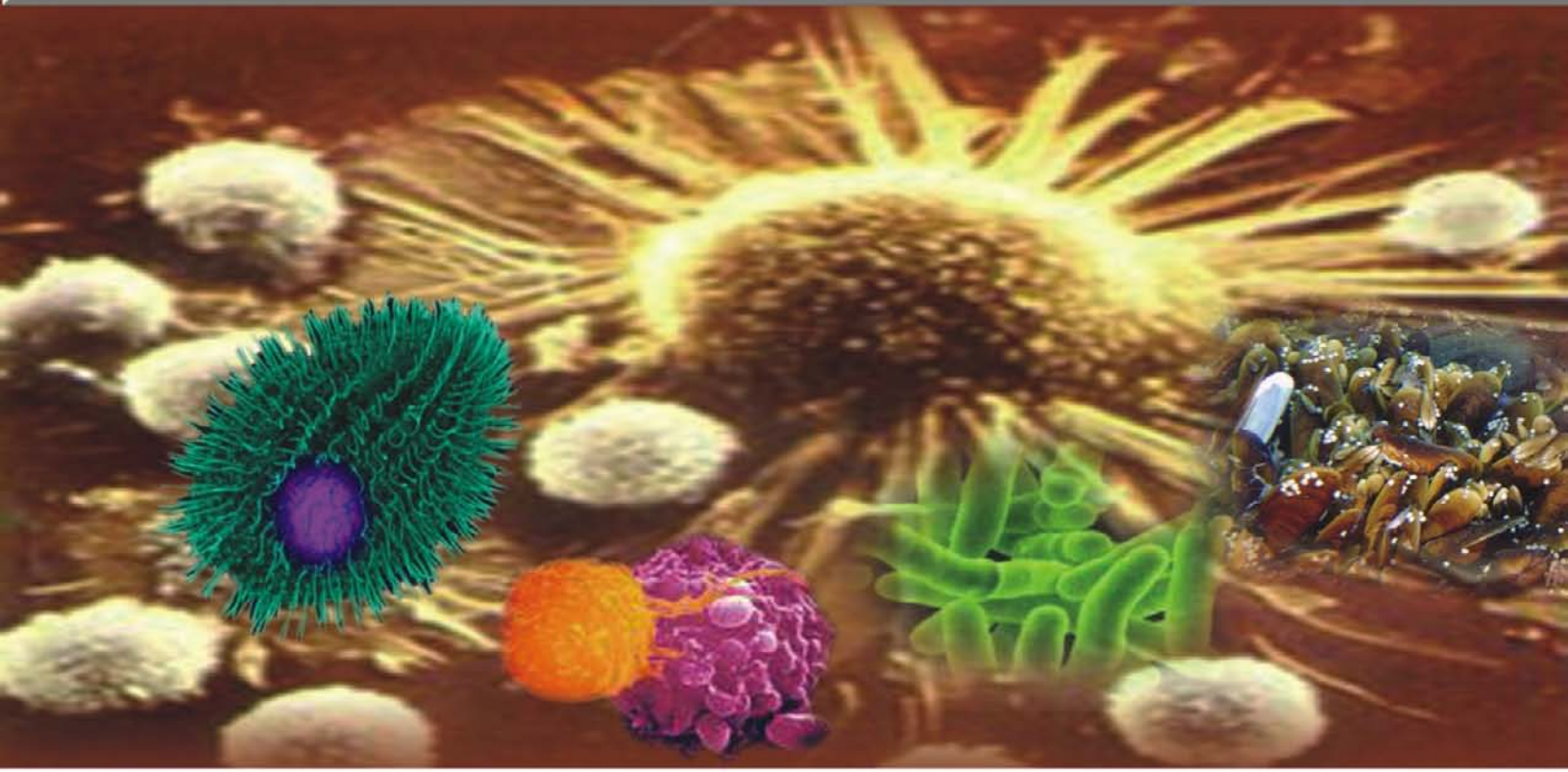


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# MCQs in Microbiology



G. Vidya Sagar



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**MCQs**  
**in**  
**Microbiology**

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# **MCOs** **in** **Microbiology**

**G. Vidya Sagar**

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This book is dedicated to

**PROF. B.G. SHIVANANDA**

*Principal*

*Al-Ameen College of Pharmacy*

*BANGALORE*

*For his Herculean efforts in bringing*

*APJIS to a high pedestal*

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# FOREWORD

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Multiple choice questions (MCQs) test a candidates ability to apply his or her knowledge acquired during the regular course of study. Framing a question paper based on MCQs is time consuming but evaluating the answers is easy.subjectiveness of the examiner associated with evaluation of essay type of answers is inherent in the evaluation process & depends upon several variables such as hand writing, methods of presentation etc. These variables do not exist during evaluation of answers based on MCQs.

I am of the opinion that for the examination system at the undergraduate level, the entire testing of theoretical knowledge should be MCQ based since the evaluation can be computerized & human bias can be largely eliminated.

In this book, the multiple choice questions have been prepared with great care such that the questions framed are precise & clear enabling the reader to make correct choices. A wide coverage of topics is given.

I strongly recommend this book for all related to Microbiology & College Libraries.

**PROF DR. KANTI GOR**

Vice Chancellor

**K.S. K. V. Kachchh University**

Bhuj, Gujarat



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# PREFACE

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The book is primarily meant for students appearing for PG competitive examinations. In USMLE, GATE, AFMC, AIIMS & other Medical, Paramedical entrance examinations for admissions to PG Programme, Microbiology is one of the important component of the syllabus.

The main objective of this book is to help students to review their knowledge of Microbiology acquired through standard textbooks. A sound knowledge of Microbiology is essential for students of Medicine, Pharmacy, Dentistry & Nursing for understanding the subject with logical reasoning. This book is specially designed to complement any standard microbiology textbook and to provide the students with a feedback on their progress & an opportunity to improve. Thus the book can serve as a self assessment guide.

With the explosion of knowledge in medical sciences, examinations in all faculties (Medicine, Pharmacy, Dentistry & Nursing) is completely becoming MCQ oriented because this system of assessment is more accurate, reliable & quicker. A welcome trend in this direction is already discernible

Both the teachers & students of microbiology will find this book useful. A quick persuasion of the questions will provide evidence that the book intends to stimulate reasoning

Suggestions & criticism about the book are welcome.

**G. Vidya Sagar**

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# ACKNOWLEDGEMENTS

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It gives me pleasure to acknowledge with deep appreciation for all those who have extended their co-operation during the preparation of the book.

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- Author

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# CONTENTS

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<i>Preface</i>	(ix)
<b>Chapter 1 HISTORY OF MICROBIOLOGY</b>	<b>1</b>
<b>Chapter 2 BACTERIA &amp; GRAM STAINING</b>	<b>9</b>
<b>Chapter 3 STERILISATION, CULTURE MEDIA &amp; PURE CULTURE TECHNIQUES</b>	<b>25</b>
<b>Chapter 4 GENERAL PROPERTIES OF MICROORGANISMS</b>	<b>33</b>
<b>Chapter 5 BACTERIAL NUTRITION</b>	<b>37</b>
<b>Chapter 6 BACTERIAL GROWTH</b>	<b>39</b>
<b>Chapter 7 STRUCTURE OF DNA &amp; RNA</b>	<b>45</b>
<b>Chapter 8 IMMUNOLOGY</b>	<b>51</b>
<b>Chapter 9 MEDICAL MICROBIOLOGY</b>	<b>61</b>
<b>Chapter 10 INDUSTRIAL MICROBIOLOGY</b>	<b>77</b>

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# CHAPTER 1

## HISTORY OF MICROBIOLOGY

- 1. According to Pasteur statements which one of the following is true**
  - a. Living organisms discriminate between stereoisomers
  - b. Fermentation is a aerobic process
  - c. Living organisms doesn't discriminate between stereoisomers
  - d. Both a and b
- 2. "I found floating therein earthly particles, some green streaks, spirally wound serpent-wise, and orderly arranged, the whole circumstance of each of these streaks was about the thickness of a hair on one's head".... These words are of**
  - a. Leeuwenhoek
  - b. A. Jenner
  - c. Pasteur
  - d. Koch
- 3. The principle light-trapping pigment molecule in plants, Algae, and cyanobacteria is**
  - a. Chlorophyll a
  - b. Chlorophyll b
  - c. Porphyrin
  - d. Rhodopsin
- 4. During Bio Geo chemical cycle some amount of elemental carbon was utilized by the microorganisms. The phenomenon is called as**
  - a. Dissimilation
  - b. Immobilization
  - c. Decomposition
  - d. Neutralization
- 5. Who demonstrated that open tubes of broth remained free of bacteria when air was free of dust.**
  - a. Abbc Spallanzani
  - b. John Tyndall
  - c. Francisco Redi
  - d. Pasteur
- 6. Reverse isolation would be appropriate for**
  - a. a patient with tuberculosis
  - b. a patient who has had minor surgery
  - c. a patient with glaucoma
  - d. a patient with leukemia
- 7. The symptome " general feeling of illness and discomfort " is called**
  - a. Cystitis
  - b. Malaise
  - c. Anaphylactic shockd.
  - d. Arthritis
- 8. On soybean which of the following forms symbiotism**
  - a. Azatobactor paspali
  - b. Rhizobium
  - c. Nostoc
  - d. Bradyrhizobium
- 9. Who provide the evidence that bacteriophage nucleic acid but not protein enters the host cell during infection**
  - a. Alfred D.Hershey & Leonard Tatum in 1951.
  - b. Alfred D.Hershey & Zindar Lederberg in 1951.
  - c. Alfred D.Hershey & Martha Chase in 1952.
  - d. Alfred D.Hershey & Macleod in 1952.



- 10. Spirulina belongs to**  
a. Xanthophyceae    b. Cyanophyceae  
c. Rhodophyceae    d. Pheophyceae
- 11. The first antibody to contact invading microorganisms was**  
a. IgG                      b. IgM  
c. IgA                      d. IgD
- 12. The light emitted by luminescent bacteria is mediated by the enzyme**  
a. Coenzyme Q  
b. Luciferase  
c. Lactose dehydrogenase  
d. Carboxylase reductase
- 13. Pick out the vector using in human Genome project**  
a. Phagemid vector  
b. Yeast artificial chromosomes  
c. Cosmid vectors  
d. Yeast episomal plasmids
- 14. Salt and sugar preserve foods because they**  
a. Make them acid  
b. Produce a hypotonic environment  
c. Deplete nutrients  
d. Produce a hypertonic environment
- 15. In a fluorescent microscope the objective lens is made of**  
a. Glass                      b. Quartz  
c. Polythene                d. None of these
- 16. Fixation of atmospheric nitrogen is by means of**  
a. Biological process    b. Lightning  
c. Ultraviolet light      d. All of the above
- 17. Which one of the following fungi is the most serious threat in a bone marrow transplant unit?**  
a. Candida albicans    b. Aspergillus  
c. Blastomyces            d. Cryptococcus
- 18. Direct microscopic count can be done with the aid of**  
a. Neuberg chamber    b. Anaerobic chamber  
c. Mineral oil              d. Olive oil
- 19. The image obtained in a compound microscope is**  
a. Real                      b. Virtual  
c. Real inverted        d. Virtual inverted
- 20. Enzymes responsible for alcoholic fermentation**  
a. Ketolase                b. Zymase  
c. Peroxidase            d. Oxidase
- 21. Which type of spores are produced sexually?**  
a. Conidia                b. Sporangiospores  
c. Ascospores            d. None of these
- 22. Bacterial transformation was discovered by**  
a. Ederberg and Tatum  
b. Beadle and Tatum  
c. Griffith  
d. None of these
- 23. Father of microbiology is**  
a. Louis Pasteur        b. Lister  
c. A.V. Leeuwenhock    d. Robert Koch
- 24. The antiseptic method was first demonstrated by**  
a. Lwanowski            b. Lord Lister  
c. Edward Jenner      d. Beijerinck
- 25. Small pox vaccine was first discovered by**  
a. Robert Koch        b. Louis Pasteur  
c. Lister                    d. Edward Jenner
- 26. The term mutation was coined by**  
a. Pasteur                b. Darwin  
c. Hugo devries        d. Lamark
- 27. Compound microscope was discovered by**  
a. Antony von            b. Pasteur  
c. Johnsen & Hans      d. None of these
- 28. Father of Medical Microbiology is**  
a. Pasteur                b. Jenner  
c. Koch                    d. A.L.Hock
- 29. Disease that affects many people at different countries is termed as**  
a. Sporadic              b. Pandemic  
c. Epidemic              d. Endemic

