

Department of Biotechnology
Class: F.Y.B.Sc.
Semester: I
Subject: Basic Life Sciences II
Sample Questions

Multiple Choice Questions

1. In Gram-staining, iodine is used as a _____.
 - a. Fixative
 - b. Mordant
 - c. Solubilizer
 - d. Stain
2. In _____ fixation process fixatives are injected via blood flow.
 - a. Immersion
 - b. Perfusion
 - c. Heat fixation
 - d. Chemical fixation
3. A magnifying glass is also called as _____.
 - a. Telescope
 - b. Simple microscope
 - c. Compound microscope
 - d. Endoscope
4. Carmine is obtained from _____.
 - a. Plants
 - b. Fungus
 - c. Insects
 - d. Bacteria
5. Gram staining is an example of _____.
 - a. Simple staining
 - b. Acid fast stain
 - c. Acid stain
 - d. Differential stain
6. _____ aberration causes some of light which should be in the central spot to diffuse out into ring structure these causes loss in contrast.
 - a. Distortion
 - b. Spherical
 - c. Coma
 - d. Astigmatism
7. The two knobs used for focusing the image include fine adjustment knob and _____.
 - a. Course adjustment knob
 - b. Diaphragm
 - c. Stage
 - d. Objective lens
8. The primary stain used in acid fast stain procedure that is lipid soluble and stains acid fast cell red/purple.
 - a. Alcohol
 - b. Mycolic acid
 - c. Acid fast stain
 - d. Carbol-fuchsin

9. The measure for the resolving power of an objective is the _____.
- Gram
 - Numerical aperture
 - Milligram
 - Meter
10. Refractive index of cedar wood oil is _____.
- 1.33
 - 1.44
 - 1.53
 - 1.51
11. As compared to the single lens, a compound microscope gives _____.
- Smaller magnification
 - Greater magnification
 - No magnification
 - Equal magnification
12. Which part of the compound microscope helps in gathering and focusing light rays on the specimen to be viewed?
- Eyepiece lens
 - Objective lens
 - Condenser lens
 - Magnifying lens
13. When the power of ocular lens is 10 X and objective lens is 20 X, the magnification is _____.
- 30 times
 - 20 times
 - 200 times
 - 2000 times
14. Which of the following light is suitable for getting maximum resolution?
- Red
 - Green
 - Blue
 - Orange
15. Acidic dyes ionize to give the dye portion of the molecule a _____ electrical charge.
- Positive
 - Negative
 - Neutral
 - Plus
16. _____ may be defined as any substance that forms an insoluble compound with stain and serves to fix the color to bacterial cell.
- Decolorizer
 - Counterstain
 - Primary stain
 - Mordants
17. Which of the following is not a natural stain?
- Brazilin
 - Carmine
 - Safranin
 - Hematoxylin

18. The sodium salts of indigo present in ____ dyes.
- Indigo
 - Indigo carmine
 - Carmine
 - litmus
19. The refractive index of air is _____.
- 0.50
 - 0.75
 - 1.00
 - 1.25
20. ____ microscopy is used for wet mount and visualization of unstained cellular structure.
- Dark field
 - Simple
 - Compound
 - Phase contrast
21. Bacteria are _____ & difficult to see in the unstained state.
- Transparent
 - Semitransparent
 - Solid
 - Media
22. All the following are components of compound microscope except _____.
- stage clips
 - fine adjustment
 - electron gun
 - eye piece
23. An _____ is responsible for collecting light rays previously focused on the specimen.
- Condenser lens
 - Ocular lens
 - Objective lens
 - Focusing knob
24. Which of the following is the example of Gram-negative bacteria?
- Lactobacillus*
 - Escherichia coli*
 - Staphylococcus aureus*
 - Bacillus subtilis*
25. Working distance of uncovered object is _____.
- 0.6mm
 - 3.5mm
 - 6mm
 - 0.35mm
26. _____ colored light rays are longest waves of the visible spectrum.
- violet
 - green
 - yellow
 - red
27. In simple staining solution contains _____ stain dissolved in solvent.
- Two
 - Only one
 - Three
 - More than two

28. Which of the following is used to visualize live cells?
- Autoclave
 - SEM
 - TEM
 - Phase contrast microscope
29. Acidic dyes are used to stain _____.
- Cell wall
 - Capsule
 - Cytoplasm
 - endospore
30. If the ruling near the edge appear curved inward the aberration is known as _____.
- Barrel distortion
 - Cushion distortion
 - Coma
 - Spherical
31. Total Magnification is obtained by _____
- Magnifying power of the objective lens
 - Magnifying power of eyepiece
 - Magnifying power of condenser lens
 - Magnifying power of both the objective lens and eyepiece
32. Which of the following is not a natural stain?
- crystal violet
 - Hematoxylin
 - Indigo
 - Cochineal
33. In a dye _____ groups give to the compound the property of colors.
- Auxochrome
 - Chromophore
 - Acidic
 - Basic
34. Iodine is also used in the form of substance known as _____.
- Iodophor
 - Chromophore
 - Sodium Iodide
 - Chromogen
35. A _____ is source of formaldehyde.
- Formalin
 - Iodine
 - Chlorine
 - Methanol
36. Which of the following disinfectant is used in swimming pools and open reservoirs?
- Copper sulfate
 - Acridine dye
 - Methanol
 - Ethanol
37. Bactericidal concentration of phenol is _____.
- 0.25%
 - 0.5%
 - 0.75%
 - 5%

