244. Choose diseases that are caused by non spore-forming causative agents:

A. Tetanus

+B. Typhoid

+C. Tuberculosis

+D. Diphtheria

E. Botulism

245. Growth and binary fission absence, one type of nucleic acid, absolute intracellular parasitism are characteristics of ###

+Virus\*

246. 42 nm size is characteristic of viral hepatitis ### germ.

+B

247. What is not included into simple virus envelope? ###

+Supercapsid

248. Formation of Filatov-Koplik spots inside the mouth is characteristic of ### (name of disease).

+Measles

249. The structure of a complex virion includes all, except:

A. DNA or RNA

+B. Capsule

C. Capsid consisting of capsomeres

D. Outer shell (supercapsid)

250. Type of symmetry of virion’s capsid where capsomeres follow the curves of nucleic acid is called ###.

+Spiral

251. Type of symmetry of virion’s capsid where capsomeres surround nucleic acid in polyhedral shape is called ###.

+Cubic

252. Positive RNA strand (RNA +) of viruses surves as:

+A. mRNA (transmits information to the ribosomes)

B. Antigen

C. Antibody

253. Reverse transcriptase, DNA-polymerase and RNA-asa are enzymes of ###.

+Retrovirus\*

254. Установите последовательность The consequence of a virus reproduction stages are :

1) adsorption; 2) transcription, translation of mRNAs and replication of viral genomes; 3) release of viral particles from the cells; 4) virion assembly; 5) penetration of the virus into the cell; 6) deproteinization of virions

+1, 5, 6, 2, 4, 3

255. Membranes fusion is the way of penetration of the ### virus into host cells.

+complex

266. Name the cell's protein that is formed due to interaction of the cell with an interferonogen (virus, etc.) and can protect cells from further viral infection. ###

+Interferon

267. Interferon protects cells from virus infection by:

A. Neutralization of the virus

+B. Indirectly interrupting information from the virus genome to the ribosomes

C. Activate antibodies neutralizing action

268. Choose method that do not use for laboratory diagnosis of viral infections:

A. Microscopical (detection of elementary bodies, intracellular inclusions, RIF)

B. Virological method (selection, cultivation of viruses in chicken embryo, in cell culture, in laboratory animals)

+C. Allergological method

D. Serological method

E. Detection of viral antigens using highly sensitive reactions (ELISA, RIA, IHT,CIE, PR)

F. Nucleic acid probes, PCR

269. Установите последовательность: The sequence of the stages of interaction of phages with bacterial cell: 1) adsorption 2) replication of nucleic acid 3) injection of nucleic acid 4)release of matured particles 5) assembly of new particles 6)synthesis of capsid proteins

+1, 3, 2, 6, 5, 4

270. ### penetrate into bacterial cell by injecting the nucleic acid through the appendage channel.

+Bacteriophage\*

271. The type of interaction between bacteriophage and bacterial cell resulting in bacteriophage DNA embedding in the bacterial genome is ### type of infection.

+Lisogenic

272. A productive type of infection resulting in the formation of phage progeny and lysis of the bacteria is characteristic of ### bacteriophage.

+Virulent

273. Integrative type of infection with the formation of a prophage is characteristic of ### bacteriophage.

+Moderate

274. Choose impossible way of bacteriophages practical application:

A. Phagotyping of bacteria

B. Indication of bacteria in the environment

+C. Creation of artificial active immunity

D. Application for therapy and prevention of infectious diseases

275. Choose disease that is not treated with bacteriophage medication:

+A. Influenza

B. Dysentery

C. Salmonellosis

D. Purulent infection

276. The test used to establish the source of infection with the assistance of typical bacteriophages is called ###.

+Phagotyping

277. Diploid number of chromosomes, nuclear membrane, mitochondria, Golgi apparatus, histone proteins are characteristics of ### microorganisms.