- 30. Prophylaxis of cholera is**
- Protected water supply
  - Environmental sanitation
  - Immunization with killed vaccines
  - All of these
- 31. In electron microscope, what material is used as an objective lense?**
- Magnetic coils
  - Superfine glass
  - Aluminium foils
  - Electrons
- 32. The main feature of prokaryotic organism is**
- Absence of locomotion
  - Absence of nuclear envelope
  - Absence of nuclear material
  - Absence of protein synthesis
- 33. The stalked particles on the cristae of mitochondria are called**
- Glyoxysomes
  - Peroxisomes
  - Oxysomes
  - Spherosomes
- 34. Antiseptic methods were first introduced by**
- Lord Lister
  - Iwanowski
  - Beijernick
  - Edward Jenner
- 35. Kuru disease in Humans is caused by**
- Bacteria
  - Viroides
  - Prions
  - Mycoplasma
- 36. A mutation that produces termination codon is**
- Mis-sense mutation
  - Neutral mutation
  - Non-sense mutation
  - Reverse mutation
- 37. During conjunction the genetic material will be transferred through**
- Cell wall
  - Medium
  - Pili
  - Capsule
- 38. Antiseptic surgery was discovered by**
- Joseph Lister
  - Ernest Abbe
  - Pasteur
  - Beijerink
- 39. Tuberculosis is a**
- Water borne disease
  - Air borne disease
  - Food borne disease
  - Atthropod borne disease
- 40. Phagocytic phenomenon was discovered by**
- Louis Pasteur
  - Alexander Fleming
  - Metchnikof
  - Robert Koch
- 41. Meosomes are also known as**
- Mitochondria
  - Endoplasmic reticulum
  - Plasmids
  - Chondroids
- 42. Hybridoma technique was first discovered by.**
- Kohler and Milstein
  - Robert Koch
  - 'D' Herelle
  - Land Steiner
- 43. The minimum number of bacteria required to produce clinical evidence of death in a susceptible animal under standard condition is called**
- LD<sub>50</sub>
  - ID
  - MLD
  - All of these
- 44. In Electron Microscope source of electrons is from**
- Mercury lamp
  - Tungsten metal
  - both a and b
  - None of these
- 45. Griffith (1928) reported the phenomenon of transformation first in**
- H. influenzae
  - Bacillus species
  - Pneumococci
  - E.coli
- 46. The resolution power of the compound microscope is**
- 0.2 micron
  - 0.2 millimeter
  - 0.2 Angstrom units
  - 0.2 centimeter
- 47. The capacity of a given strain of microbial species to produce disease is known as**
- Pathogen
  - Virulence
  - Infection
  - None of these

- 48. Monoclonal antibodies are associated with the name of**
- Burnet
  - Medwar
  - Milstein kohler
  - Owen
- 49. Lederberg and Tatum (1946) described the phenomena of**
- Conjunction
  - Transformation
  - Mutation
  - Plasmids
- 50. Hanging drop method for motility study was first introduced by**
- Robert Koch
  - Louis Pasteur
  - Jenner
  - Leeuwenhock
- 51. Electron microscope gives magnification upto**
- 100 X
  - 2000 X
  - 50,000 X
  - 2,00,000 X
- 52. Term vaccine was coined by**
- Robert Koch
  - Pasteur
  - Needham
  - None of these
- 53. The inventor of Microscope is**
- Galileo
  - Antony von
  - Pasteur
  - Koch
- 54. First Pasteur conducted fermentation experiments in**
- Milk
  - Food material
  - Fruit juices
  - Both a and c
- 55. Modern concepts of chemotherapy was proposed by**
- Paul Ehrlich
  - Joseph Lister
  - Elie Metchnikoff
  - None of these
- 56. The role of phagocytosis was discovered by**
- Paul Ehrlich
  - Joseph lister
  - Elie Metchikoff
  - Pasteur
- 57. L – forms are discovered by**
- Klein Berger
  - Louis Pasteur
  - Robert Koch
  - Antony von Leeuwenhock
- 58. The causative organism of rocky mountain spotted fever was first described by**
- Howard Ricketts
  - da Rocha-lima
  - Both a and b
  - Robert Koch
- 59. The term bacteriophage was coined by**
- De'Herelle
  - F.W. Twort
  - Beijernick
  - Jwanosky
- 60. Viral infection of bacteria was discovered by**
- De'Herelle
  - F.W. Twort
  - Beijernick
  - Jwanoksy
- 61. Eye cannot resolve any image less than**
- 1 $\mu$ m
  - 2 $\mu$ m
  - 7 $\mu$ m
  - 5 $\mu$ m
- 62. Compound Microscope was discovered by**
- A.V. Lewenhoek
  - Pasteur
  - Janssen and Hans
  - None of these
- 63. Electron Microscope was discovered by**
- Prof. Fritz
  - Janssen and Hans
  - Knoll and Ruska
  - None of these
- 64. Magnification range of light microscope is**
- 1000x – 5000x
  - 1000x – 2000x
  - 500x – 1000x
  - None of these
- 65. Condensation of light in light Microscope is by**
- Objective
  - Condensor
  - Ocular
  - All of these
- 66. Light gathering capacity of Microscope is called**
- Numerical aperture
  - Angular aperture
  - Both a and b
  - None of these
- 67. If 10x and 40x objectives are used (air is the medium), the numerical aperture is**
- 1.5
  - 2.0
  - 1.0
  - 1.8
- 68. The ability of Microscope to distinguish two objects into two separate objects, is called.**
- Resolving power
  - Wave length
  - N.A.
  - None of these

- 69. Limit of resolution of compound microscope is**  
a. 0.018  $\mu$ m      b. 0.1 mm  
c. 5  $\mu$ m      d. 1 mm
- 70. Source of light in fluorescence microscopy is from**  
a. Mercury lamp      b. Sunlight  
c. Both a and b      d. None of these
- 71. Who perfected a magnetic lens in 1927**  
a. Gabor      b. Broglie  
c. Busch      d. None of these
- 72. The magnification power of electron microscope developed by Knell and Ruska is**  
a. 10,000x      b. 12,000x  
c. 15,000x      d. 20,000x
- 73. In electron microscope source of electrons is from**  
a. Mercury lamp      b. Tungsten metal  
c. Both a and b      d. None of these
- 74. The electron passed out from the specimen are called**  
a. Primary electrons      b. Secondary electrons  
c. Tertiary electrons      d. None of these
- 75. Mycorrhiza was first observed by**  
a. Funk      b. Frank  
c. Fisher      d. Crick
- 76. The transfer of genetic material during transformation is proved basing on Griffith's experiment by**  
a. Avery Macleod & Mc.Carthy  
b. Lederberg & Taulum  
c. Zinder & Lederberg  
d. Watson & Crick
- 77. Phagocytic theory was proposed by**  
a. Louis Pasteur      b. Elie Metchnikoff  
c. Behring      d. Widal
- 78. Anaphylaxia was first observed by**  
a. Parter & Richet      b. Coombs  
c. Gell      d. None of these
- 79. Primary mediators in anaphylaxis**  
a. Histamine      b. Serotonin  
c. Heparin      d. All of these
- 80. Arthus reaction was discovered by**  
a. Marrice Arthus      b. Von Perquit  
c. Richet      d. Porter
- 81. Serum sickness reaction was discovered by**  
a. Marrice Arthus      b. Von perquit  
c. Richet      d. Porter
- 82. Hybridoma technique was developed by**  
a. Kochler & Milston      b. Niel's Jerne  
c. Both a and b      d. None of these
- 83. Disease that effects many people at different countries is termed as**  
a. Sporadic      b. Pandemic  
c. Epidemic      d. Endemic
- 84. If the vectors transmit the infection mechanically they are called**  
a. Biological vectors  
b. Mechanical vectors  
c. Biological reservoir  
d. Both a and c
- 85. If a person can be infected by direct contact with infected tissue of another person, it is termed as**  
a. Indirect contact transmission  
b. Attachment  
c. Direct contact transmission  
d. None of these
- 86. Reduction of virulence is known as**  
a. Exaltation      b. Attenuation  
c. Both a and b      d. None of these
- 87. Enhancement of virulence is known as**  
a. Exaltation      b. Attenuation  
c. Both a and b      d. None of these
- 88. The virulence of a pathogen is usually measured by**  
a. LD      b. MLD  
c. ID      d. All of the above

- 89. The lethal dose required to kill 50% of the lab animals tested under standard called**
- ID
  - LD<sub>50</sub>
  - ID<sub>50</sub>
  - MLD
- 90. The most important virulence factors are**
- Adhesions
  - Invasiveness
  - Toxigenicity
  - Enzymes
  - All of the above
- 91. The ability of a pathogen to spread in the host tissues after establishing the infection is known as**
- Adhesion
  - Invasiveness
  - Toxigenicity
  - None of these
- 92. Which is the following enzyme acts as a spreading factor?**
- Hyaluronidase
  - Coagulase
  - Catalase
  - DNase
- 93. Vibrio Cholerae was discovered by**
- Koch
  - Metchnikoff
  - John Snow
  - Virchow
- 94. E.coli was first isolated by**
- Louis Pasteur
  - Escherich
  - Shiga
  - Robert Koch
- 95. Mycobacterium tuberculosis was first discovered by**
- Robert Koch
  - Edward Jenner
  - Louis Pasteur
  - None of these
- 96. Mycobacterium lepre was discovered by**
- Robert Koch
  - Hansen
  - Edward Jenner
  - Louis Pasteur
- 97. Streptococcus pneumoniae was isolated by**
- Robert Koch
  - Edward Jenner
  - Antony von Leewenhock
  - Louis Pasteur
- 98. B.anthraxis was isolated by**
- Louis Pasteur
  - Robert Koch
  - Antonyvon Leewenhok
  - None of these
- 99. Staphylococcus aureus was isolated by**
- Rosenbach
  - Louis Pasteur
  - Passet
  - Sir Alexander Ogston
- 100. Pseudomonas aeruginosa was first named**
- Schroeter and Gessard
  - Robert Koch
  - Louis Pasteur
  - Edward Jenner
- 101. T. pallidum was discovered by**
- Robert Koch
  - Schaudinn and Hoffman
  - Louis Pasteur
  - Edward Jenner
- 102. Neisseria gonorrhoeae was first described by**
- Neisser in 1879
  - Pasteur in 1878
  - Robert Koch
  - None of these
- 103. Rh factor of the blood was discovered by scientist**
- Louis Pasteur
  - Landsteiner and Weiner
  - Janskey
  - Moss
  - None of these
- 104. Trepanema pallidum was discovered by**
- Schaudinn and Hoffman
  - Louis Pasteur
  - Burgey
  - Laennec
  - None of these
- 105. Fluroscent substance used in fluorescent microscopy are**
- Quinine sulphate
  - Auramine
  - All of these
  - None of these

**ANSWERS**

1. a	2. a	3. a	4. b	5. b	6. a
7. b	8. d	9. c	10. b	11. b	12. c
13. b	14. d	15. c	16. d	17. b	18. a
19. b	20. b	21. c	22. a	23. c	24. b
25. d	26. c	27. c	28. c	29. b	30. b
31. a	32. b	33. b	34. a	35. c	36. c
37. c	38. a	39. b	40. c	41. d	42. a
43. c	44. b	45. c	46. a	47. b	48. a
49. a	50. d	51. d	52. b	53. b	54. c
55. a	56. c	57. a	58. c	59. a	60. b
61. d	62. c	63. c	64. b	65. b	66. a
67. c	68. a	69. b	70. a	71. a	72. b
73. b	74. b	75. b	76. a	77. b	78. a
79. d	80. a	81. b	82. c	83. a	84. b
85. c	86. b	87. a	88. d	89. b	90. e
91. b	92. a	93. b	94. b	95. a	96. b
97. d	98. b	99. b	100. a	101. b	102. b
103. b	104. a	105. c			

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# CHAPTER 2

## BACTERIA AND GRAM STAINING

- 1. Cold like symptoms are caused by which bacteria**
  - a. Pseudomonas
  - b. E.coli
  - c. Haemophilus influenza
  - d. Haemophilus streptococcus
- 2. In Streptococcus fecalis, the conjugation takes place at**
  - a. Pili
  - b. Cell membrane
  - c. Cell wall
  - d. Flagella
- 3. The infected mad dogs may contain**
  - a. Nergi bodies
  - b. Niagri bodies
  - c. Negri bodies
  - d. Neisser bodies
- 4. What disease the Nesser will produce?**
  - a. Mumps
  - b. Rubella
  - c. Polio
  - d. Measles
- 5. Rancidity in spoiled foods is due to**
  - a. Lipolytic organisms
  - b. Proteolytic organisms
  - c. Toxigenic microbes
  - d. Saccharolytic microbes
- 6. The Baterium that is most commonly used in genetic engineering is**
  - a. Escherichia
  - b. Klebsiella
  - c. Proteius
  - d. Serratia
- 7. The functions of plasmid are**
  - a. DNA replication
  - b. Protein synthesis
  - c. Cell wall synthesis
  - d. None of the above
- 8. Mycoplasmas are bacterial cells that**
  - a. Fail to reproduce on artificial meida
  - b. Have a rigid cell wall
  - c. Are resistant to penicillin
  - d. Stain well with Gram's stain
- 9. The etiologic agent of botulism is a**
  - a. Neurotoxin
  - b. Endotoxin
  - c. Enterotoxin
  - d. All of the above
- 10. The bacterial cells are at their metabolic peak during**
  - a. Lag phase
  - b. Log
  - c. Stationary
  - d. Decline
- 11. Protein particles which can infect are called**
  - a. Virons
  - b. Prions
  - c. Nucleoida
  - d. None of these
- 12. In most of purple bacteria, the light harvesting centers are**
  - a. B 850 & Fe-S
  - b. B 850 & B 875
  - c. B 845 & B 875
  - d. B 850 & B830



