

15. Which of the following statements about the Turbidimetry is NOT true
- a. Optical abundance is directly proportional to concentration of bacteria in suspension
 - b. It is a direct way of estimating bacteria numbers
 - c. It is based on the diffraction or scattering of light by bacteria in a broth culture
 - d. Measuring turbidity is a practical way of monitoring bacteria growth
 - e. As bacteria numbers increase the less light reaches the photovoltaic cells

16. Which of the following is/are true of Agar?
- i. Obtained from red agar
 - ii. Obtained from seaweed
 - iii. It has no nutritive value
 - iv. It is not affected by the growth of bacteria
 - v. It melts at 98°C and sets at 42°C

- a. Only i
- b. Only ii
- c. All except i
- d. iii, iv and v
- e. none of the above

17. Which of the following is not one of the steps for validating Koch's Postulates?
- a. Inoculate a test animal to observe the disease
 - b. Isolate the causative agent of the disease
 - c. Produce a vaccine
 - d. Cultivate the microbe in the laboratory
 - e. Grow the organism in pure culture

18. In Microbiology, biochemical tests are conducted to determine _____ and _____ characteristics of bacteria.

- a. Metabolic and morphological
- b. Metabolic and nutritional
- c. Morphological and behavioral
- d. Structure and nutritional
- e. None of the above

19. Bacteriological media, that is composed of ingredients whose exact chemical composition are known are called _____ media.

- a. selective
- b. exact
- c. designated
- d. defined
- e. aesthetic

20. Which phase of bacteria growth curve is employed for industrial purposes?
- Lag phase
 - Exponential phase
 - Stationary phase
 - Death phase
 - Survival phase
21. Which of the following methods allows determination of the specific number of viable cells in a specimen?
- Turbidity measurement
 - Petroff-Hausser bacterial counter
 - Dry weight measurement
 - Total plate count
 - Total nitrogen measurement
22. Which of the following statement about the most probable number is NOT TRUE?
- It is a statistical assay of cell numbers based on the theory of probability
 - The goal is to successively dilute a sample and determine the point at which subsequent dilution receive the most number of cells
 - To determine the MPN 3 sets of 3 or 5 tubes containing the same media are used
 - The 2nd set of tubes receive 10 fold less of the 1st set
 - The 3rd set receives 100 fold less of the 1st set
23. Which of the following can give you ambiguous results for the gram stain?
- Too much decolorizing
 - Improper heat fixing
 - Cell density of the smear
 - b and c
 - all of the above
24. If a bacterial cell that has a generation time of 20 minutes is placed in a suitable sterile nutrient broth at time 0; which of the following cell numbers would you expect in the broth after 3 hours of incubation?
- 512
 - 256
 - 128
 - 96
 - 64
25. The order of reagents used in acid fast staining are _____.
- Iodine, Carbofuchsin, HCl + Alcohol, Loeffler's methylene blue
 - Carbofuchsin, HCl + Alcohol, Loeffler's methylene blue
 - Carbofuchsin, Iodine, HCl + Alcohol, Loeffler's methylene blue
 - Loeffler's methylene blue, Carbofuchsin, HCl + Alcohol
 - Carbofuchsin, Loeffler's methylene blue, HC + Alcohol

26. Following a Gram stain you observe clear, glassy areas inside the bacterial cells. What would you do next?

- a. An endospore stain
- b. An acid-fast stain
- c. A simple stain
- d. Another Gram stain
- e. A flagellar stain

27. Which of the following groups of organisms can the Gram stain not distinguish?

- a. Gram nonreactive organisms which do not stain
- b. Gram variable organisms, which stain unevenly
- c. Gram negative organisms, whose cell walls retain the mordant iodine
- d. Gram positive organisms, whose cell walls retain the primary crystal violet stain
- e. Gram negative organisms, whose cells do not retain the primary crystal violet stain

28. The purpose of serial dilution is to reduce bacteria numbers to a particular range that can give accurate estimate when cultured on an agar plate. What is the recommended range of bacteria numbers on an agar plate that gives accurate estimate?