+Eukaryot\*

278. Bacteriostatic antimicrobial drugs:

+A. Inhibit bacterial growth

B. Kill bacteria

C. Inhibit bacterial growth and kill them

279. Bactericidal antimicrobial drugs:

+A. Kill bacteria

B. Inhibit bacterial growth

C. Inhibit bacterial growth and kill them

280. Changing or elimination of normal microbiota, interfering with its function as a beneficial colonizer:

A. Toxic side effect of antibiotic on host

+B. Biologic side effect of antibiotic on host

C. Allergic reaction as side effect of antibiotic on host

281. All of following are side effects of antibiotic on bacteria, except:

+A. Allergic reaction

B. Resistance to antibiotics

C. Formation of atypical forms of bacteria

282. The most widely used method of determination of the bacteria susceptibility to the antibiotics which is semi-quantitative test used to classify the test bacteria as resistant or susceptible

A. Dilution test

B. E-test

+C. Disc diffusion test

283. What does mean an appearance of inhibition zone around antibiotic disc?

+A. Antibiotic suppressed growth of bacterial culture

B. Bacteria suppressed action of the antibiotic

284. According to disc diffusion test, absence of inhibition zone around antibiotic disc means that bacteria is:

+A. Resistant to the antibiotic

B. Susceptible to the antibiotic

285. All of following are methods of detection of the bacteria susceptibility to the antibiotics, except:

A. Dilution test

B. Disc diffusion test

+C. Settle plate method

D. E-test

286. Principle of ##### of antimicrobial drug: antimicrobial drug must harm the microbes without causing signiﬁcant damage to the host:

A. Immunogenicity

B. Reversibility

C. Antigenicity

+D. Selective toxicity

287. The relationship between an agent’s toxicity to the body and its toxicity to an infectious agent:

+A. Chemotherapeutic index

B. Chemotherapeutic titer

C. Antibiotic titer

D. Index of toxigenicity

288. The range of different microbes against which an antimicrobial agent acts is called its:

A. Antibiotic spectrum

B. Spectrum of toxigenicity

+C. Spectrum of activity

D. Spectrum of toxicity

289. Under the influence of ######, bacteria do not synthesize sufficient amounts of tetrahydrofolic acid:

A. Aminoglycosides, tetracyclines, and macrolides

B. 4-quinolones

C. Rifamycin

D. Beta-lactam antibiotics

+E. Sulfonamides and trimethoprim

290. All ##### irreversibly block the biosynthesis of murein:

+A. Sulfonamides and trimethoprim

B. Beta-lactam antibiotics

C. Rifamycin

D. 4-quinolones

E. Aminoglycosides, tetracyclines, and macrolides

291. ### inhibits the DNA-dependent RNA-polymerase (transcription):

A. 4-quinolones

B. Sulfonamides and trimethoprim

C. Beta-lactam antibiotics

+D. Rifamycin

E. Aminoglycosides, tetracyclines, and macrolides

292. ###### block translation:

+A. Aminoglycosides, tetracyclines, and macrolides

B. sulfonamides and trimethoprim

C. beta-lactam antibiotics

D. Rifamycin

E. 4-quinolones

293. All ### damage cellular DNA topology by inhibiting bacterial topoisomerases:

A. 4-quinolones

B. sulfonamides and trimethoprim

C. beta-lactam antibiotics

D. Rifamycin

E. Aminoglycosides, tetracyclines, and macrolides

294. Host-coded proteins, or glycoproteins, produced in and secreted from virus-infected cells in response to virus infection, synthetic nucleotides, and foreign cells:

A. Enzymes

B. Exotoxins

C. Endotoxins

+D. Interferons

295. Those antimicrobial agents that are effective against a great number of microorganisms from a wide range of taxonomic groups, including both Gram-positive and Gram-negative bacteria, are said to have a:

+A. Broad spectrum of activity

B. Narrow spectrum of activity

C. Middle spectrum of activity

296. Those antimicrobial agents that are effective against only a small number of microorganisms or a single taxonomic group have a:

A. Middle spectrum of activity

B. Broad spectrum of activity

+C. Narrow spectrum of activity

297. These are three groups of interferons, except:

+A. IFN-w

B. IFN-α

C. IFN-β

D. IFN-γ

298. ### is produced in the leukocytes infected with virus:

A. IFN-γ

B. IFN-w

C. IFN-β

+D. IFN-α

299. ### is produced by fibroblasts infected with virus:

A. IFN-α

+B. IFN-β

C. IFN-w

D. IFN-γ

300. ### is induced by the stimulation of sensitized lymphocytes with antigen or non-sensitized lymphocytes with mitogens:

+A. IFN-γ

B. IFN-α

C. IFN-β

D. IFN-w

301. ### bind to cell-surface receptors and induce antiviral proteins, leading to the destruction of viral mRNA:

A. Exotoxins

+B. Interferons

C. Endotoxins

D. Bacteria

302. Dilutions series tests are quantitative resistance tests used to determine:

+A. The minimum inhibitory concentration

B. Antibody titer

C. Bacterial toxigenicity

303. The term chemotherapy was coined by the:

A. Robert Koch

B. Alexander Fleming

+C. Paul Ehrlich

D. Louis Pasteur

304. Using of chemical substances to kill pathogenic organisms without injuring the host:

A. Attenuation

+B. Chemotherapy

C. Vaccination

305. ### discovered the antibacterial properties of Penicillium notatum in 1928, identified the inhibitory agent and named it penicillin:

+A. Alexander Fleming

B. Paul Ehrlich

C. Ernst Chain

D. Howard Florey

306. ###### had got purified theraputical drug “penicillinum”:

A. Robert Koch

B. Paul Ehrlich

C. Alexander Fleming and Howard Florey

+D. Howard Florey and Ernst Chain

307. The population of microorganisms of single species

+A. Pure culture

B. Serovar

C. Strain

D. Biovar

308. A bacterial population consisting of the cells of the single species isolated in space or/and in time from the similar population of the same species

A. Mixed culture

B. Serovar

C. Pure culture

+D. Strain

E. Colony

309. A bacterial populations proliferated on any artificial medium

A. Mixed culture

B. Pure culture

+C. Culture

D. Colony

E. Strain

310. A bacterial population on a solid medium descended from the same progenitor cell

A. Strain

B. Mixed culture

+C. Colony

D. Biovar

311. Growth of several species of bacteria on the same medium

+A. Mixed culture

B. Serovar

C. Biovar

D. Pure culture

E. Strain

312. Pure culture is a population of bacteria of one

A. Hemovar

B. Morphovar

C. Biovar

D. Serovar

+E. Species

313. A pure culture of microorganisms is

+A. A culture isolated from single species and grown on a solid nutritious medium