- 13. Endotoxin produced by gramnegative bacteria is present in**
- Peptidoglycan
  - Lippolysacharide
  - Theichoic acid
  - Inner membrane
- 14. Which one of the following was Gram-negative, chemolithotrophic bacteria?**
- Siderococcus
  - E.coli
  - Spirellum
  - Mycoplasmas
- 15. The mode of reproduction which occurs in mycoplasma is**
- Budding
  - Bursting
  - Binary fission
  - Binary fusion
- 16. Which one of the following is about Herpes viruses?**
- Icosahedral, with envelope, ds DNA
  - Polyhedral with envelope, ds DNA
  - RNA, helical with envelope
  - ds DNA, brick shape
- 17. Which one of the following produce typical fried egg appearance colonies on solid media?**
- Mycobacteria
  - Mycoplasts
  - Mycoplasmas
  - Bacteroides
- 18. An organism that is osmophilic and has a specific requirements for sodium chloride resembles**
- Halophile
  - Basophile
  - Barophile
  - Xerophile
- 19. A population of cells derived from a single cell are called**
- Monoclonal cells
  - Clones
  - Protoplasts
  - Sub culture
- 20. Hetrolactic acid bacteria produce**
- Lactic acid only
  - Lactic acid + H<sub>2</sub>O + CO<sub>2</sub>
  - Lactic acid + CO<sub>2</sub>
  - Lactic acid + alcohol + CO<sub>2</sub>
- 21. In which of the follwing microorganism, conjunction tube was not produced during conjunction process?**
- Thiobaiillus thiooxidence
  - T. ferroxidance
  - Tetrahymena thermophila
  - Cryptaporiclium
- 22. Which of the following is most similar to Rickettsia and Chlamydia?**
- Bdellovibrio
  - Clostridium
  - Mycobacterium
  - Mycoldaima
- 23. How would you distinguish pseudomonas species from E-cloi?**
- Gram staining
  - Morphology
  - Glucose fermentation Vs Respiration
  - All of the above
- 24. Which of the following is pathogenic to humans?**
- Spirogyra
  - Cephaleuros
  - Prototheca
  - Both b and c
- 25. Tumer inducing plasmids are extensively used in production of**
- Avirulent phases
  - Single cell proteins
  - Transgenic plants
  - Nitrogen fixing bacteria
- 26. The viruses that live as parasites on bacteria are**
- Fungi
  - Commensels
  - Bacteriophages
  - None of these
- 27. The anthrax disease is most frequently infected from**
- Cattle
  - Sheeps
  - Rats
  - Both a and b
- 28. The colonies produced by Pseudomonas on Mac Conkey's medium are**
- Purple colored
  - Pink colored
  - Pale colored
  - Green colored
- 29. Staining material of gram positive bacterium is**
- Fast green
  - Haematoxylon
  - Crystal violet
  - Safranin

- 30. The pigment present in red algae is**
- Rhodochrome
  - Fucoxanthin
  - Chlorophyll only
  - Chlorophyll + phycobilin
- 31. During mitosis, synapsis occurs in the phase called**
- Telophase
  - Anaphase
  - Prophase
  - None of the above
- 32. Which of the following change is a transition?**
- ATGC'!ATCC
  - ATGC'!ATGG
  - ATGC'!AGGC
  - None of these
- 33. Citrus canker is caused by**
- Phytomonas
  - Salmonella
  - Lactobacillus
  - Hay bacillus
- 34. Bacteria that are responsible for fermentation of dairy milk are**
- Azetobacter
  - Rhizobium
  - Lactobacillus
  - Hay bacillus
- 35. The fungal disease that affect the internal organs and spread through the body are called**
- Mycoses
  - Systemic mycoses
  - Mycotoxicosis
  - Superficial mycoses
- 36. The staining technique used to stain the metachromatic granules of *Corynebacterium***
- Giemsa stain
  - Alberts stain
  - Acid fast staining
  - Both a and b
- 37. The orderly increase in all components of protoplasm of a cell is called**
- Reproduction
  - Cell division
  - Growth
  - All of the above
- 38. The causative organism of cholera, i.e., *Vibrio* show the movement called**
- Gliding movement
  - Darting movement
  - Pseudopoidal movement
  - None of these
- 39. Erythrocytes will get its ATP energy only by**
- Glycolysis
  - Kreb's cycle
  - Electron Transport
  - HMP shunt
- 40. Virus will contain**
- Cell membrane
  - Cell wall
  - DNA
  - DNA or RNA
- 41. The bacterial pili mainly contain**
- Carbohydrates
  - Lipids
  - Proteins
  - Minerals
- 42. The wonder drug of second world war is produced by**
- Algae
  - Fungi
  - Bacteria
  - Plants
- 43. Role of bacteria in carbon cycle is**
- Photosynthesis
  - Chemosynthesis
  - Breakdown of organic compounds
  - Assimilation of nitrogen compounds
- 44. Centromere is that part of chromosome where**
- Nucleoli are formed
  - Crossing over takes places
  - Chromatids are attached
  - Naking occurs
- 45. Somatic cell of the adult body are haploid in many except**
- Vertebrates
  - Invertebrates
  - Fungi
  - Vascular plants
- 46. Congenital diseases are**
- Diseases present at birth
  - Deficiency disease
  - Occur during life
  - Spread from one individual to another
- 47. The enzyme needed in biological systems for joining two molecules is called**
- Lyases
  - Diastases
  - Polymerases
  - Hydrolase

- 48. Meosomes are the part of**  
 a. Plasma membrane b. ER  
 c. Lysosomes d. Golgi
- 49. All prokaryotes are surrounded by a cell wall except**  
 a. Mycoplasmas b. Sperochetes  
 c. Actinomycetes d. Methanogena
- 50. Enzyme hydrolyzing bacterial cell wall**  
 a. Lysozome b. Reductase  
 c. Protease d. Lysozyme
- 51. Cows can digest straw because they contain**  
 a. Cellulose hydrolyzing microorganisms  
 b. Protein hydrolyzing bacteria  
 c. Lipid hydrolyzing microorganisms  
 d. Amino acid degrading bacteria
- 52. The nucleus controls protein synthesis in the cytoplasm by sending**  
 a. Chromatin b. A DNA template  
 c. m RNA molecule d. A pecialized protein
- 53. The site of energy production in a cell**  
 a. Micro body b. Chromosome  
 c. Ribosome d. Mitochondria
- 54. Thylakoid is present in**  
 a. Mitochondria b. Chloroplast  
 c. ER d. Golgi apparatus
- 55. Which one of the following bacteria has found extensive use in genetic engineering work in plants?**  
 a. Clostridium septicum  
 b. Xanthomonas oriza  
 c. Bacillus coagulens  
 d. Agrobacterium tumefaciens
- 56. Maximum application of animal cell culture technology today is in the production of**  
 a. Insulin b. Interferons  
 c. Vaccines d. Edible proteins
- 57. Bacterial ribosomes are composed of**  
 a. Protein and DNA b. Protein and mRNA  
 c. Protein and rRNA d. Protein and tRNA
- 58. The potorespiration involves**  
 a. Calvin cycle b. Hatch-Slack cycle  
 c. Glycolate cycle d. Kreb's cycle
- 59. Bioleaching is done by**  
 a. Protozoa b. Bacteria  
 c. Algae d. All of the above
- 60. Inclusion bodies diagnostic of rabies are called**  
 a. Elementary bodies b. Pascheur bodies  
 c. Negri bodies d. Guarnieri bodies
- 61. Which of the following genera is most likely to contain organisms capable of surviving high temperature?**  
 a. Vibrio b. Pseudomonas  
 c. Torula d. Coxiella
- 62. The major role of minor elements inside living organisms is to act as**  
 a. Co-factors of enzymes  
 b. Building blocks of important amino acids  
 c. Constituents of hormones  
 d. Binder of cell structure
- 63. The apparatus used to maintain a continuous culture**  
 a. Chemostat b. Autostat  
 c. Thermostat d. Both a and c
- 64. The test used to detect the deamination of the amino acids by bacteria**  
 a. Nessler's reagent test  
 b. Proteolytic test  
 c. Lactose test  
 d. Rose aindole reagent test
- 65. Diphtheria is caused by**  
 a. Corynebacterium b. Staphylococcus  
 c. Streptococcus d. None of these
- 66. Koplic spots observed in the mucous membrane is characteristic feature of the disease**  
 a. Rubella b. Measles  
 c. Mumps d. Influenza

- 67. A bacterium containing prophage is called as**
- Lytic
  - Lysogen
  - Lytogen
  - None of these
- 68. The most infectious food borne disease is**
- Tetanus
  - Dysentery
  - Gas gangrene
  - Botulism
- 69. An example for common air borne epidemic disease**
- Influenza
  - Typhoid
  - Encephalitis
  - Malaria
- 70. Vrial genome can become integrated into the bacterial genomes are known as**
- Prophage
  - Temperatephage
  - Bacteriophage
  - Metaphage
- 71. Rancidity of stored foods is due to the activity of**
- Toxigenic microbes
  - Proteolytic microbes
  - Saccharolytic microbes
  - Lipolytic microbes
- 72. Virion means**
- Infectious virus particles
  - Non-infectious particles
  - Incomplete particles
  - Defective virus particles
- 73. Virulence of the microorganisms can be reduced by**
- Attenuation
  - A virulence
  - Inactivation
  - Freezing
- 74. The test used for detection of typhoid fever**
- WIDAL test
  - ELISA
  - Rosewaller test
  - Westernblotting
- 75. Bacteriophage capable of only lytic growth is called**
- Temperate
  - Avirulent
  - Virulent
  - None of these
- 76. Diphtheria bacillus is otherwise known as**
- Fried-Landers bacillus
  - Kleb's hoffers bacillus
  - Frchs bacillus
  - Koch's bacillus
- 77. Acridine dyes are more effective against**
- Gram positive
  - Gram negative
  - Ricke Hsia
  - Mycoplasma
- 78. In bacteria pigment bearing structures are**
- Chloroplast
  - Protoplast
  - Sphaeroplast
  - Chromatophores
- 79. The procedure of differential staining of bacteria was developed by**
- A.H. Gram
  - H.C. Gram
  - N.C. Gram
  - H.A. Gram
- 80. Intermediate group of pathogen between bacteria and viruses which are intracellular parasites are called**
- Mucoplasmas
  - Rickettsias
  - Prions
  - Virusoides
- 81. Bacillus is an example of**
- Gram positive bacteria
  - Gram negative bacteria
  - Virus
  - Viroid
- 82. Amoebic dysentery in humans is caused by**
- Plasmodium
  - Paramecium
  - Yeast
  - Entamoeba histolytica
- 83. Viral genome that can become integrated into bacterial genome is called**
- Prophage
  - Temperate phage
  - Bacteriophage
  - Metaphage
- 84. Cytochromes are**
- Oxygen acceptors
  - ATP acceptors
  - Electron acceptors
  - Protein acceptors
- 85. The cells having F plasmid in the chromosomes were termed as**
- Hfr
  - F<sup>-</sup>
  - Hbr
  - C<sup>+</sup>