38. For practical application _____ concentration of alcohol is generally used.
- 10%
 - 20%
 - 30%
 - 70%
39. _____ is poisonous disinfectant.
- Ethyl alcohol
 - Methyl alcohol
 - Phenol
 - Soap
40. Which of the following agent is used to disinfect skin?
- Chlorine
 - Formaldehyde
 - Quaternaries
 - Ethylene oxide
41. _____ dye is derived from acridine dye.
- Triphenylmethane
 - Tryptoflavine
 - Crystal violet
 - Silver nitrate
42. Which of the following method is used for sterilization?
- Moist heat method
 - Staining
 - Microbial incubation
 - Incubation
43. In Laminar air flow _____ type of filter is located.
- Membrane filter
 - Seitz filter
 - HEPA
 - Slow filter
44. The laboratory apparatus designed to use steam under regulated pressure is called as _____.
- Hot air oven
 - Autoclave
 - Incubator
 - Centrifugation
45. In _____ method heating the material at 100°C on three successive days with incubation period in between.
- Autoclave
 - Hot air oven
 - Fractional Sterilization
 - Incineration
46. Sterilization is _____.
- Process of growing of microorganisms in laboratory.
 - Process for preparation of antibiotics
 - Killing or removing of the microorganisms from an article
 - Fragmentation of big particles into smaller one for the preparation of tablets
47. An agent that prevents the growth of bacteria are known as _____.
- Bactericide
 - Bacteriostatic
 - Antimicrobial

- d. Antibiotic
48. Those detergents which ionize with detergent property resident in anion are called as _____.
- Anionic detergents
 - Cationic detergents
 - Nonionic detergent
 - Soap
49. Pure _____ is a bluish black crystalline element having metallic luster.
- Phenol
 - Copper
 - Formaldehyde
 - Iodine
50. The effectiveness of a water-soluble disinfectant that is chemically similar to _____ can be tested by determining its phenol coefficient determination.
- Phenol
 - Iodine
 - Ethylene oxide
 - Beta-propiolactone
51. How long does it take for the autoclave to complete its cycle?
- 30 to 35 minutes
 - 50 min to 1 hour
 - 15 to 20 minutes
 - 10-15 minutes
52. Energy transmitted through space in variety of forms is generally called _____.
- Plasmoptysis
 - Plasmolysis
 - Radiation
 - Surface tension
53. An agent that kills bacteria is called as _____.
- Sporicide
 - Fungicide
 - Bactericide
 - Virucide
54. The agent currently used in gaseous sterilization is _____.
- Phenol
 - Detergent
 - Ethylene oxide
 - Dyes
55. If cells are exposed to solutions with higher solute concentration, water will be drawn out of the cell. The process is called as _____.
- Plasmoptysis
 - Plasmolysis
 - Radiation
 - Surface tension
56. Milk, cream, beer and wine are subjected to a controlled heat treatment called as _____.
- Incineration
 - Boiling water
 - Pasteurization
 - Sterilization

57. Which of the following is bactericidal?
- Membrane filtration
 - Ionizing radiation
 - Freeze-drying
 - Deep freezing
58. _____ is used for the destruction of carcasses, infected laboratory animals and other infected materials to be disposed of.
- Incineration
 - Autoclave
 - Hot air oven
 - Boiling water
59. Gamma rays and X rays which have energies of more than about 10eV are called as _____.
- Ionizing radiation
 - Exciting radiation
 - Molecules
 - Light rays
60. Surface forces exist between two immiscible liquids and at the interface between a solid and liquid. Here they are referred to as _____.
- Surface tension
 - Osmosis
 - Interfacial tension
 - Filtration
61. Which of the following disinfectants act by disrupting microbial membranes?
- Cationic detergents
 - Halogens
 - Heavy metals
 - Aldehyde
62. Which of the following was the first widely used antiseptic and disinfectant?
- Chlorine
 - Phenol
 - Iodine
 - Alcohol
63. Which of the following acts as a test organism in the procedure of phenol-coefficient method?
- Escherichia coli*
 - Streptococcus faecalis*
 - Staphylococcus aureus*
 - Lactobacillus*
64. Which of the following is example of inorganic mercury compound?
- Bromine
 - Mercuric chloride
 - Mercuric iodine
 - Copper sulphate
65. Which of the following chemical agents lack penetration power?
- Phenol
 - Iodine
 - Ethylene oxide
 - Beta-propiolactone
66. _____ is a saturated dialdehyde.
- Formaldehyde
 - Glutaraldehyde