B. A culture of single species, isolated from a definite source in definite period of time

C. A culture obtained from single microbial cell

D. A set of individuals with relatively similar living conditions

314. Cultural properties of bacteria are characterized by

A. The intensity of metabolism

+B. Morphology of colony

C. Bacteria morphology

D. The ability to perceive dye

E. Type of metabolism

315. The method of reproduction of bacteria

A. Mitosis

B. Spore formation

+C. Binary fission

D. L-transformation

E. Replication

316. Facultative anaerobes are characterized by ### in liquid medium

+A. Diffuse turbidity

B. Bottom growth

C. Superficial growth

D. Formation of colony

317. Death rate exceeds the rate of reproduction in

A. Lag phase

+B. Death phase

C. Stationary phase

D. Log phase

318. Phase of introducing of bacteria into new medium and their adaptation to new environmental conditions

A. Spore formation phase

B. Logarithmic phase

C. Stationary phase

D. Death phase

+E. Lag phase

319. Bacterial population doubles every generation in

A. Death phase

B. Stationary phase

+C. Logarithmic phase

D. Spore formation phase

E. Lag phase

320. Obligate anaerobes are characterized by ### in liquid medium

A. Diffuse turbidity

+B. Bottom growth

C. Superficial growth

D. Formation of colony

321. Bacteria are most sensitive to antibiotics in

A. Spore formation phase

B. Stationary phase

C. Death phase

+D. Logarithmic phase

E. Lag phase

322. Bacteria are most sensitive to anti-microbial agents in

+A. Logarithmic phase

B. Stationary phase

C. Death phase

D. Spore formation phase

E. Lag phase

323. Bacteria are most sensitive to adverse conditions in

+A. Logarithmic phase

B. Stationary phase

C. Death phase

D. Spore formation phase

E. Lag phase

324. Stage characterized by maximum speed of growth

A. Stationary phase

+B. Log phase

C. Death phase

D. Lag phase

325. Obligate aerobes are characterized by ### in liquid medium

A. Formation of colony

B. Diffuse turbidity

C. Bottom growth

+D. Superficial growth

326. Stage characterized by the balance between the death rate and rate of reproduction

A. Death phase

+B. Stationary phase

C. Lag phase

D. Log phase

327. Stage characterized by appearance of limiting factors

+A. Stationary phase

B. Death phase

C. Lag phase

D. Log phase

328. Spore-forming bacteria can form endospores in

A. Lag phase

B. Death phase

+C. Stationary phase

D. Log phase

329. Bacteria form ### during of growth on a solid medium

+A. Colonies

B. Sediment

C. Film

D. Turbidity

330. Diffuse turbidity in liquid medium is typical for

A. Obligate aerobes

B. Obligate anaerobes

C. Microaerophilic bacteria

+D. Facultative anaerobes

331. Bottom growth on liquid medium is typical for

A. Facultative anaerobes

+B. Obligate anaerobes

C. Microaerophilic bacteria

D. Obligate aerobes

332. Superficial growth on liquid medium is typical for

+A. Obligate aerobes

B. Facultative anaerobes

C. Microaerophilic bacteria

D. Obligate anaerobes

333. Choose characteristics of R-colonies of bacteria

+A. Rugged edge

B. Viscous

C. Convex

D. With a shiny surface

334. Choose characteristics of R-colonies of bacteria

A. Viscous

B. Convex

C. With a shiny surface

+D. Rough surface

335. Choose characteristics of S-colonies of bacteria

A. Uneven edge

B. Rugged surface

+C. Convex, shiny

D. Turbidity

336. Choose characteristics of S-colonies of bacteria

+A. Smooth surface

B. Uneven edge

C. Rugged surface

D. Turbidity

337. Most pathogenic bacteria belong to ### according to optimal growth temperature

A. Thermophiles

+B. Mesophiles

C. Psychrophiles

338. ### are used in the production of probiotics

A. Rickettsia

B. Shigella

C. Chlamydia

+D. Lactobacilli

339. The most common reason of the dysbacteriosis

A. Eating disorders

B. Long-lasting infection

+C. Antibiotics

D. High blood pressure

340. Probiotics contain

+A. Live strains of representatives of normal microbiota

B. Bacterial metabolic products

C. Substances that stimulate the development of normal microbiota

D. Live strains of bacteria

341. Probiotics are

+A. Representatives of normal microbiota

B. Bacteriophages

C. Vaccines

D. Allergens

E. Vitamins

342. All of following are the reasons for the development of intestinal dysbiosis, except for

A. Hormone therapy

B. Antibiotic therapy