- 86. Recombination process occurring through the mediation of phages is**  
 a. Conjunction      b. Transduction  
 c. Transformation      d. Transfection
- 87. Mordant used in grams staining is**  
 a. Crystal violet      b. Iodine  
 c. Saffranin      d. All of these
- 88. Parasitic form must contain**  
 a. Capsule      b. Cell-wall  
 c. Endospores      d. Flagella
- 89. Gram staining is an example for**  
 a. Simple staining      b. Differential staining  
 c. Negative staining      d. None of these
- 90. Following Cocci are non-motile except**  
 a. Staphylococcus      b. Meningococcus  
 c. Gonococcus      d. Rhodococcus agilis
- 91. Aspergillus fumigatus can infect**  
 a. Birds      b. Animals  
 c. Man      d. All of them
- 92. Enterotoxin responsible for food poisoning is secreted by**  
 a. Enterococci      b. Entamoeba histolytica  
 c. Enterobacteriaceae      d. Straphylococci
- 93. Autolysis is done by**  
 a. Mitochondria      b. Lysosomes  
 c. Golgi bodies      d. Peroxisomes
- 94. A facultative anaerobic is**  
 a. Only grow anaerobically  
 b. Only grow in the presence of  $O_2$   
 c. Ordinarily an anaerobe but can grow with  $O_2$   
 d. Ordinarily an aerobe but can grow in absence of  $O_2$
- 95. The percentage of  $O_2$  required by moderate anaerobe is**  
 a. 0%      b. < 0.5%  
 c. 2 – 8%      d. 5 – 10%
- 96. Interferon is formed by**  
 a. Lymphocytes      b. Lymphoblasts  
 c. Fibroblasts      d. All of these
- 97. Pigment bearing structure of bacteria are**  
 a. Mesosomes      b. Plasmids  
 c. Mitochondria      d. Chromophores
- 98. Spirochete is**  
 a. Gonococci  
 b. Strphylococci  
 c. Treponema pallidum  
 d. Streptococci
- 99. Histones are found in**  
 a. Prokaryotes      b. Eukaryotes  
 c. Viruses      d. None of these
- 100. Cell wall of gram negative bacteria is**  
 a. Thick  
 b. Lipids are present  
 c. Teichoic acids are absent  
 d. None of these
- 101. Cytoplasmic streaming is present in**  
 a. Prokaryotes      b. Animals  
 c. Eukaryotes      d. Both a and b
- 102. The motile bacteria is**  
 a. S. typhi      b. K. pneumoniae  
 c. B. anthracis      d. Shigella
- 103. The stain used to demonstrate fungus**  
 a. Albert  
 b. Nigerosin  
 c. Lactophenol cotton blue  
 d. None of these
- 104. Exotoxina are**  
 a. Heat labile  
 b. Heat stable  
 c. Part of cell wall  
 d. Polymerized complexes
- 105. The viruses that attack bacteria are**  
 a. Bacterial viruses      b. Bacterial pathogens  
 c. Bacteriophages      d. Various
- 106. The size of virus particle may range**  
 a. 0.02–0.2  $\mu\text{m}$       b. 0.5–10  $\mu\text{m}$   
 c. 0.015–0.2  $\mu\text{m}$       d. 0.1–100  $\mu\text{m}$

- 107. The bacterial cell multiplication is usually by**
- Mitosis
  - Meiosis
  - Conjugation
  - Binary-fission
- 108. Rod shaped bacteria are known as**
- Cocci
  - Comma forms
  - Bacilli
  - Plemorphic froms
- 109. All the groups of bacteria have cell wall**
- Mycobacteria
  - Mycoplasmas
  - Clostridia
  - Rickettsia
- 110. Thickness of cell wall ranges from**
- 9-10 nm
  - 12-13 nm
  - 10-25 nm
  - 30-40 nm
- 111. Teichoic acids and Teichuronic acids are found in**
- Gram positive bacteria
  - Gram negative bacteria
  - Fungi
  - None of these
- 112. Meosomes are**
- Kind of ribosomes
  - Formed during cell lysis
  - A part of cell wall
  - Principal sites of respiratory enzymes
- 113. The characteristic shape of the bacteria is maintained because of**
- Capsule
  - Cell wall
  - Cell membrane
  - Slime layer
- 114. Bacterial capsule is chemically composed of**
- Polypeptide
  - Polynucleotides
  - Polysaccharides
  - Polypeptides or polysaccharides
- 115. The cell wall deficient form of bacteria is**
- Mycoplasma
  - 'L' form
  - Protoplast
  - Spheroplast
- 116. Mesosomes are also known as**
- Mitochondria
  - Chloroplasts
  - Golgi complex
  - Chondroids
- 117. The differences between Gram positive and Gram negative bacteria is shown to reside in the**
- Cell wall
  - Nucleus
  - Cell membrane
  - Mesosomes
- 118. Capsule formation occurs in the presence of**
- Albumin
  - Charcoal
  - Serum
  - Starch
- 119. The virulence determining antigens of microorganisms may be**
- Proteins and polysaccharides
  - Carbohydrate – protein complexes
  - Polysaccharide – Phospholipid – Protein complexes
  - All of these
- 120. Organelles with hydrolytic enzymes are**
- Mitochondria
  - Golgi complex
  - Lysosomes
  - Ribosomes
- 121. Bacterial locomotion is accomplished by**
- Fimbria
  - Flagella
  - Cytoskeleton
  - Both a and b
- 122. Fimbriae are demonstrated by**
- Culture
  - Gram stain
  - Biochemical reactions
  - Haemagglutination test
- 123. The motile bacteria is**
- Salmonella typhi
  - Klebsiella pneumoniae
  - Bacillus anthracis
  - Shigella flexneri
- 124. Following cocci are non-motile except**
- Staphylococcus
  - Meningococcus
  - Gonococcus
  - Rhodococcus agilis
- 125. Metachromatic granules are chemically composed of**
- Lipids
  - Proteins
  - Polymetaphosphates
  - Polysaccharide

- 126. Metachromatic granules can be stained with**
- Saffranine
  - Methylene blue
  - Crystal violet
  - Penicillin
- 127. Bacteria multiply by**
- Spore formation
  - Simple binary fission
  - Conjugation
  - Gametes
- 128. Bacterial spores are**
- Weakly acid fast
  - Strongly acid fast
  - Alcohol fast
  - Non acid fast
- 129. Endospores can be stained with**
- Saffranine
  - Crystal violet
  - Methylene blue
  - Malachite green
- 130. The following bacteria produce pigment, except**
- Pseudomonas pyocyaneus*
  - Serratia marcescens*
  - D. pneumoniae*
  - Staphylococcus aureus*
- 131. The order of stains in Gram-staining procedure is**
- Crystal violet, Iodine solution, Alcohol, Saffranine
  - Iodine solution, Crystal Violet, Saffranine, Alcohol
  - Alcohol, Crystal Violet, Iodine solution, Saffranine
  - All of these
- 132. The percentage of alcohol used in Gram-staining is**
- 75%
  - 90%
  - 60%
  - 25%
- 133. Gram positive bacteria appear as**
- Pink
  - Violet
  - both a & b
  - None of these
- 134. Gram negative bacteria appear as**
- Pink
  - Violet
  - both a & b
  - None of these
- 135. The action of alcohol during Gram-staining is**
- Allows the color
  - It adds color
  - Decolorises the cells
  - None of these
- 136. Lipid contents is more in**
- Gram negative bacteria
  - Gram positive bacteria
  - Same in both
  - None of these
- 137. Cell-wall is**
- Thick in Gram positive than Gram negative
  - Thick in Gram negative than Gram positive
  - Equal in both
  - In Gram negative cell-wall is absent
- 138. The Lipid content present in Gram positive bacterial cell-wall is**
- 1-10 %
  - 1-5 %
  - 2-8 %
  - None of these
- 139. Rickettsiae stained by this technique responds as**
- Gram positive
  - Gram negative
  - Between positive and negative
  - None of these
- 140. Chlamydiae occur in**
- Elementary bodies
  - Reticulate bodies
  - Complex structures
  - a and b
- 141. Chlamydiae can be stained better with**
- Ziehl neelsen staining
  - Castaneda & Machiavello stains
  - Giminez stains
  - Both b and c
- 142. Algae means**
- Fresh water organisms
  - Sea weeds
  - Fresh water weeds
  - None of these

- 143. The study of algae is known as**  
a. Algology                      b. Phycology  
c. Mycology                      d. Bacteriology
- 144. The free floating algae are known as**  
a. Phytoplankins                b. Benthons  
c. Sea weeds                      d. None of these
- 145. Sexual reproduction of algae is carried by**  
a. Isogamy                        b. Anisogamy  
c. Oogamy                         d. All the above
- 146. In algae, advanced type of sexual reproduction is**  
a. Isogamy                        b. Anisogamy  
c. Oogamy                         d. None of these
- 147. Alginic acids and its salts are obtained from the wall of**  
a. Red algae                      b. Brown algae  
c. Green algae                    d. Red and brown algae
- 148. The molds obtained nutrition from dead and decaying matter which are called**  
a. Saphrophytes                b. Parasites  
c. Commensals                   d. None of these
- 149. Most molds are capable of growing in the temperature range between**  
a. 0° – 25°C                      b. 0° – 35°C  
c. 10° – 25°C                      d. 10° – 35°C
- 150. Examples for actinomycetes**  
a. Streptomyces                b. Spirillospora  
c. Frankia                         d. Dermatophillia  
e. All of the above
- 151. Pellicle is found in only**  
a. Algae                            b. Fungi  
c. Bacteria                        d. Protozoans
- 152. The Largest virus is**  
a. Parvo virus                    b. Pox virus  
c. Rhabdo virus                 d. None of these
- 153. The smallest virus is**  
a. Parvo virus                    b. Rhabdo virus  
c. Pox virus                       d. Adeno virus
- 154. The extra cellular infections virus particle is called**  
a. Capsid                         b. Nucleocapsid  
c. Virion                         d. None of these
- 155. Shape of bacteriophage is**  
a. Brick shape                    b. Bullet shape  
c. Helical shape                 d. Tadpole shape
- 156. If only one stain is used for staining a specimen**  
a. Simple staining              b. Negative staining  
c. Differential staining        d. None of these
- 157. Other than the sample (specimen) the remaining portion is stained then it is called**  
a. Simple staining              b. Negative staining  
c. Differential staining        d. None of these
- 158. If more than one stain is used, such staining is called**  
a. Simple staining              b. Negative staining  
c. Differential staining        d. None of these
- 159. 'Fluorescence' was first observed by**  
a. Kohler                         b. Coons  
c. Both a and b                 d. None of these
- 160. By using fluorescence property fluorescent antibody technique was developed by**  
a. Kohler                         b. Coons  
c. Both and b                    d. None of these
- 161. During staining for Electron Microscopy, the method which improves contrast of specimen is**  
a. Positive staining              b. Negative staining  
c. Shadow staining              d. None of these
- 162. The inorganic forms of nitrogen, which are accepted by bacteria are**  
a. Nitrates                        b. Nitrites  
c. Ammonium salts              d. All of these
- 163. Archaeo bacteria are known as**  
a. Halophiles  
b. Red extreme halophiles  
c. Osmophiles  
d. Extreme thermophiles



- 164. Nitrite is converted into nitrate by the bacteria**
- Nitrosomonas
  - Nitrosocytes
  - Nitrobacter
  - Azotobacter
- 165. Sulphur oxidizing bacteria is**
- Alcaligenes
  - Pseudomonas
  - Thiobacillus
  - None of these
- 166. Bacillus Schlegelli is**
- Hydrogen – Oxydising bacteria
  - Sulphur – Oxydising bacteria
  - Iron-Oxidising bacteria
  - Nitrite oxidizing bacteria
- 167. The group of bacteria which depends on organic sources in nature for their energy requirements. They are said to be**
- Chemotrophs
  - Phototrophs
  - Heterotrophes
  - Organotrophs
- 168. Majority of bacteria are**
- Saprophytes
  - Symbionts
  - Commensals
  - Parasites
- 169. Symbionts are**
- Bacteria in symbiotic association
  - The group of fungi in symbiotic association
  - The groups participating in symbiotic association
  - All of these
- 170. The best example for symbiotic association is**
- E.coli in intestine of man
  - Lichens
  - Normal flora of skin
  - All of the above
- 171. The enzymes responsible for decomposition is**
- Lipolytic
  - Proteolytic
  - Lysozyme
  - Both a and b
- 172. Urea is decomposed by the species**
- Micrococcus sps.
  - Nitrosomonas sps.
  - Proteus sps.
  - Both a and c
- 173. Phycobiont is**
- The algal part in Lichens
  - The fungal part in Lichens
  - Laustoria formation
  - None of these
- 174. Parasitic form must contain**
- Capsules
  - Cell-wall
  - Endospores
  - Flagella
- 175. The total no. of genes in the group of same individuals is**
- Genome
  - Gene map
  - Gene pool
  - None of these
- 176. Transformation was observed mainly in**
- Bacteriophages
  - Temperate phages
  - $\lambda$ -phage
  - All of these
- 177. Capsulated forms of bacteria are**
- Virulent
  - A virulent
  - Useful
  - Symbiotic
- 178. The bacterial cells participating in conjugation are**
- Conjugants
  - Fertile cells
  - Exconjugants
  - None of these
- 179. Phagocytes are**
- Monocytes
  - Macrophages
  - Basophils
  - All of these
- 180. The microorganism engulfed by phagocyte resides in a vacuole is known as**
- Phagosome
  - Lysosome
  - both a and b
  - None of these
- 181. Toxic products in phagolysosome are**
- $H_2SO_4$
  - Singlet  $O_2$
  - Superoxide radicals
  - All of these
- 182. During destruction of antigen particle in phagolysosome the product formed in phagolysosome the product formed during formulation is**
- Acetic acid
  - Lactic acid
  - Citric acid
  - None of these