- a. 10 - 25
- b. 20 - 50
- c. 25 - 200
- d. 30 - 300
- e. 100 - 600

29. Which of the following structures is/are not essential for survival of most bacteria.

- a. Cell wall
- b. Plasma membrane
- c. Capsule
- d. Flagella
- e. c and d

30. It is difficult to perform Gram stain on *Mycobacterium*. However, another staining type known as "acid fast" can be performed due to their _____.

- a. Lack of peptidoglycan layer
- b. Ability to survive in acid conditions
- c. Thick, waxy cell walls
- d. Resistance to drying
- e. Resistance to sunlight

31. A non-dividing bacterial cell has _____ chromosomes.

- a. Several
- b. Four
- c. Three
- d. Two
- e. One

38. Taxonomy is the science of classification of living things and provides _____
- a. A way of identifying organisms
 - b. Arrangement of related organisms
 - c. Information on how organisms have evolved
 - d. a, b, c are correct
 - e. Only a and b
39. Heat fixation of a bacterial smear during staining will _____
- a. Cause the bacteria to shrink and adhere to the slide
 - b. Dry organisms, kill them and cause them to adhere to the slide
 - c. More quickly dry the specimen
 - d. Cause the bacteria to adhere to the slide
 - e. Cause the organisms to adhere to the slide, kill microbes and make them stain more readily
40. What type of bacteria are also called Cyanobacteria?
- a. blue-green algae
 - b. Eubacteria
 - c. Green-green algae
 - d. Archaeobacteria
 - e. Protists
41. The enzyme catalase is important to the survival of many bacteria. It serves the important function of _____
- a. Breaking down hydrogen
 - b. Breaking down hydrogen peroxide
 - c. Catalyzing respiratory reactions
 - d. Preventing water loss
 - e. Catalyzing salt breakdown
42. Which of the following uses radiant energy as their energy source?
- a. Lithotroph
 - b. Heterotroph
 - c. Chemotroph ✓
 - d. Phototroph
 - e. Autotroph
43. In the _____ of a typical bacterial growth curve, the cell decay rate exceeds the cell multiplication rate
- a. Lag phase
 - b. Log phase
 - c. Stationary phase
 - d. Declining phase
 - e. Survival phase

44. Accuracy for a plate count occur by choosing growth plates with 30 to 300 colonies. After diluting a sample to 0.001 of its original concentration, one ml of a bacterial culture in broth is plated for counting. To achieve an accurate count, the original cell concentration in the broth was about _____ cells per ml.

- a. 30,000,000,000
- b. 30,000,000
- c. 300,000
- d. 300
- e. 30

45. One species of *Mycobacterium* causes _____.

- a. Common cold
- b. Leprosy
- c. Botulism
- d. Gonorrhea
- e. Syphilis

46. Which of the following is true of antigens?

- a. Antibody-generating foreign macromolecules
- b. Proteins embedded in the B-cell membranes
- c. Proteins that consist of two light and two heavy polypeptide chains
- d. Proteins found in the blood that causes foreign blood cells to clump
- e. Both a and d are correct

47. A fungicidal agent will _____.

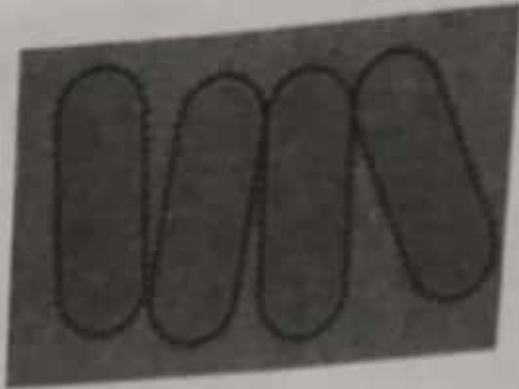
- a. Kill bacteria
- b. Kill bacteria endospores and fungal spores
- c. Kill yeasts and molds
- d. Inactivate viruses
- e. Inhibit the growth of fungi

What name is given to the following bacterial arrangements?