C. Gastrointestinal diseases

D. Endocrine disorders

+E. Taking probiotics

343. Dysbiosis is

A. Inherited

B. Infectious disease

+C. Disorder of the quantitative and qualitative composition of microbiota

D. Transmitted by contact way

344. All of following are the positive functions of normal human microbiota, except for

A. Secretory

B. Vitamin-forming

+C. Toxigenic

D. Antagonistic

345. The optimal temperature for the cultivation of psychrophilic bacteria

+A. 6–30°C

B. 30–40°C

C. 40–50°C

346. The optimal temperature for the cultivation of mesophilic bacteria

A. 6–30°C

+B. 30–40°C

C. 40–50°C

347. The optimal temperature for the cultivation of thermophilic bacteria

A. 6–30°C

B. 30–40°C

+C. 40–50°C

348. Resident microbiota doesn’t include

+A. Transient microbiota

B. Obligatory microbiota

C. Facultative microbiota

349. ### studies the microbiota of human organism

A. Immunology

B. Exomicroecology

+C. Endomicroecology

D. Sanitary microbiology

350. All of following preparations are probiotics, except for

+A. Nystatinum

B. Bifidobacterinum

C. Coli bacterinum

D. Lactobacterinum

351. All of following preparations are probiotics, except for

A. Coli bacterinum

B. Bifidobacterinum

+C. Nystatinum

D. Bificolum

352. All of following preparations are probiotics, except for

A. Bificolum

+B. Levorinum

C. Coli bacterinum

D. Lactobacterinum

353. All of following preparations are probiotics, except for

A. Lactobacterinum

B. Bificolum

C. Bifidobacterinum

+D. Mycoheptinum

354. Obligate colon microbiota of human includes all of following microbes, except for

A. Bifidobacterium

B. E. coli

+C. Klebsiella

D. Lactobacilli

355. Eubiosis is

+A. Dynamic equilibrium between representatives of normal microbiota with each other and with the human body

B. A set of protective factors of the organism and the properties of the normal intestinal microbiota, which prevent the colonization of mucous membranes by pathogenic microorganisms

C. Selective elimination of anaerobic bacteria and fungi from the digestive tract to increase the body's resistance

356. The process of destroying infectious agents directed on the pathogenic microbes

A. Sterilization

B. Disinfectant

C. Antisepsis

+D. Disinfection

357. The agent, which is usually a chemical that kills the growing organism on an environmental object

A. Antiseptic

+B. Disinfectant

C. Sterilization

D. Disinfection

358. A process of destruction or complete removal of all kinds of microorganisms including spores

A. Disinfectant

B. Disinfection

+C. Sterilization

D. Antisepsis

359. The method known as cold sterilization used gamma rays & x-rays

+A. Ionizing radiation

B. Filtration

C. Pasteurization

D. Non-ionizing radiation

360. The method known as cold sterilization used ultraviolet light

A. Filtration

B. Ionizing radiation

+C. Non-ionizing radiation

D. Pasteurization

361. Radiation method used on substances that could be damaged by heat (f.ex. plastic Petri dishes):

A. Pasteurization

+B. Ionizing radiation

C. Non-ionizing radiation

D. Filtration

362. Radiation method used to reduce microbial populations in the air of hospital rooms, nurseries, operating rooms

+A. Non-ionizing radiation

B. Pasteurization

C. Filtration

D. Ionizing radiation

363. Choose correct variant

+A. The high temperature is used as the bactericidal factor in sterilization to kill bacteria

B. The lower temperature is used as the bactericidal factor in sterilization to kill bacteria

C. The high temperature is used as the bactericidal factor in sterilization to inhibit growth of bacteria

D. The high temperature is used as the bacteriostatic factor in sterilization to kill bacteria

364. Choose correct variant

A. The lower temperature is used as the bactericidal factor in sterilization to kill bacteria

B. The lower temperature is used as the bacteriostatic factor in sterilization to kill bacteria

C. The high temperature is used as the bactericidal factor in sterilization to inhibit growth of bacteria

+D. The high temperature is used as the bactericidal factor in sterilization to kill bacteria

365. Choose correct variant

A. The high temperature is used as the bacteriostatic factor in conservation to inhibit growth of bacteria

+B. The lower temperature is used as the bacteriostatic factor in conservation to inhibit growth of bacteria