- 183. The coating of a bacterium with antibody or complement that leads to enhanced phagocytosis of the bacterium by phagocytes is called**
- Opsonisation
  - Agglutination
  - CFT
  - None of these
- 184. Attenuation means**
- Killing of the bacteria (microorganism)
  - Inactivation of bacteria
  - More activating the bacteria
  - Both 1 and 2
- 185. Infection that results in pus formation are called**
- Focal infection
  - Acute infection
  - Pyogenic infection
  - Chronic infection
- 186. Presence of viable bacteria in the blood stream is called**
- Viraemia
  - Septicaemia
  - Bacteraemia
  - Bactericidal
- 187. Presence of viruses in the blood stream is known as**
- Viraemia
  - Bacteraemia
  - Septicaemia
  - Pyemia
- 188. Opsonin is the**
- Cellwall component
  - Plasma component
  - Serum component
  - Cytoplasm component
- 189.  $\beta$ -haemolytic bacteria is**
- Streptococcus pyogenes*
  - Str. pneumoniae*
  - Str. viridans*
  - Str. faecalis*
- 190. The natural reservoir of infection for cholera is**
- Flies
  - Horse
  - Man
  - None of these
- 191. Main cause for Cholera is**
- Poverty and insanitation
  - Mosquitoes
  - Toxin produced by pesticides
  - None of these
- 192. *Vibrio cholera* differs from *vibrio eltor* by**
- It shares some Inaba, Ogawa subtypes with eltor
  - Resistant to polymyxin
  - Eltor is non-motile
  - Causes less subclinical infections as compared to eltor
- 193. Cholera vaccine gives protection for**
- 1 – 3 months
  - 3 – 6 months
  - 6 – 9 months
  - 9-12 months
- 194. Prophylaxis of cholera is**
- Protected water supply
  - Environmental sanitation
  - Immunisation with killed vaccines
  - All of these
- 195. *Sh.dysenteriae* is also known as**
- Sh.shiga*
  - Sh.schmitzi*
  - Both a and b
  - Sh.para dysenteriae*
- 196. Acid fast bacteria are**
- Neisseria*
  - Staphylococci*
  - Mycobacteria*
  - All of the above
- 197. *Mycobacteria* are stained with**
- Gram's staining
  - Simple staining
  - Both a and b
  - Ziehl – Neelsen's staining
- 198. Niacin test is positive in case of**
- Corynebacterium*
  - M. tuberculosis*
  - M. bovis*
  - M. avium*
- 199. Lepromin test**
- Is negative in tubercular leprosy
  - Positive in lepromatous type
  - Indicated delayed hypersensitivity test
  - Indicates infection
- 200. *Streptococcus* forms causes which type of infections?**
- Fever
  - Zoonotic
  - Pyogenic
  - None of these

- 201. Streptococcus pyogenes classification is based on**
- Protein M
  - Protein T
  - Protein R
  - Polysaccharide C
- 202.  $\alpha$ -haemolytic streptococci are also known as**
- Str. pyogenes
  - Virulence group
  - Viridans group
  - None of these
- 203. Streptolysin O is inactivated by**
- CO<sub>2</sub>
  - Nitrogen
  - Oxygen
  - Serum
- 204. Streptolysin 'S' is**
- Oxygen unstable
  - Thermostable
  - Oxygen stable
  - None of these
- 205. Influenza virus is identified by using**
- Haemagglutinin inhibition test
  - Tissue culture method
  - Embryonated eggs
  - Plaque formation
- 206. Growth of influenza virus is identified by**
- Cytopathic effects
  - Hela cells
  - Both a and b
  - None of these
- 207. Glutamic acid is oxidized by the species except**
- B. abortus
  - B. melienasis
  - B. suis
  - B. canis
- 208. "Prozone phenomenon" is encountered in**
- A typical mycobacteria
  - Brucella
  - Streptococcus
  - Bordetella pertusis
- 209. Of the following, this is a capsulated organism**
- Bacillus anthracis
  - Escherichia coli
  - Corynebacterium
  - Brucella
- 210. Anthrax is a**
- Vector borne
  - Zoonotic infection
  - Wound borne
  - Soil borne
- 211. Mc Fadyean's reaction is used to detect**
- Bacillus anthracis
  - Brucella
  - Corynebacterium
  - None of these
- 212. Gas gangrene bacillus is**
- Facultative anaerobe
  - Obligate anaerobe
  - Facultative aerobe
  - Obligate aerobe
- 213. Coagulase test is used for**
- Salmonella
  - Staphylococcus
  - Bordetella
  - Pneumococcus
- 214. HIV is belonging to**
- Retro Viridae
  - Rhabdo Viridae
  - Toga Viridae
  - Paramyxo Viridae
- 215. Special feature of Retro viruses**
- Reverse transcriptase
  - RNA directed DNA polymerases
  - Both a & b
  - Boils
- 216. AIDS virus is**
- RNA virus
  - DNA virus
  - Retro virus
  - Enterovirus
- 217. AIDS is caused by**
- HTLV – I
  - Bunya virus
  - HTLV – III
  - All
- 218. Which of the following organisms is most commonly associated with AIDS pneumonia?**
- Klebsiella
  - Str. pneumonia
  - Mycoplasma
  - Mycobacterium tuberculosis
- 219. Sero conservation in HIV infection takes place in**
- 3 weeks
  - 6 weeks
  - 9 weeks
  - 12 weeks

- 220. Following is the marker of HIV infection in blood:**
- Reverse transcriptase
  - DNA polymerase
  - RNA polymerase
  - None of these
- 221. Which of the following is the most specific in diagnosis of AIDS?**
- IHA
  - Western blot
  - ELISA
  - Immuno electrophoresis
- 222. The interval period between HIV infection and appearance of antibodies in serum is called**
- Intrinsic period
  - Incubation period
  - Window period
  - None of these
- 223. Screening test for AIDS is**
- Western blot test
  - ELISA test
  - Both a and b
  - VDRL test
- 224. Confirmatory test for AIDS is**
- Western blot test
  - ELISA test
  - Karpas test
  - Fujerbio test
- 225. The most common infection in AIDS is**
- LGV
  - CMV
  - Pneumocystis carinii
  - Syphilis
- 226. During AIDS, HIV infects**
- CD<sub>3</sub> lymphocytes
  - CD<sub>4</sub> lymphocytes
  - CD<sub>2</sub> lymphocytes
  - B lymphocytes
- 227. Lab diagnosis of Leishmaniasis is done by**
- CFT
  - Peripheral smear
  - Blood culture
  - All of these
- 228. Those fungi which do not have a sexual stage are classified as**
- Phycomycetes
  - Ascomycetes
  - Basidiomycetes
  - Fungi imperfecti
- 229. Tinea capitis is**
- Ring worm of the foot
  - Ring worm of scalp
  - Ring worm of non-hairy skin of body
  - Both a and c
- 230. Diagnosis of bacterial disease can be made by**
- Finding bacteria in pathological fluids
  - Isolation of bacteria by culture from exudates or blood
  - Both a and b
  - None of these
- 231. Staphylococcus aureus are characterized by**
- Formation of acid in sucrose, dextrose
  - Liquification of gelatin due to production of gelatinase
  - Strains are catalase positive
  - All of above
  - None of these
- 232. Cholera occurs in \_\_\_\_\_ form**
- Endemic
  - Epidemic
  - Sporadic
  - all
  - None of these
- 233. Endemic typhus is caused by**
- R.mooseri
  - R.quintana
  - R.prowazekii
  - any of them
  - None of these
- 234. A man is usually infected for tick typhus by -**
- Drinking milk of sick animals
  - Tending cattle
  - Inhaling infected dust
  - All of these
- 235. In Gram positive bacteria, ratio of RNA to DNA is**
- 8 : 1
  - 1 : 2
  - Almost equal
  - None of these
- 236. Ziehl - Neelson stain is a \_\_\_\_\_**
- Simple stain
  - Counter stain
  - Differential stain
  - None of them
- 237. Wet mount slide preparations are used in microbiology as they allow to see**
- Size and shape of individual organisms
  - Characteristic arrangement or grouping of cells
  - Motility of the organism
  - All of these
  - None of these

- 238. Organism resistant to degradative lysosomal enzymes includes**
- M.tuberculosis*
  - Legionella pneumophila*
  - M.leprae*
  - Both a and b
  - Both b and c
- 239. Freeze-etch particles (used in preparing cell for electron microscopy) can be located in the**
- Cytoplasm
  - Cell wall
  - Cell membrane
  - Nucleus
- 240. The properties common to Gram positive and negative cell walls are**
- Equal susceptibility to hydrolysis by lysozyme
  - Peptide crosslinks between polysaccharides
  - Rigid peptoglycon activity
  - Greater resistance to drying than vegetative cell.
  - All of these
- 241. The main difference in true bacteria and mycoplasma is that it does not possess -**
- Flagella
  - Cell wall
  - ATP synthesis
  - A capsule
- 242. The organism responsible for retarding penetration of host cell by an inhibitor of ATP synthesis.**
- M.pneumoniae*
  - Rickettsia rickettsii*
  - Chlamydia trachomatis*
  - Chlamydia psitacci*
- 243. Mycoplasmas differ from Chlamydiae in that, it**
- has ability to cause urinary tract infection
  - lack of true bacterial cell wall
  - susceptible to penicillin
  - All of these
  - None of these
- 244. Fungal disease in human is caused by -**
- Inhalation of conidia
  - Invasion of mucous membrane
  - Contamination of wounds with conidia or mycelial fragments
  - All of these
  - None of these
- 245. Fungi differs with bacteria in that it -**
- Contain no peptidoglycan
  - Are prokaryotic
  - Susceptible to griseofulvin
  - Have nuclear membranes
  - All of these
- 246. A polysaccharide capsule is present on cryptococci which -**
- Inhibits phagocytosis
  - Is an aid to diagnose
  - Cross reacts with rheumatoid factor
  - All of these
- 247. The largest protozoa is -**
- Balantidium coli*
  - Entamoeba coli*
  - Trichomonus vaginalis*
  - Toxoplasma gondii*
- 248. Premunition is particularly seen in -**
- Ascaris*
  - Giardia*
  - Plasmodium*
  - None of these
- 249. Which of the following vaccine contains attenuated form of bacteria?**
- BCG
  - TAB
  - Polio
  - Cholera
- 250. The bacteria, which is motile at 22°C but non-motile at 37°C is**
- Transformation
  - Transduction
  - Conjugation
  - Cell fusion
- 251. Techoic acid is -**
- Found in the walls of Gram positive bacteria
  - Provide receptors for phages
  - Make up outer wall of Gram negative bacteria
  - Influence the permeability of the membrane

- 252. One flagellum at one end of the organ is called –**
- Monotrichate
  - Amphitrichate
  - Lophotrichate
  - Peritrichate
- 253. What is the function of bacterial capsule?**
- Production of organism from phagocytosis
  - Helps in adherence of bacteria to surface in its environment
  - Both a and b
  - None of these
- 254. Which of the following is the characteristic of bacterial spore?**
- Highly refractile
  - Usually dehydrated
  - Sensitive to formaldehyde
  - All of these
- 255. Which of the following are acid fast structures?**
- Mycobacteria
  - Bacterial spores
  - Nocardia
  - All of these
- 256. All of the following are acid fast structures except**
- Clostridium
  - Bacterium spores
  - Exoskeleton
  - None of these
- 257. All of the following are energy source of bacteria except**
- Oxidation of inorganic compounds
  - Oxidation of organic compounds
  - Absorption of heat
  - Utilisation of visible light
- 258. Identify the obligate anaerobes**
- Salmonella
  - Vibrio cholera
  - Cl. tetani
  - Sarcinae
- 259. Streptococci which are destroyed at 60°C for 30 minutes**
- Preptostreptococci
  - Strepto viridans
  - Strepto hemolyticus
  - All of these
- 260. Toxins or enzymes which are not produced by streptococcus pyogens**
- Hyaluronides
  - Phosphate
  - Hemolysin
  - Streptokinase
- 261. Cholera red reaction is identified by**
- Sulphuric acid
  - Nitric acid
  - Hydrochloric acid
  - Carbolic acid
- 262. Diagnosis of carrier of salmonella typhi may be shown by**
- Fecal culture
  - Bile culture
  - Urine culture
  - All of these
- 263. Daisy head colony is associated with**
- M.tuberculosis
  - C.diphtheriae
  - Cl. tetani
  - None of these
- 264. Neil mooseri reaction is related to**
- Rickettsiae
  - Chlamydiae
  - Spirochaetes
  - Clostridium periringens
- 265. All of the following are DNA viruses except –**
- Parvo virus
  - Paramyxo virus
  - Herpes virus
  - Pix virus
- 266. The dengue fever virus is –**
- Arbo virus
  - Echo virus
  - Entero virus
  - Orthomyxo virus
- 267. Dengue fever is caused by –**
- Bacteria
  - Virus
  - Fungi
  - Rickettsia
- 268. Which of the following characters are related to viruses?**
- No growth on inanimate culture media
  - Not sensitive to antibiotics
  - No energy producing enzymes
  - Insensitive to interferon
- 269. Main causative organism of chicken pox is**
- Fox virus
  - Mumps virus
  - Measles virus
  - None of these
- 270. Rickesia are stained with**
- Giesna and Castaneda stains
  - Macchiavello and Gimnezstains
  - Both a and b
  - Malachite green