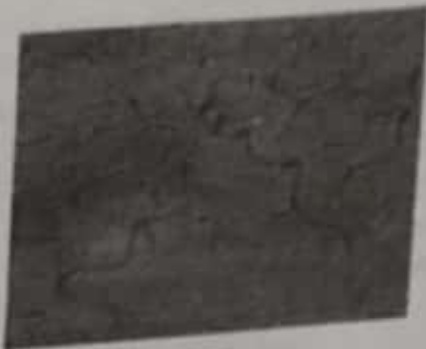
48.

- a. Staphylococcus
- b. Sarcina
- c. Tetrad
- d. Streptococcus
- e. Streptobacillus



49.

- a. Streptobacilli
- b. Coccobacilli
- c. Palisades
- d. Bacilli
- e. Fusobacterium



50.

- a. Spirillum
- b. Streptococcus
- c. Spirochetes
- d. Fusobacterium
- e. Streptobacillus



- a. Spirillum
- b. Spirochetes
- c. Fusobacterium
- d. Streptococcus
- e. Streptobacillus

62. In 1876 a Scientist provided convincing evidence associating specific microorganisms with infectious agents. From this work, FOUR hypothesizes were formulated and these have remained as the main criteria for identifying infectious agents causing particular diseases. The scientist on whose work these hypothesizes are based is _____.

- a. Robert Hooke
- b. Robert Koch
- c. Robert Sachs
- d. Edward Jenner
- e. Louis Pasteur

63. In fermentation tests, the production of gas can be confirmed by the addition of _____ prior to inoculation and incubation.

- a. Zinc
- b. Hydrogen peroxide
- c. Aluminum
- d. Oxygen
- e. Use of Durham tubes

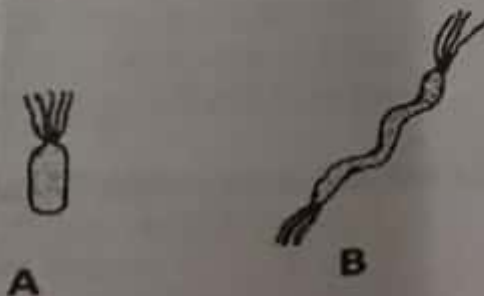
64. _____ is an example of a Glycocalyx.

- a. Slime layer ✓
- b. Plasma membrane
- c. Cell wall
- d. Fimbriae
- e. Mesosome

65. Gram staining is an example of _____.

- a. Simple staining
- b. Differential staining
- c. Negative staining
- d. Positive staining
- e. Irregular staining

Use the diagram below to answer questions 67 -68



66. The image above labelled A has what flagella arrangement?

- a. Lophotrichous ✓
- b. Monotrichous *
- c. Peritrichous *
- d. Amphitrichous *

67. The image above labelled B has what flagella arrangement?
- Peritrichous
 - AmphiloPhotrichous
 - Amphitrichous
 - Lophotrichous
68. The greatest number of flagella is usually found on a bacterial cell with a (n) arrangement?
- Monotrichous
 - Amphitrichous
 - Peritrichous
 - Lophotrichous
69. Prokaryotes and viruses may share one of these characteristics
- They may be enclosed in an envelope and have Ribosomes
 - They may be enclosed in an envelope and have genetic material
 - They may have a protein coat and Ribosomes
 - They have Ribosomes and mitochondria
 - They can only reproduce in a host cell
70. Eosin Methylene Blue agar (EMB agar) contains the dyes eosin and methylene blue, which inhibits the growth of gram positive bacteria and also contains a pH indicator that allows the detection of lactose fermenting bacteria. Eosin Methylene Blue agar is classified as _____.
- Differential
 - Differential, selective
 - Selective, Differential
 - Regulatory, selective
 - Defined, selective, differential
71. Which of the following bacterial groups would you not expect to be most likely associated with several human infections?
- Stereothermophiles
 - Lactophiles
 - Mesophiles
 - Psychrophiles
 - Thermophiles
72. The bacteria that multiply in improperly treated, sealed canned food are most likely to be:
- Aerobes
 - Microaerophilic
 - Aerotolerant anaerobes
 - Anaerobes
 - Facultative anaerobes