C. The lower temperature is used as the bacteriostatic factor in conservation to kill bacteria

D. The high temperature is used as the bactericidal factor in conservation to inhibit growth of bacteria

366. Choose correct variant

A. The lower temperature is used as the bacteriostatic factor in conservation to kill bacteria

B. The lower temperature is used as the bacteriostatic factor in conservation to inhibit growth of bacteria and kill them

C. The lower temperature is used as the bactericidal factor in conservation to inhibit growth of bacteria

+D. The lower temperature is used as the bacteriostatic factor in conservation to inhibit growth of bacteria

367. Sanitary indicator microorganisms for the air are

+A. Staphylococcus aureus

B. E. coli

C. Lactobacilli

D. Bacilli

368. The indicator of recent fecal pollution of soil is

+A. E. coli

B. Vibrio cholerae

C. Streptococcus pyogenes

D. Staphylococcus aureus

369. Criteria defined in the air

A. Coli-titer

B. Coli index

+C. Total microbial number

370. The composition of the microbiota of the soil does not depend on the

A. pH

B. Type of soil

+C. Smell of the soil

D. Ambient temperature

371. Sanitary indicator microorganisms should have the following properties, except

+A. Should actively multiply in the environment

B. Should be more resistant than pathogens to the stresses of the environment

C. A sufficient number

D. Must not multiply in the environment

372. ### studies the microbiota into environment and its influence the human health

A. Exomicroecology

B. Endomicroecology

+C. Sanitary microbiology

D. Immunology

373. ### studies the microbiota into environment and its influence the human health

A. Endomicroecology

B. Immunology

C. Exomicroecology

+D. Public health microbiology

374. Choose standard coli index of potable water

+A. Not more than 3 coli-bacterium

B. Not more than 10 coli-bacterium

C. Not more than 100 coli-bacterium

375. Choose standard total microbial number of potable water

A. Less than 100 microbial cells per ml

+B. Less than 50 microbial cells per ml

C. More than 50 microbial cells per ml

D. Less than 10 microbial cells per ml

376. Choose standard coli-titer of potable water

A. Not less than 250ml containing 1 coli-bacterium

B. Not less than 30ml containing 1 coli-bacterium

C. Not less than 100ml containing 1 coli-bacterium

+D. Not less than 300ml containing 1 coli-bacterium

377. All of following microbes are sanitary indicator microorganisms of fecal pollution, except for

+A. Staphylococcus aureus

B. E.coli

C. Streptococcus faecalis

378. Bacteria – indicators of respiratory pollution

A. Lactobacilli

+B. Staphylococci

C. E. coli

D. Bifidobacterium

379. Bacteria – indicators of respiratory pollution

A. Bifidobacterium

B. Lactobacilli

C. E. coli

+D. Streptococci

380. The total number of all species permanently living into the same biotope is called

A. Biofilm

+B. Microbiota

C. Coli-titer

D. Coli index

381. Sanitary indicator microorganisms for the air are

+A. Hemolytic streptococci

B. Clostridia

C. Thermophilic bacteria

D. Coliforms

382. Sanitary indicator microorganisms for the air

A. Clostridia

+B. Staphylococcus aureus

C. Thermophilic bacteria

D. Coliforms

383. Bacteria – indicators of fecal pollution

+A. Streptococcus faecalis

B. Thermophilic bacteria

C. Staphylococcus aureus

384. Sanitary-bacteriological testing of water does not include

A. Indication of bacteriophage

B. Determining of total microbial number

+C. Aspiration method

385. Coli-titer of water is

+A. The minimal volume of water in which present 1 coli-bacterium

B. The minimal volume of water in which present Staphylococcus aureus

C. The minimal volume of water in which present Enterococcus faecalis

386. The main properties that sanitary indicator microorganisms should have is/are

A. The ability to grow at 20°C

+B. Sufficient numbers

C. The ability to grow on complex nutrient media

387. Choose characteristics of the total microbial number

+A. The total number of microbes contained in a unit of volume or mass of the testing sample