**ANSWERS**

1. c	2. c	3. c	4. d	5. a	6. a
7. d	8. c	9. a	10. b	11. b	12. b
13. b	14. b	15. c	16. a	17. c	18. a
19. b	20. d	21. a	22. c	23. c	24. c
25. c	26. c	27. d	28. c	29. c	30. d
31. c	32. d	33. a	34. c	35. b	36. b
37. c	38. b	39. a	40. d	41. c	42. b
43. c	44. c	45. c	46. a	47. c	48. a
49. a	50. d	51. a	52. c	53. d	54. b
55. d	56. c	57. c	58. c	59. b	60. c
61. c	62. a	63. a	64. a	65. a	66. c
67. b	68. d	69. a	70. b	71. d	72. c
73. a	74. a	75. a	76. b	77. a	78. d
79. b	80. b	81. a	82. d	83. a	84. c
85. a	86. b	87. b	88. b	89. d	90. a
91. b	92. d	93. b	94. d	95. c	96. d
97. d	98. c	99. b	100. c	101. c	102. a
103. c	104. a	105. c	106. c	107. d	108. c
109. b	110. c	111. a	112. d	113. b	114. d
115. b	116. d	117. a	118. c	119. d	120. c
121. d	122. d	123. a	124. d	125. c	126. b
127. b	128. a	129. d	130. c	131. a	132. b
133. b	134. a	135. c	136. a	137. a	138. b
139. b	140. d	141. d	142. b	143. b	144. a
145. d	146. c	147. b	148. a	149. b	150. d
151. d	152. b	153. b	154. c	155. d	156. a
157. b	158. c	159. a	160. b	161. b	162. d
163. b	164. c	165. c	166. a	167. c	168. d
169. c	170. b	171. b	172. d	173. a	174. a
175. c	176. b	177. c	178. a	179. d	180. a
181. d	182. b	183. a	184. b	185. c	186. c
187. a	188. c	189. a	190. c	191. a	192. d
193. b	194. d	195. c	196. c	197. d	198. b
199. c	200. d	201. a	202. c	203. c	204. c
205. a	206. b	207. d	208. b	209. a	210. b
211. a	212. b	213. b	214. a	215. c	216. c
217. d	218. d	219. c	220. a	221. b	222. c
223. b	224. a	225. c	226. b	227. d	228. d
229. c	230. c	231. c	232. d	233. a	234. c
235. a	236. c	237. d	238. e	239. c	240. d
241. b	242. b	243. b	244. d	245. e	246. a
247. a	248. c	249. a	250. d	251. a	252. a
253. c	254. d	255. d	256. a	257. c	258. c
259. d	260. b	261. a	262. d	263. b	264. a
265. b	266. a	267. b	268. d	269. d	270. c

# CHAPTER 3

## STERILISATION, CULTURE MEDIA AND PURE CULTURE TECHNIQUES

- 1. The medium used in membrane filter technique was**
  - a. EMB agar
  - b. EMR-Vp medium
  - c. Lactose broth
  - d. Endo agar
- 2. Lysol is a**
  - a. Sterilent
  - b. Disinfectant
  - c. Antiseptic
  - d. Antifungal agent
- 3. Which of the following is a neutral stain?**
  - a. Picric acid
  - b. Gmiemsa
  - c. Neutral red
  - d. Malachite green
- 4. Peptone water medium is an example for**
  - a. Synthetic medium
  - b. Semisynthetic medium
  - c. Differential medium
  - d. None of these
- 5. The method in which the cells are frozen dehydrated is called**
  - a. Pasteurization
  - b. Dessication
  - c. Disinfection
  - d. Lypophilization
- 6. The technique used to avoid all microorganisms is accomplished by**
  - a. Sterlization
  - b. Disinfection
  - c. Surgical sterilization
  - d. Disinfection Sterilization
- 7. Thermal death time is**
  - a. Time required to kill all cells at a given temperature
  - b. Temperature that kills all cells in a given time
  - c. Time and temperature needed to kill all cells
  - d. All of the above
- 8. A culture medium the exact composition of which is not known was called as**
  - a. Simple
  - b. Complex
  - c. Defined
  - d. Natural
- 9. Elek's gel diffusion test is used for the detection of**
  - a. Tetani toxin
  - b. Cholera toxin
  - c. Diophtheria toxin
  - d. Toxoid
- 10. Temperature required for pasteurization is**
  - a. Above 150°C
  - b. Below 100°C
  - c. 110°C
  - d. None of these
- 11. Separation of a single bacterial colony is calle**
  - a. Isolation
  - b. Separation
  - c. Pure culturing
  - d. All of these
- 12. Which of the following is ionizing radiation?**
  - a. U.V. rays
  - b. IR
  - c.  $\gamma$ -rays
  - d. None of these



- 13. Which of the following induces dimerisation of thymine?**  
a. X-rays                      b. U.V. rays  
c.  $\alpha$ -rays                      d. None of these
- 14. When food material are preserved at a temperature just above freezing temperature, the process is called.**  
a. Freezing                      b. Pasteurisation  
c. Chilling                      d. Frosting
- 15. Which of the following method of sterilization has no effect on spores?**  
a. Drying                      b. Hot air oven  
c. Autoclave                      d. None of these
- 16. *Treponema pallidum* can be best indentified using**  
a. Fluorescence microscope  
b. Bright field microscope  
c. Dark field microscope  
d. Flourescence microscope
- 17. Autoclaving is carried at**  
a. Dry heat  
b. Atmospheric pressure  
c. 120°C  
d. All of these
- 18. Temperature in pasteurization is**  
a. 62.8°C                      b. 35.7°C  
c. 68.2°C                      d. 60.8°C
- 19. The bacterial culture prepared by pure culture method is**  
a. Inoculum                      b. Suspension  
c. Dilution                      d. None of these
- 20. Algae are rich in**  
a. Carbohydrates                      b. Proteins  
c. Vitamins                      d. All of these
- 21. L-Lysine is produced from**  
a. *Corynebacterium glutamicum*  
b. *Clostridium botulinum*  
c. *Mycobacterium* sps  
d. *Pseudomonas*
- 22. The orderly increase in the quantity of all of the cellular components is known as**  
a. Reproduction                      b. Growth  
c. Binary fission                      d. None of these
- 23. *Theobacillus thio oxidans* grow at pH**  
a. 7.0                      b. 1.0  
c. 6.0                      d. 9.5
- 24. Slow freezing requires the conditions**  
a. 0°C to 15°C for 15 min.  
b. -6 °C to -10°C for 10 min.  
c. -15°C to 3 to 72 hrs.  
d. None of these
- 25. Discontinuous heating is called**  
a. Pasteurization                      b. Sterilization  
c. Fermentation                      d. Tindalisation
- 26. Isolation is**  
a. Purification of culture  
b. Introduction of inoculum  
c. Separation of a single colony  
d. To grow microorganisms on surfaces
- 27. The condition required for autoclave**  
a. 121°C temp.and 15 lbs. pressure for 20 min.  
b. 120°C temp.and 20 lbs. pressure for 30 min  
c. 150°C temp. for 1 hr.  
d. 130°C temp for 2 hr.
- 28. Lysozyme is effective against**  
a. Gram negative bacteria  
b. Gram positive bacteria  
c. Protozoa  
d. Helminthes
- 29. Blood agar medium is**  
a. Enrichment medium  
b. Enriched medium  
c. Selective medium  
d. Differential medium
- 30. Infrared radiation is a method of sterilization by**  
a. Dry heat                      b. Moist heat  
c. Chemical method                      d. Mechanical method

- 31. Lyophilization means**
- Sterilization
  - Freeze-drying
  - Burning to ashes
  - Exposure to formation
- 32. Temperature used for hot air oven is**
- 100°C for 1 hour
  - 120°C for 1 hour
  - 160°C for 1 hour
  - 60°C for 1 hour
- 33. Phenol co-efficient indicates**
- Efficiency of a disinfectant
  - Dilution of a disinfectant
  - Purity of a disinfectant
  - Quantity of a disinfectant
- 34. This is an agar plate method and is commonly used for estimation of the number of bacteria in milk.**
- Standard Plate Count (SPC)
  - Spread plate
  - Lawn culture
  - Roll tube method
- 35. Agar is obtained from**
- Brown algae
  - Red algae
  - Green algae
  - Blue-green algae
- 36. A gram positive organism which produces swarming on culture medium is**
- Salmonella
  - Clostridium
  - Staphylococci
  - Proteus
- 37. Enhancement of virulence in bacteria is known as**
- Pathogenicity
  - Attenuation
  - Exaltation
  - Toxigenicity
- 38. For effective sterilization in an autoclave the temperature obtained is**
- 50°C
  - 100°C
  - 120°C
  - 180°C
- 39. Spores are killed by**
- 70% alcohol
  - Glutaraldehyde
  - Autoclaving
  - Both b and c
- 40. Glassware are sterilized by**
- Autoclaving
  - Hot air oven
  - Incineration
  - None of these
- 41. Tyndallisation was proposed by**
- Tyndall
  - Pasteur
  - Koch
  - Jenner
- 42. Viruses can be cultivated in**
- Lab media
  - Broth
  - Living cells
  - None of these
- 43. By pasteurization**
- All the microorganisms can be removed
  - Only pathogenic forms can be removed
  - Only non-pathogenic forms can be removed
  - All of these are correct
- 44. The temperature required for pasteurization is**
- Above 100°C
  - Below 100°C
  - 100°C
  - None of these
- 45. In the medium other than nutrients, if any substance is used in excess, that medium is**
- Enriched medium
  - Special medium
  - Enrichment medium
  - None of these
- 46. Example for indicator medium is**
- Nutrient Agar
  - Nutrient broth
  - Wilson and Blair
  - Czapeck-dox medium
- 47. Example of Anaerobic medium is**
- Robertson cooked-meat medium
  - Nutrient agar
  - Nutrient broth
  - Mac-Conkey's agar
- 48. The differentiate lactose and non-lactose fermentors, the medium used is**
- Wilson & lair
  - Blood Agar
  - Tetra thionate broth
  - Mac-Conkey's Agar

- 49. Best method for getting pure culture is**  
 a. Streak-plate      b. Agar slant  
 c. Both a & b      d. None of these
- 50. To transfer cultures from one place to another, the device used is**  
 a. Slant      b. Needle  
 c. Inoculation loop      d. Autoclave
- 51. The bacterial culture prepared by pure culture is**  
 a. Inoculum      b. Suspension  
 c. Dilution      d. None of these
- 52. Separation of a single colony is**  
 a. Pure-culturing      b. Isolation  
 c. Separation      d. Both a and b
- 53. Growth period of the culture is**  
 a. Inoculation      b. Incubation  
 c. Incineration      d. Isolation
- 54. At the temperature 160°C for one hour, complete sterilization occurs in**  
 a. Autoclave      b. Hot air oven  
 c. Laminar flow      d. Incubator
- 55. In autoclave, the principle involved is**  
 a. Dry heat  
 b. Moist heat  
 c. Steam under pressur  
 d. Both b and c
- 56. The spores of th bacteria which can withstand the moist heat effect also**  
 a. Bacillus subtilis  
 b. Coxiella burnetti  
 c. Bacillus stearothermophilus  
 d. Pseudomonas
- 57. Factors on which disinfectivity of a disinfectant depends**  
 a. Concentration of the substance  
 b. Time of action  
 c. pH of the medium and temperature suitable for the chemical  
 d. All of the above
- 58. Aldehydes, which are most powerful disinfectants**  
 a. Formaldehyde      b. Acetaldehyde  
 c. Glutamal aldehyde      d. Both a and c
- 59. Accridine dyes are more effective against**  
 a. Gram positive      b. Gram negative  
 c. Mycoplasmas      d. Ricktsiae
- 60. The sterilizing agent is**  
 a. Ethelene oxide      b. Oxygen  
 c. Nitrogen      d. Carbon tetrachloride
- 61. Salts of heavy metals used as disinfectants are**  
 a. Thiomersal      b. Phenyl mercury nitrate  
 c. Mercurochrome      d. All of these
- 62. Cultures are prepared by penetrating the inoculation loop with suspension into the medium, they are**  
 a. Stock cultures      b. Stabcultures  
 c. Sub-cultures      d. None of these
- 63. The principle involved in the streak plate method is**  
 a. Separation      b. Streaking  
 c. Isolation      d. Dilution
- 64. Culture media for fungi are**  
 a. Potato dextrose agar (PDA)  
 b. Sabouraud's agar  
 c. Czapekdox agar  
 d. All of the above
- 65. Spores of actinomycetes are very sensitive, killed at room temperature of**  
 a. 52°C for 30 min.      b. 65°C for 30 min.  
 c. 70°C for 30 min.      d. 43°C for 30 min.
- 66. The term that is used for the bacteria which can withstand pasteurization but does not grow at higher temperatures**  
 a. Thermophiles  
 b. Extreme thermophiles  
 c. Thermoduric  
 d. Facultative thermophiles