73. Which of the following is caused by a virus?
- Malaria
 - Trachoma
 - SARS-CoV
 - Thrush
 - Tuberculosis
74. If you start out with a population density of 300 CFU/ml of a bacterium that divides every 20 minutes, what will the population density after five generations, assuming the cells are in the log phase of growth?
- 1200 CFU/ml
 - 2400 CFU/ml
 - 4800 CFU/ml
 - 9600 CFU/ml
 - 19200 CFU/ml
75. The term culture refers to the _____ growth of microorganisms in _____.
- Rapid, an incubator
 - Microscopic, the body
 - Macroscopic, media
 - Artificial, colonies
 - Superficial, tubes
76. A subculture is a _____.
- Culture made in an embryo
 - Colony growing beneath the media surface
 - Culture made from a contaminant
 - Culture made from an isolated colony
 - Culture made from colonies growing on an agar
77. Pili are tubular shafts in _____ bacteria that serve as a means of _____.
- Every, attachment
 - Gram-positive, attachment
 - Gram-negative, protection
 - Gram-negative, genetic exchange
 - Gram-positive, genetic exchange
78. _____ Surface appendages found mainly on Gram Negative bacteria include _____.
- Fimbriae and cell membrane
 - Pili and fimbriae
 - Capsule and fimbriae
 - Endospore and Pili

79. Spirochetes are differentiated from spirilla by _____.
a. Size
b. Shape
c. The presence of flagella
d. A cell with coils
e. The nature of motility
80. The time required for a bacterial cell to undergo division is known as _____.
a. Lag time
b. Generation time
c. Exponential growth rate
d. Growth curve
e. Generation phase
81. Spore forming bacteria may produce more endospores in response to _____.
a. Adverse environmental stress
b. Increased aeration
c. Need for reproduction
d. Nutrient surplus
e. Colony formation
82. The order of reagents used in Gram stain are _____.
a. Crystal violet, iodine, safranin, alcohol
b. Crystal violet, safranin, alcohol, iodine
c. Crystal violet, iodine, alcohol, safranin
d. Alcohol, Crystal violet, iodine, safranin
e. Iodine, Crystal violet, safranin, alcohol
83. Anthrax is a disease caused by a species of _____.
a. *Bacillus*
b. *Brucella*
c. *Borrelia*
d. *Clostridium*
e. *Pseudomonas*
84. A bacterial cell that assumes several shapes is said to be _____.
a. Cleomorphic
b. Pheomorphic
c. Monogramic
d. Monomorphic
e. Pleomorphic
85. Mannitol Salt agar contains a _____ indicator.
a. Temperature
b. Salinity
c. Sugar
d. pH
e. Pressure

92. Antimicrobials are _____.
a. artificial chemicals used to treat flu infections
b. agents produced or synthesized by one microbe to kill or inhibit other microbes
c. chemical substances used to treat flu
d. chemical substance that can only interfere with cell wall synthesis of the pathogen
e. All of the above
93. Which pair of microbes can be used as indicators of faecal pollution in water
a. *Escherichia coli*/*Clostridium tetani*
b. *Cyanobacteria*/*Escherichia coli*
c. *Escherichia coli*/*Enterococci*
d. *Enterococci*/*Streptococcus*
e. *Salmonella*/*Shigella*
94. A bacterium is studied in the laboratory for identification. Its cells are not rod-shaped. The bacterium does not decolorize by the second step of the Gram staining procedure. They appear in chains under the microscope. Among the following choices the bacterium is likely to belong to the genus _____.
a. *Bacillus*
b. *Staphylococcus*
c. *Streptococcus*
d. *Coccibacillus*
e. *Streptobacillus*
95. *Salmonella typhi* has the ability to persist within the gall bladder of humans while causing no clinical symptoms. The infected individual is still contagious, however, and would be considered a _____.
a. Symptomatic
b. Reservoir
c. Endemic
d. Pathogen
e. Nuisance
96. After three, consecutive one-tenth serial dilutions of a culture in nutrient broth, 1 ml of cells is plated on an agar surface and produces 35 colonies. The original cell concentration per ml was?
a. 3.5
b. 35
c. 350
d. 3500
e. 35000
97. A method of estimating the number of bacteria in a sample of inoculum is _____.
a. Slant culture
b. Streak plate
c. Broth culture
d. Pour plate
e. Serial dilution