B. Characterizes the presence of sanitary indicator microorganisms

C. The number of sanitary indicator microorganisms contained in a unit of volume or mass of the testing sample

388. Choose characteristics of the total microbial number

A. The number of sanitary indicator microorganisms contained in a unit of volume or mass of the testing sample

B. Characterizes the presence of sanitary indicator microorganisms

+C. Characterizes the general microbial contamination of the object

389. Sanitary indicator microorganisms for soil are all of following microbes, except

+A. Hemolytic streptococci

B. C. perfringens

C. Coliforms

390. Sanitary indicator microorganisms for soil are all of following microbes, except

A. Coliforms

B. C. perfringens

+C. Staphylococci

391. Presence of ##### is forbidden in the air of operating rooms

+A. Staphylococcus aureus and any fungi

B. Lactobacilli

C. Only fungi

D. Only Staphylococcus aureus

392. Standards of total microbial number of indoor air of operating rooms

A. 100 m.c./cubic meter – before beginning of the work; 150 m.c./cubic meter – during working

B. 500 m.c./cubic meter – before beginning of the work; 200 m.c./cubic meter – during working

C. 50 m.c./cubic meter – before beginning of the work; 20 m.c./cubic meter – during working

+D. 200 m.c./cubic meter – before beginning of the work; 500 m.c./cubic meter – during working

393. Name the method using opened Petri plates placed on the table for determining the microbial content of the air

A. Filtration method

+B. Sedimentation method by Koch

C. Separation method

D. Aspiration method

394. Name the method using air-sampling device for determining the microbial content of the air

A. Filtration method

B. Sedimentation method by Koch

+C. Aspiration method

D. Separation method

395. Name cultural medium used for Staphylococcus aureus determining in the air

+A. Yolk-salt agar

B. Endo agar

C. Kitt-Tarocci medium

D. Simple nutritious agar

396. Persistence of viral genome embedded into host chromosome as a provirus, and the survival of infected cell

A. Productive infection

+B. Integrative infection

C. Abortive infection

397. All of following are stages of bacteriophage reproduction, except

A. Biosynthesis of viral components

B. Adhesion

C. Penetration

+D. Deproteinization

E. Release

F. Assembly of virions

398. Choose selective culture medium

+A. Yolk salt agar

B. Endo agar

C. Meat peptone agar (MPA)

D. Meat-peptone broth (BCH)

399. The density of the medium is due to the presence in the medium

A. Casein

B. Glucose

+C. Agar-agar

D. Saline sodium chloride

400. Choose simple nutrient medium

+A. Meat peptone agar (MPA)

B. Yolk salt agar

C. Endo agar

D. Serum broth

401. Choose the nutrient media that are used to determine the biochemical properties of bacteria

A. Blood agar

B. Thioglycolic medium

C. Peptone water

D. Serum agar

+E. Hiss (Giss) media

402. What are endoenzymes?

+A. Enzymes localized and functioning inside a bacterial cell

B. Enzymes belonging to the classes of hydrolases and oxidoreductases

C. Enzymes secreted by microbes into the environment

403. Choose the nutrient media that are used to selectively isolate a pure bacterial culture of a particular species

A. Differential

B. Universal

C. Enrichment

+D. Selective

404. Choose a nutrient medium that is used for the cultivation of anaerobes:

+A. Kitt-Tarocci medium

B. Peptone water

C. Serum agar

D. Blood agar

E. Hiss (Giss) media

405. What are exoenzymes?

+A. Enzymes secreted by microbes into the environment

B. Enzymes belonging to the classes of hydrolases and oxidoreductases

C. Enzymes localized and functioning inside a bacterial cell

406. How many ATP molecules are synthesized during aerobic cellular respiration?

A. 2

B. 12

C. 24

+D. 38

407. Anabolism is

+A. Synthesis of high molecular weight compounds that are used to form cell structures