- 67. A common laboratory method of cultivating anaerobic micro-organisms is**
- Gas pack system
  - Brewer jar system
  - Pyrogallic acid over the cotton
  - None of these
- 68. Alkaliphiles grow at pH value between**
- 1 to 6
  - 6 to 9
  - 1 to 11
  - 7 to 12
- 69. The micro-organisms grow at high salinity are**
- Osmophiles
  - Halophiles
  - Both a and b
  - None of these
- 70. Non-lactose fermenting colonies seen on Mac Conkey's medium are**
- Salmonella typhi
  - Escherichia coli
  - Klebsiella pneumoniae
  - Shigella shigae
- 71. Wilson and Blair medium is used for isolation of**
- Staphylococci
  - Salmonella typhosa
  - Vibrio cholerae
  - Shigella shigae
- 72. Laboratory diagnosis of enteric fever is based on**
- Blood culture
  - Urine and stool culture
  - Widal test
  - All of the above
- 73. Shigella was first isolated by**
- Shiga
  - Schmitz
  - Sonnei
  - Robert Koch
- 74. Which of the following are gas producing Salmonella?**
- S.typhi
  - S.enteritidis
  - S.cholerasuis
  - S.typhimurium
- 75. Kauffmann white scheme is used to detect**
- Salmonella spp.
  - Shigella spp.
  - E.coli
  - None of these
- 76. On Mac Conkey's medium Esch. Coli forms**
- Colorless colonies
  - Greenish pigmentation
  - Pink coloured colonies
  - Medusa head appearance
- 77. C.diphtheriae requires**
- LJ medium
  - Mac Conkey's medium
  - Potassium tellurite medium
  - PDA medium
- 78. Culture medium for Mycobacterium tuberculosis**
- LJ medium
  - Mac Conkey's medium
  - Wilson blair medium
  - None of these
- 79. Lepra bacillus is best cultured on**
- Armadillo's brain
  - Foot pad of mice
  - Liver of guinea pig
  - Any of the above
- 80. Culture medium for clostridia spp.**
- 76 Lower stein Jensen's medium
  - Mac Conkey's medium
  - Robertson's cooked meat medium
  - None of these
- 81. Clostridium welchii is positive for**
- Elek's gel precipitation test
  - Nagler's test
  - Weil felix test
  - Bacitracin test
- 82. Nagler's reaction detects**
- Coagulase
  - Hyaluronidase
  - Lecithinase
  - None of these
- 83. Incubation period of Cl. welchii is**
- 8-12 hours
  - 7-10 hours
  - 5-7 hours
  - 2-4 hours
- 84. The average incubation period of tetanus is**
- 2-3 days
  - 7-10 days
  - 14-21 days
  - 3-4 weeks

**85. Salt agar is used for**

- a. Streptococcus      b. Staphylococcus  
c. Vibrio                d. Shigella

**86. Culture medium of Leishmania is**

- a. Sabousand's medium  
b. NNN medium  
c. Wilson Blair medium  
d. Czapek – dox medium

**87. A simple asexual spore which develops by budding is known as**

- a. Chlamyospore      b. Blastospore  
c. Arthospore        d. Conidia

**88. Culture medium used for fungus is**

- a. Sabouraud's medium  
b. Nutrient agar  
c. Nutrient broth  
d. Minimal agar medium

**89. For sterilization of fermentation equipment the method followed is**

- a. Radiation            b. Chemicals  
c. Heating             d. All of these

**90. Listed below are substances which are assayed by organisms mentioned in A to E. Match them correctly:**

- |                        |                         |
|------------------------|-------------------------|
| 1. Crystal Violet I.P. | A. Pasteurella pestis   |
| 2. Ampicillin I.P.     | B. Bacillus cerus       |
| 3. Plaque Vaccine I.P. | C. Micrococcus luteus   |
| 4. Rifampicin          | D. Lactobacillus aureus |
|                        | E. Lactobacillus aureus |
|                        | F. Bacillus subtilus    |

**91. Match the following terms with their respective formulations A to E:**

- |                 |  |
|-----------------|--|
| 1. Lysol        | A. Higher boiling fractions of the tar acids           |
| 2. Black fluids | B. Prepared from refined tar acids                     |
| 3. White fluids | C. Solution of cresol with soap                        |
| 4. Iodophores   | D. Basic molecules has varying numbers of amino groups |
|                 | E. Iodine combined with complex organic chemicals      |

**92. Match the following tests with their respective applications A to E:**

- |                   |  |
|-------------------|--|
| 1. Schick test    | A. Tuberculosis  |
| 2. Mantoux test   | B. Detection of extraneous microorganisms                |
| 3. Sterility test | C. Diphtheria toxin                                      |
| 4. Potency test   | D. Detection of infection caused by Rickettsia prowazeki |
|                   | E. Usefulness of immunological products                  |

**93. Match the following equipments with their respective methods of sterilization A to E:**

- |                          |                            |
|--------------------------|----------------------------|
| 1. Glass syringes        | A. Autoclave               |
| 2. Disposable instrument | B. Chemical                |
| 3. Respiratory parts     | C. Dry heat                |
| 4. Dialysis machine      | D. g-Radiation             |
|                          | E. Chicken pox in children |

**94. The items listed from A to D can be identified by the tests given below :**

- |                   |                                   |
|-------------------|-----------------------------------|
| 1. Coomb's test   | A. Candida albicans               |
| 2. Coagulase test | B. Virulent staphylococcus aureus |
|                   | C. Mycobacterium tuberculosis     |
|                   | D. Non-agglutinating antibodies   |

**95. D.pneumoniae can be cultivated in**

- a. Glucose broth  
b. Serum broth  
c. Agar and blood agar  
d. Chocolate agar  
e. All of these

**96. D.pneumoniae can be identified by**

- a. Microscopic exam  
b. Culture of sputum/blood  
c. Animal inoculation  
d. All of these  
e. None of these

**97. The diagnosis of tuberculosis is carried out by**

- |                     |                         |
|---------------------|-------------------------|
| a. Emulator         | b. Antiformin method    |
| c. Petroff's method | d. Concentration method |
| e. All of these     |                         |

- 98. The size of the virus can be determined by**
- Micrography
  - Ultra-centrifugation at high speed
  - Ultra-filtration
  - All of these
- 99. Differential staining of bacteria spore is related to**
- Albert's staining
  - Lugol's staining
  - Moller's staining
  - Indian ink preparation
- 100. Electron microscope studies does not help in identifying the section of bacterial spore**
- Core
  - Spore cortex
  - Capsule
  - All of these
- 101. Wilson and Blair bismuth sulphite medium is used for the growth**
- Salmonella typhi
  - Shigella dysenteriae
  - Vibrio cholerae
  - E. coli
- 102. Which Rickettsia can be grown on blood agar media?**
- Lactobacilli
  - Streptobacillus
  - Bacillus anthrax
  - Vibrio cholerae

**ANSWERS**

- |                        |       |                        |        |                        |        |
|------------------------|-------|------------------------|--------|------------------------|--------|
| 1. b                   | 2. b  | 3. c                   | 4. b   | 5. d                   | 6. a   |
| 7. b                   | 8. a  | 9. c                   | 10. b  | 11. a                  | 12. c  |
| 13. b                  | 14. c | 15. a                  | 16. b  | 17. c                  | 18. a  |
| 19. a                  | 20. d | 21. a                  | 22. b  | 23. b                  | 24. c  |
| 25. d                  | 26. c | 27. c                  | 28. b  | 29. b                  | 30. d  |
| 31. b                  | 32. c | 33. a                  | 34. a  | 35. b                  | 36. d  |
| 37. c                  | 38. c | 39. d                  | 40. b  | 41. a                  | 42. c  |
| 43. b                  | 44. b | 45. a                  | 46. c  | 47. a                  | 48. d  |
| 49. c                  | 50. b | 51. a                  | 52. b  | 53. b                  | 54. b  |
| 55. d                  | 56. c | 57. d                  | 58. d  | 59. a                  | 60. a  |
| 61. d                  | 62. b | 63. d                  | 64. d  | 65. b                  | 66. c  |
| 67. c                  | 68. d | 69. c                  | 70. a  | 71. b                  | 72. d  |
| 73. c                  | 74. b | 75. a                  | 76. c  | 77. c                  | 78. a  |
| 79. b                  | 80. c | 81. b                  | 82. c  | 83. a                  | 84. b  |
| 85. b                  | 86. b | 87. b                  | 88. b  | 89. d                  |        |
| 90. 1.d, 2.c, 3.a, 4.e |       | 91. 1.c, 2.a, 3.b, 4.e |        | 92. 1.c, 2.a, 3.b, 4.e |        |
| 93. 1.c, 2.d, 3.e, 4.b |       | 94. 1.d, 2.a           |        | 95. e 96. e            |        |
| 97. e                  | 98. d | 99. c                  | 100. c | 101. a                 | 102. a |

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# CHAPTER 4

## GENERAL PROPERTIES OF MICROORGANISMS

- 1. When a bacterial cell and mitochondria are treated with cyanide and carbon monoxide what happens initially?**
  - a. Respiration inhibits
  - b. Photosynthesis inhibits
  - c. Protein synthesis inhibits
  - d. No effect occurs
- 2. Which virus was first observed?**
  - a. Hepatitis Virus
  - b. TMV
  - c. Cauliflower mosaic virus
  - d. None of these
- 3. The most important energy-yielding reaction for an aerobic organism is**
  - a. Glycolysis
  - b. EMP
  - c. KDPG
  - d. Both b and c
- 4. A disease that can be transmitted by an infectious agent from one individual to another was called**
  - a. Epidemic
  - b. Pandemic
  - c. Communicable
  - d. Comma
- 5. Cell cycle regulated by**
  - a. Cyclins
  - b. Cdks
  - c. Cyclins and Cdks
  - d. None of these
- 6. The proteinaceous compound are converted to ammonia by**
  - a. Putrefaction bacteria
  - b. Ammonification bacteria
  - c. Nitrification bacteria
  - d. Denitrifying bacteria
- 7. A cell becomes flaccid when placed in a**
  - a. Isotonic solution
  - b. Hypertonic solution
  - c. Hypotonic solution
  - d. Normal solution
- 8. A mutation causing a substitution of one amino acid is called**
  - a. Point mutation
  - b. Silent mutation
  - c. Missense mutation
  - d. None of these
- 9. The formation spindle fibres in the process of cell division is prevented by**
  - a. Colchicine
  - b. ATP
  - c. Hydrazine
  - d. All of these
- 10. Important class of respiratory enzymes:**
  - a. NAD
  - b. Cytochromes
  - c. ATPase
  - d. Hydrolases
- 11. The primary mode of transmission of poliomyelitis virus:**
  - a. Flies
  - b. Milk
  - c. Person to person
  - d. Food and water
- 12. Genetic constitution of the cell is**
  - a. Phenotype
  - b. Genotype
  - c. Cryptotype
  - d. Histotype



- 13. The primary mode of transmission of poliomyelitis is**
- Oral route
  - Blood
  - Milk
  - Person to person
- 14. Cerebral malaria is caused by**
- Plasmodium vivox
  - P.ovale
  - P.falsiparum
  - P.malaria
- 15. Ergot disease is caused by**
- Puccinia
  - Rhizopus
  - Claveceps
  - Penicillium
- 16. Most bacteria require vitamins as**
- Growth Factors
  - Sources of energy
  - Sources of carbon
  - Sources of electron donars
- 17. Which of these is a trace element for bacteria?**
- Mg<sup>+2</sup>
  - Na<sup>+</sup>
  - Ca<sup>+2</sup>
  - Mn<sup>+2</sup>
- 18. Virulent factor in pneumococcus is**
- Cell wall
  - Capsule
  - Mesosomes
  - Emdotoxins
- 19. The Bacteria move in response to magnetic field is**
- Spirochets
  - Treponema
  - Aquaspirillum Magnetotacticum
  - None of these
- 20. Nagler reaction detects**
- Corynebacterium diphtheriae
  - Clostridium tetani
  - Clostridium perfringens
  - Clostridium botulinum
- 21. The following organisms lack definite cell wall**
- Mycoplasma
  - L-forms
  - Both a and b
  - Bacteria
- 22. The following disease are caused by Mycoplasma except**
- Pneumonia in human beings
  - Little leaf of Brinjal
  - Dwarf disease of Mulbery
  - Citrus canker
- 23. Mycotoxins are produced by**
- Bacteria
  - Fungi
  - Algae
  - Protozoans
- 24. Size, shape and mode of arrangements is typical of certain microorganisms. Match them correctly :**
- |                         |   |
|-------------------------|---|
| 1. Streptococci         | A. Comma and S shaped form                      |
| 2. Sarcina              | B. Gram positive arranged in chains             |
| 3. Bacillus Anthracis   | C. Multiples of eight                           |
| 4. Vibrios and Spirilla | D. Large bacilli, rectangular and gram positive |
|                         | E. Gram negative cocci                          |
|                         | F. Rod shaped-acid fast                         |
- 25. Match the following microorganisms with their respective characteristic A to E :**
- |                   |  |
|-------------------|--|
| 1. Bacteria       | A. Much similar, contains one type of nucleic acid, do not reproduce by binary fission         |
| 2. Rickettsia     | B. Parasites on bacteria, highly specific to one type of                                       |
| 3. Viruses        | C. Living organism, unicellular, motile, microscopic and show reproduction                     |
| 4. Bacteriophages | D. Grows in atmospheric oxygen, visible without microscope, produces, disease                  |
|                   | E. Tiny microorganism, enable to grow outside living cells, retained by bacteria proof filters |