104. Which of the following would be found in an animal cell, but NOT in a bacterial cell?
- DNA
 - Cell wall
 - Endoplasmic reticulum
 - Plasma membrane
 - Ribosomes
105. Which of the following dyes is not a basic dye
- Crystal violet
 - Methylene blue
 - Safranin
 - Basic fuchsin
 - Giemsa stain
106. A microbiologist inoculates *Staphylococcus aureus* into a culture medium. Following incubation, both *Staphylococcus aureus* and *Staphylococcus epidermidis* are determined to be growing in this culture. What is the most likely explanation?
- The incubation temperature was not correct
 - The microbiologist used too much inoculum
 - The culture is contaminated
 - The culture medium must be selective
 - The culture medium must be differential
107. Bacteria can live at temperature extremes that vary as much as _____ degrees C.
- 40 to 60
 - 20 to 80
 - 0 to 100
 - 20 to 110
 - 4 to 100
108. The counter-stain for the acid-fast stain is _____.
- Carbolfuchsin
 - Gentian violet
 - Methylene blue
 - Nigrosin
 - Safranin
109. A substance is added to a bacteriophage sample. The substance destroys the activity of the lysozymes in the viruses. This prevents their ability to _____.
- Change their nucleic acid genetically
 - Decrease their metabolism
 - Dissolve the bacterial cell wall
 - Increase their metabolism
 - Penetrate the bacterial cell wall

110. The destruction of the tail fibers of an animal virus will directly interfere with the _____ stage of the life cycle of this virus
- a. Adsorption
 - b. Absorption
 - c. Penetration
 - d. Unceasing
 - e. Replicating

For the questions below, match the options (A-C) with the following descriptors.

A. Solid media

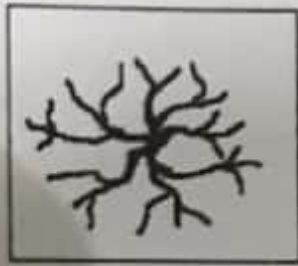
B. Liquid media

C. Semi solid media

111. Distinct colony can be appreciated
112. Diffused growth
113. Continuous culture
114. Contains approximately 0.5% agar
115. The viruses that live as parasites on bacteria are _____
- a. Fungi
 - b. Commensals
 - c. Bacteriophages
 - d. Liverworts
 - e. Cyanobacteria
116. The Human immunodeficiency virus is believed to have evolved from
- a. Human immunodeficiency virus (HIV-1)
 - b. Simian viruses (SIVs)
 - c. Herpes Simplex virus (HSV)
 - d. Human immunodeficiency virus (HIV-2)
 - e. Feline immunodeficiency virus (FIV)
117. Microbes are involved in the production of all these food items except
- a. Marmite
 - b. Yoghurt
 - c. Sauerkraut
 - d. Bread
 - e. Jam
118. When bacteria cells are observed to be colorless against a colored background the staining technique is called _____
- a. simple staining
 - b. capsule staining
 - c. negative staining
 - d. Indian ink
 - e. Endospore staining