B. The breakdown of various substances to produce energy that is stored in the cell in the form of ATP

C. The totality of all chemical transformations occurring in the cell

408. Catabolism is

A. Synthesis of high molecular weight compounds that are used to form cell structures

+B. The breakdown of various substances to produce energy that is stored in the cell in the form of ATP

C. The totality of all chemical transformations occurring in the cell

409. Choose microorganisms that don’t use oxygen to break down complex organic substances into simple ones

A. Microaerophiles

B. Strict aerobes

+C. Strict anaerobes

D. Aerotolerant

410. Differentiation of the properties of bacteria on the Endo medium is based on

A. Indole formation

B. Breakdown of peptone

C. Fermentation of sucrose

D. Fermentation of glucose

+E. Fermentation of lactose

411.Depending on carbon source prokaryotes are subdivided into two groups. Choose these groups

A. Prototrophs and auxotrophs

B. Aminoautotrophs and amino heterotrophs

C. Organotrophs and lithotrophs

+D. Autotrophs and heterotrophs

E. Phototrophs and chemotrophs

412. Choose an enzyme that takes part in biological oxidation

+A. Cytochrome oxidase

B. Hyaluronidase

C. Urease

D. Plasmocoagulase

E. Lactase

413. Choose microorganisms that require small concentrations of oxygen for growth.

A. Strict aerobes

+B. Microaerophiles

C. Strict anaerobes

D. Aerotolerant

414. Choose bacteria that can grow in the presence and absence of oxygen

+A. Facultative anaerobes

B. Microaerophiles

C. Obligate anaerobes

D. Obligate aerobes

E. Capnophiles

415. The requirements for nutrient media are all of the following, except

A. Isotonicity

+B. Optimal color and smell

C. An optimal pH and redox potential

D. An optimal viscosity, texture, humidity

E. The presence of nutrient substances, including growth factors, necessary for the development of microorganisms

F. Sterility

416. Choose enzymes, the production of which depends on the presence of substrate in the medium

A. Proteolytic

B. Saccharolytic

C. Constitutive

D. Lipolytic

+E. Inducible

417. Choose enzymes produced by the cell constantly

A. Repressive

B. Adaptive

+C. Constitutive

D. Inducible

E. Proteolytic

418. Choose culture media that are used to isolate a certain kind (group) of microorganisms from material containing concomitant microflora

A. Enrichment

B. Differential diagnostic

C. Universal (basic)

+D. Selective

419. Choose cultural medium for anaerobes

+A. Kitt-Tarocci medium

B. Peptone water

C. Endo agar

D. Yolk salt agar

420. Choose cultural medium for anaerobes

A. Endo agar

+B. Glucose agar in high column

C. Yolk salt agar

D. Hiss (Giss) media

421. Choose cultural medium for anaerobes

A. Meat-peptone agar

B. Yolk salt agar

C. Hiss (Giss) media

+D. Wilson-Blair agar

422. Heterotrophic microorganisms using dead organic substances, and are independent from another organism

A. Parasites

+B. Saprophytes

C. Autotrophs

423. Heterotrophic microorganisms using organic material from an alive organism

+A. Parasites

B. Saprophytes

C. Autotrophs

424. Choose selective medium for Salmonella

+A. Bismuth-sulfite agar

B. Endo agar

C. Yolk salt agar

D. Hiss (Giss) media

425. Joint cultivation of aerobes and anaerobes into hermetic closed space (eg. Fortner plates) is used in

A. Physical method

B. Chemical method

+C. Biological method

426. A number of cultural media for studying of bacteria biochemical activity with further identification

A. “biochemical row”

B. “differential row”

+C. “color row”

D. “color medium”

427. Choose nutrient media that are used for differentiation of microorganism species by their enzymatic activity

A. Enrichment

B. Universal

+C. Differential

D. Selective