- c. Formalin
 - d. Iodine
67. _____ uses light as energy source.
- a. Lithotrophs
 - b. Organotrophs
 - c. Chemotrophs
 - d. phototrophs
68. Isolation of pure culture refers to _____
- a. purification of culture
 - b. introduction of inoculums
 - c. separation of a single colony
 - d. to grow microorganisms on a surface
69. _____ are required by microorganisms in relatively large amounts.
- a. Micronutrients
 - b. Macronutrient
 - c. cells
 - d. Agar
70. Media that contain some ingredients of unknown chemical composition are _____ media.
- a. Enriched
 - b. selective
 - c. differential
 - d. complex
71. _____ is used as solidifying agent.
- a. Peptone
 - b. glucose
 - c. yeast extract
 - d. agar
72. Hemolytic bacteria produce clear zones around their colonies because of _____ destruction.
- a. Red blood cells
 - b. White blood cells
 - c. protein
 - d. Carbohydrates
73. _____ is both differential and selective.
- a. Nutrients agar
 - b. MacConkey agar
 - c. Chocolate Agar
 - d. Sabouraud agar
74. Agar slants are covered with _____ for preservation of culture.
- a. Wax
 - b. Water
 - c. Mineral oil
 - d. Blood
75. Organisms that use CO_2 as their sole or principle source of carbon are called _____.
- a. Heterotrophs
 - b. Homotrophs
 - c. Autotrophs
 - d. Microorganisms
76. Which of the following is a direct measurement of growth?
- a. Determination of nitrogen content
 - b. Turbidimetric methods

- c. Determination of dry weight of cells
 - d. Measurement of a specific chemical change produced on a constituent of the medium
77. _____ is a macroscopically visible growth or cluster of microorganisms on a solid medium.
- a. Nucleus
 - b. DNA
 - c. Colony
 - d. Virus
78. Which of the following instrument is used for the bacterial count?
- a. Petroff-Hauser counting chamber
 - b. Microscope
 - c. Chemostat
 - d. Turbidostat
79. _____ are protein hydrolysates prepared by partial proteolytic digestion of meat, casein, soya meal, gelatin and other protein sources.
- a. Glucose
 - b. yeasts
 - c. peptone
 - d. citric acid
80. _____ can be used for both Prokaryotic cells and eukaryotic cells counting.
- a. Petroff Houser counting
 - b. Hemocytometer
 - c. Electrophoresis
 - d. Desiccation
81. Nichrome wire loop is used in which of the following techniques?
- a. Pour-plate
 - b. Streak-plate
 - c. Spread-plate
 - d. Roll-tube technique
82. During the _____ phase microorganisms are growing and dividing at maximal rate.
- a. Growth
 - b. stationary
 - c. death
 - d. exponential
83. What is the temperature of liquid nitrogen?
- a. -120 degree C
 - b. 0 degree C
 - c. -110 degree C
 - d. -196 degree C
84. Organic compounds that are essential cell components or precursors of such components but cannot be synthesized by the organisms are called as _____
- a. Growth factors
 - b. Vitamins
 - c. Nitrogen
 - d. Carbon
85. A _____ is constructed so that sterile medium is fed into the culture vessel at the same rate as the media containing microorganisms is removed.
- a. Chemostat
 - b. Autoclave
 - c. Hot air oven
 - d. Incubator

86. Chemolithoheterotrophs also known as _____.
- Organotrophs
 - Chromotrophs
 - Phototrophs
 - Mixotrophs
87. Which of the following is not the technique of preservation?
- Storage on agar slant
 - Storage under liquid nitrogen
 - Dried culture
 - Storage in water
88. Blood agar is called as _____.
- Enriched media
 - Nutrients agar
 - Endo agar
 - Defined media
89. Viable plate count can be obtained using _____.
- Spread plate method
 - Hemocytometer
 - Microscopy
 - Centrifugation
90. Which of the following methods is most likely to be quantitative?
- Gram staining
 - Dilution and plating
 - Wet mount
 - Serial dilution
91. _____ are rock eaters.
- Lithotrophs
 - Organotrophs
 - Chromotrophs
 - Phototrophs
92. The preservation by liquid nitrogen is called as _____.
- Cryopreservation
 - Lyophilization
 - Freeze drying
 - Desiccation
93. Which of the following is not the composition of nutrient agar plate?
- Yeast extract/ Beef extract
 - Peptone
 - NaCl
 - Dextrose
94. _____ in high concentration is frequently used as inhibitor of bacterial growth.
- KCl
 - NaCl
 - Peptone
 - Glucose
95. Exponential phase is also known as _____ phase.
- Log
 - Lag
 - Death
 - Stationary

96. Larger microorganisms such as protists and yeasts can be directly counted with electronic counters such as _____.
- Coulter counter
 - Hemocytometer
 - Petroff Housser counter
 - Microscopy
97. In pour-plate method, the medium should be maintained at what temperature?
- 37⁰C
 - 67⁰C
 - 45⁰C
 - 0⁰C
98. A medium in which all chemical components are known is a _____ medium.
- Selective
 - Defined
 - Functional
 - Differential
99. In the _____ phase total number of viable organisms remains constant.
- Lag
 - stationary
 - death
 - exponential
100. _____ Media are media that distinguish among different groups of microbes and even permit tentative identification of microorganisms based on their biological characteristics.
- Differential
 - Selective
 - Chemical
 - Defined