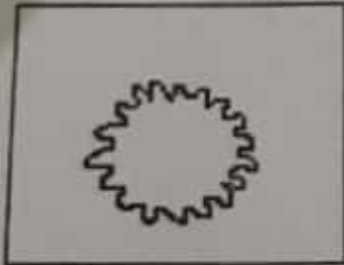
119. In performing antimicrobial susceptibility tests, diffusion of the antimicrobial agent is affected by _____?
- The type of media used
 - The thickness of the lawn of organism on the media
 - The thickness of the media used
 - The method employed
 - None of the above
120. Filtration may be preferred before a bacteria suspension is cultured. Under what circumstances would this be required
- when the source of the bacteria suspension is too contaminated
 - when the source of bacteria suspension is already too diluted
 - when the bacteria suspension is too concentrated
 - this is done only when bacteria suspension is pathogenic
 - when the bacteria suspension is from the hospital
121. The best definition for Generation time of a bacterium is _____
- Time it takes for the bacterium to undergo binary fission
 - Time it takes for the bacterium to double
 - Time it takes for the bacterium to divide into two daughter cells
 - b and c
 - a, b and c
122. _____ is a test to assess a bacteria's ability to hydrolyze proteins
- Indole test
 - Oxidase test
 - Proteolysis
 - Catalase test
 - Hydrogen Sulphide test
123. The slowest rate of population growth is during the _____ phase.
- Death
 - Lag
 - Stationary
 - Decline
124. All the following are good reasons why negative staining technique is exploited for the capsule except
- They are non ionic
 - They are water soluble
 - Simple stains will not adhere to them
 - They are tightly linked to the cell wall of the bacteria
125. The Petroff-Hauser counting chamber is used to _____
- Count cells
 - Measure cell diameter
 - Remove cells from culture
 - Stain cells

What name is given to the bacterial forms, margins or elevations below?
126.



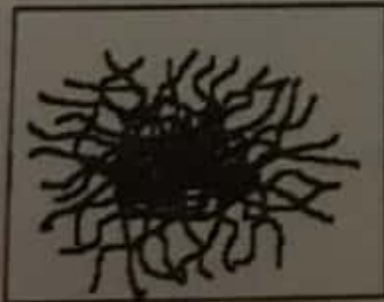
- a. Filamentous ✓
- b. Rhizoid
- c. Irregular
- d. Spindle

127.



- a. Entire ✓
- b. Undulate
- c. Lobate
- d. Errose

128.



- a. Rhizoid ✓
- b. Filamentous
- c. Irregular
- d. Spindle

129.



- a. Undulate
- b. Filiform
- c. Spindle
- d. Filamentous

130.



- a. Undulate
- b. Crateriform
- c. Undulate
- d. Umbonate

131. In the Microbiology laboratory, staining methods are employed to appreciate the _____.

- a. Shape and arrangement of bacteria
- b. Biochemical and morphological properties of bacteria
- c. Movement and biochemical properties of bacteria
- d. Shape and metabolic activities of bacteria
- e. Metabolic and arrangement of bacteria

132. Select the INCORRECT statement about viruses.

- a. cellular organisms
- b. contains small packet of nucleic acid
- c. has a protein coat
- d. nucleic acid contains genetic information

133. The equilibrium phase of population growth is usually the _____ phase.

- a. Lag
- b. Log
- c. Stationary
- d. Death

134. The greatest number of flagella is usually found on a bacterial cell with a (n) _____ arrangement?

- a. Monotrichous
- b. Amphitrichous
- c. Lophotrichous
- d. Peritrichous

142. The principle of MPN assay is hinged on.
- Statistical probability
 - The least number of bacteria in culture
 - The serial dilution of bacteria suspension
 - Estimation of the highest number of bacteria in a sample
143. If the gelatinous substance on the surface of bacteria cell is firmly attached to the cell wall, it is called a _____ otherwise, it is called a _____.
- Capsule, slime layer
 - Slime layer, capsule
 - Cell membrane, capsule
 - Capsule, cell membrane
144. To confirm the difference between *Salmonella paratyphi B* and *S. paratyphi A*, moist lead acetate paper turns black in the presence of _____?
- H_2O_2
 - Organic Acids
 - Cytochrome c
 - H_2S
145. Which of the following are surface layers found on bacteria?
- Capsule, Pili and fimbriae
 - Cytoplasm, slime layer and fimbriae
 - Capsule, cell wall and cell membrane
 - Nuclear membrane, plasma membrane and pili
146. Antisera are commercially available solutions of such antibodies used in the identification of many medically important microbes: The O poly antisera is used to identify
- To determine the O group
 - For verification of genus (*Salmonella enteric*)
 - To determine the H factor
 - To determine the O factor
147. The capsule is said to increase the virulence of the bacteria because _____.
- it protects the bacteria from phagocytosis
 - it promotes dehydration of bacteria
 - the capsule maintains the shape of bacteria
 - it blocks attachment to host cells
148. A bacterium retains safranin after the decolorizing agent removes the previously applied Gentian violet of the Gram stain. The bacterium is _____.
- Gram-negative only
 - Gram-positive only
 - Gram-positive and Gram-negative
 - Neither Gram-positive nor Gram-negative

156. A bacterial cell that normally infects the human urinary tract loses its pili. This mainly affects its ability to _____.
- Hold on to body cells
 - Store nutrients
 - Gather nutrients
 - Transport materials
157. Serum is the _____.
- Cellular part of the blood only
 - Liquid part plus the clotting factors
 - Liquid part of the blood without cells
 - Liquid part of the blood with cells
158. Endospore staining can be used to identify all the following bacteria except _____.
- Clostridium perfringens*
 - Mycobacterium ulcerans*
 - Bacillus cereus*
 - Bacillus anthracis*
159. Phage typing uses _____.
- Bacteria to classify protozoa
 - Viruses to classify bacteria
 - Bacteria to classify viruses
 - Viruses to classify plants
160. Virions are _____.
- intact, replicating virus particles
 - intact, non-replicating virus particles
 - the DNA core of the virus
 - the protein coat of the virus
161. Which of the following technique is used to identify DNA
- Southern blotting
 - Northern blotting
 - Eastern Blotting
 - Western Blotting
162. Which of the following technique is used to identify RNA
- Southern blotting
 - Northern blotting
 - Eastern Blotting
 - Western Blotting
163. The discovery of _____ was a major step toward the control of gonorrhea
- Erythromycin
 - Penicillin
 - Tetracycline
 - Streptomycin

172. In order to survive unfavorable conditions, some bacteria cells will form structures such as _____.
- Cysts and Akinetes
 - Akinetes and Capsules
 - Capsules and Endospores
 - Median endospores and Capsule
173. Lysis of 1% gelatin is used as an indicator of a microbe that is capable of breaking down _____.
- Polysaccharides
 - Nucleic Acids
 - Amino acids
 - Lipids
174. In the binomial system of nomenclature, which term is always written in lowercase letters
- Domain
 - Specific epithet
 - Genus
 - Kingdom
175. Which of the following Scientist hypothesized that a bacterial colony arises from a single bacterial cell
- Van Leeuwenhoek
 - Robert Koch
 - Louis Pasteur
 - Richard Petri
176. Which of the following methods is best for determining the faecal bacteria load in bottled Mineral Water to determine the safety of the water for drinking
- Turbidity
 - Membrane filtration
 - Most probable number (MPN)
 - Total Viable counts
177. Bacteria that live at high pressures, but die if brought into the laboratory and left standing for a few hours at standard atmospheric pressure are called _____.
- Halophiles
 - Mesophiles
 - Thermophiles
 - Barophiles
178. An organism that can synthesize all its required organic components from CO₂ using the energy from the sun is a _____.
- Chemoautotroph
 - Chemoheterotroph
 - Photoautotroph
 - Photoheterotroph

1C	26C	51A	76D
2D	27E	52B	77D
3C	28D	53C	78B
4B	29.	54C	79E
5A	30C	55B	80B
6E	31E	56A	81A
7.	32D	57D	82C
8.	33E	58E	83A
9.	34A	59B	84E
10.	33D	60D	85D
11.	34B	61E	86B
12D	35B	62B	87B
13C	36.	63E	88C
14C	37B	64A	89A
15B	38E	65B	90B
16C	39E	66A	91D
17C	40A	67D	92B
18B	41B	68C	93C
19D	42D	69B	94C
20B	43D	70B	95.
21D	44.	71.	96E
22B	45B	72E	97D
23E	46.	73C	98A
24A	47C	74D	99D
25B	48D	75C	100A
	49D		
	50. Not clear		