**ANSWERS**

- |                        |                         |       |       |       |       |
|------------------------|-------------------------|-------|-------|-------|-------|
| 1. a                   | 2. b                    | 3. d  | 4. c  | 5. c  | 6. b  |
| 7. b                   | 8. c                    | 9. c  | 10. b | 11. d | 12. b |
| 13. c                  | 14. c                   | 15. c | 16. a | 17. b | 18. d |
| 19. c                  | 20. c                   | 21. c | 22. d | 23. b |       |
| 24. 1.b, 2.c, 3.d, 4.a | 25. 1.c, 2 .e, 3.a, 4.b |       |       |       |       |

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# CHAPTER 5

## BACTERIAL NUTRITION

- The main product of glycolysis under aerobic conditions is**
  - Pyruvate
  - Lactate
  - None of these
  - Both a and b
- The protein moiety of an enzyme is known as**
  - Holo enzyme
  - Apo enzyme
  - Co enzyme
  - Enzyme
- Yeast extract is an excellent source of**
  - A Vitamin
  - Proteins
  - B Vitamin
  - Carbohydrates
- Example of anaerobic medium**
  - Wilson blair medium
  - Mac conkey broth
  - Robertson's cooked meat medium
  - EMB agar
- Biological Oxygen Demand (BOD) is a measure of:**
  - Industrial wastes poured into water bodies
  - Extent to which water is polluted with organic compounds
  - Amount of carbon monoxide inseparably combined with haemoglobin
  - Amount of oxygen needed by green plants during night
- An example of competitive inhibition of an enzyme is the inhibition of**
  - Succinic dehydrogenase by malonic acid
  - Cytochrome oxidase by cyanide
  - Hexokinase by glucose-6-phosphate
  - Carbonic anhydrase by carbon dioxide
- The following organisms have been proposed as sources of single cell protein**
  - Bacteria
  - Yeasts
  - Algae
  - All the three
- Nitrites are oxidized to nitrates by a microorganism**
  - Nitrosomonas
  - Nitrosococcus
  - Nitrobacter
  - Azatobacter
- The major constituents in agar are**
  - Fats
  - Aminoacids
  - Polysaccharides
  - Polypeptides
- Match the following expressions with their respective bacteria A to E:**
  - $K = \log (a/a - x) \times t^1$       A. Temperature effect
  - $K = C^n t$       B. Watson's expression
  - $K_1/K_2 = q(T_2 - T_1)$       C. Concentration of bactericide
  - $x_2 = 4D t I_n (m_o/m)$       D. Film coefficient  
E. Fick's law

### ANSWERS

1. a    2. b    3. c    4. c    5. a    6. a    7. d    8. c    9. c    10. 1.b,2.c,3.a,4.e

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# CHAPTER 6

## BACTERIAL GROWTH

- Multiple antibiotic resistance is mediated by**
  - Episome
  - Plasmid
  - Colplasmid
  - Both b and c
- “Antagonism “ is seen in**
  - Lag phase
  - Plasmids
  - Log phase
  - None of these
- the first phase of a growth curve is**
  - Log phase
  - Lag phase
  - $\gamma$  phase
  - Both a and b
- In gram positive and gram negative bacteria the electron transport contains**
  - Naphthquinone
  - Plastoquinone
  - Ubiquinone
  - Both a and b
- Growth in a closed system, affected by nutrient limitation and waste product accumulation is called**
  - Batch culturing
  - Ascus
  - Fruiting body
  - Sporangiospore
- Cells are active and synthesizing new protoplasm. This stage of growth is called**
  - Lag phase
  - Stationary phase
  - Log phase
  - All of these
- Which one of the following tissues can metabolize glucose, fatty acids and ketone bodies for ATP production?**
  - Liver
  - Muscle
  - Brain
  - R.B.C
- Which one of the following mineral elements play an important role in biological nitrogen fixation**
  - Copper
  - Magnesium
  - Zinc
  - Molybdenum
- Rapid bacterial growth phase is known as**
  - Log
  - Lag
  - Lack
  - None of these
- Clostridium welchii spore formation can be induced only on specified media such as**
  - Wilson-Blair medium
  - Macconkey medium
  - Ellner medium
  - Thayee-Martion medium
- Mycotoxins are formed during the end of**
  - Lag phase
  - Log phase
  - Death phase
  - Stationary phase
- Bacteria which need oxygen for growth are called**
  - Thermophilic bacteria
  - Microaerophilic bacteria
  - Facultative anaerobic bacteria
  - Mycobacteria

- 13. pH required for the growth of bacteria is**  
a. 6.8 – 7.2                      b. 5.6 – 8.2  
c. 3.0 – 6.0                      d. 8.0 – 14.0
- 14. Drug resistance in bacteria is mainly determined by factor:**  
a. F                                      b. R  
c. Col                                    d. Lysogenic factor
- 15. The ion that is required in trace amounts for the growth of bacteria is**  
a. Calcium                            b. Magnesium  
c. Cobalt                              d. Sodium
- 16. The most important vitamin for the growth of bacteria is**  
a. B-complex                        b. Vitamin A  
c. Vitamin D                         d. Vitamin C
- 17. The principle in microbiological assays is**  
a. At certain range the concentration of growth factor will bear a linear relationship to the amount of nutrients added  
b. Concentration of growth factor have a linear relationship with the growth of the organism  
c. Both a and b  
d. None of the above
- 18. If the source of energy for bacteria is from chemical compounds they are said to be**  
a. Phototrophs  
b. Autotrophs  
c. Chemotrophs  
d. Chemolithotroph
- 19. In the synthesis of cell components the major element required is**  
a. Nitrogen                            b. Sulphur  
c. Carbon                              d. Oxygen
- 20. For the formation of cell-components the elements required are**  
a. Nitrogen                            b. Oxygen  
c. Sulphur                             d. All of these
- 21. For the synthesis of amino acids cysteine, cystine and methionine the element required is**  
a. Sulphur                             b. Oxygen  
c. Nitrogen                            d. None of these
- 22. Sulphur can be utilized by bacteria in the form of**  
a. Organic compounds  
b. Inorganic compounds  
c. Elemental compounds  
d. All of the above
- 23. Phosphorous is an essential component of**  
a. Nucleotides  
b. Nucleic acids  
c. Phospholipids and Heichoic acids  
d. All the above
- 24. Trace elements are**  
a.  $Zn^{+2}$ ,  $Cu^{+2}$ ,  $Mn^{+2}$   
b.  $MO^{+}$ ,  $Ni^{+2}$ ,  $B^{+3}$  and  $CO^{+2}$   
c. Both a and b  
d. None of these
- 25. Most bacteria do not require the ion**  
a.  $Mg^{2+}$                                 b.  $Ca^{2+}$   
c.  $Na^{+}$                                  d.  $Fe^{+2}$
- 26. Vitamin function as**  
a. Co-enzymes  
b. Co-meclucles  
c. Building blocks of cell  
d. None of these
- 27. The vitamin required for Lactobacillus species is**  
a. Riboflavin                         b. Niacin  
c. Pyridoxine                        d. Folic acid
- 28. Vitamin K is necessary for the species**  
a. Lactobacillus spp.  
b. Bacillus anthracis  
c. Bacteroides melaninogenicus  
d. All of these
- 29. The bacteria which are able to grow at 0°C but which grow at 20°C to 30°C, are known as**  
a. Psychrophiles  
b. Facultative psychrophiles  
c. Average psychrophiles  
d. Mesophiles

- 30. Radical shifts can be prevented by adding**  
a. Acids                      b. Alkali  
c. Buffer                      d. None of these
- 31. The orderly increase in the quantity of all the cellular components is known as**  
a. Reproduction          b. Growth  
c. Binary fission          d. None of these
- 32. The most common mode of cell division in bacteria is**  
a. Binary fission  
b. Transverse binary fission  
c. Longitudinal binary fission  
d. None of these
- 33. How much time a bacterium take for the complete duplication?**  
a. 30 min.                  b. 10 min.  
c. 20 min.                  d. 25 min.
- 34. The generation time is**  
a. The time required for the cell to divide  
b. The total division of the cell during its life time  
c. The total no. of cells formed  
d. None of these
- 35. In bacteria, the increase in population is in the manner**  
a. Geometric progression  
b. Multiplication  
c. Doubling  
d. None of these
- 36. Physiologically the cells are active and are synthesizing new protoplasm in which stage of the growth in bacteria**  
a. Log phase                  b. Lag phase  
c. Stationary phase          d. None of these
- 37. The most active stage in the sigmoid curve of bacteria in which maximum growth is attained**  
a. Lag phase                  b. Stationary phase  
c. Decline phase              d. Log phase
- 38. Log-phase is also known as**  
a. Death phase              b. Exponential phase  
c. Lag-phase                  d. None
- 39. The no. of generations per hour in a bacteria is**  
a. Growth rate              b. Generation time  
c. Sigmoid curve              d. None of these
- 40. In the sigmoid curve (or) growth curve of bacteria how many stages are there**  
a. 3                              b. 4  
c. 2                              d. 5
- 41. The reproduction rate is equal to death rate in which stage**  
a. Decline phase              b. Stationary phase  
c. Lag phase                  d. Log phase
- 42. Minimum growth temperature is**  
a. The growth of organisms at lowest temperature  
b. The lowest temperature at which the microorganisms grow  
c. The maximum temperature at which the growth is stable  
d. None of these
- 43. Optimum growth temperature is greater than 45°C is**  
a. Mesophiles                  b. Thermophiles  
c. Psychrophiles              d. None of these
- 44. The organisms which can grow both in presence and absence of oxygen**  
a. Aerobes  
b. Anaerobes  
c. Facultative anaerobes  
d. Strict aerobes
- 45. The organisms which can grow best in the presence of a low concentration of oxygen**  
a. Aerophilic                  b. Microaerophilic  
c. Aerobic                      d. Anaerobic
- 46. The compound that is added to the medium to absorb oxygen for the creation of anaerobic conditions**  
a. Sodium Thioglycollate  
b. Nitrous acid  
c. Citrate  
d. None of these



- 47. The utilization of light energy to drive the synthesis of ATP is called as**
- Photolysis
  - Photophosphorylation
  - Photosynthesis
  - Respiration
- 48. During cyclic phosphorylation NADP is formed or not.**
- No NADP formation
  - No NADP utilization
  - NADP is converted into NADPH
  - All are correct
- 49. Cyclic phosphorylation is generally present in**
- Cyanobacteria
  - Algae
  - Bacteria
  - Plants
- 50. Non-cyclic photophosphorylation is also known as**
- Oxygenic photosynthesis
  - Photosynthesis
  - Anoxygenic photosynthesis
  - Photophosphorylation
- 51. The number of ATP molecules formed during cyclic phosphorylation are**
- One
  - Two
  - Four
  - Six
- 52. Artificial transformation in laboratory is carried out by treating the cells with**
- MgCl<sub>2</sub>
  - CaCl<sub>2</sub>
  - NaCl
  - HCl
- 53. The process of formation of mesozygote is called**
- Meromixis
  - Exozygote
  - Mitosis
  - Meiosis
- 54. Which of the following organisms requires tryptophan for growth?**
- H.influenza
  - Vibrio
  - Gonococci
  - S.typhi
- 55. Tubercular bacilli grow best in**
- Absence of O<sub>2</sub>
  - Presence of CO<sub>2</sub>
  - Presence of O<sub>2</sub>
  - None of these
- 56. Mycotoxins are formed during the end of**
- Lag phase
  - Log phase
  - Death phase
  - Stationary phase
- 57. Match the following growth characteristics with their respective temperature ranges A to E :**
- |                       |                                 |
|-----------------------|---------------------------------|
| 1. Psychrotrophs      | A. Grows between 55 to 65°C     |
| 2. Mesophils          | B. May survive above 60°C       |
| 3. Thermophils        | C. Grow well between 25 to 45°C |
| 4. vegetable bacteria | D. Grow below 25°C              |
|                       | E. Multiply slowly at 0-4°C     |
- 58. Match the following microorganisms with their respective sources A to E:**
- |                             |                             |
|-----------------------------|-----------------------------|
| 1. Achrommobacter spp       | A. Bread                    |
| 2. Aspergillus flavus       | B. Water supply             |
| 3. Oscillatiria scytonema   | C. Meat                     |
| 4. Clostridium nigereticans | D. Salad                    |
|                             | E. Milk and cheese products |
- 59. Match the following microorganisms with their respective appearance of colonies on bismuth Sulphite agar from A to E:**
- |                            |              |
|----------------------------|--------------|
| 1. Salmonella typhi        | A. Brown     |
| 2. Salmonella choleraesuis | B. No growth |
| 3. Shigella flexneri       | C. Green     |
| 4. Escherichia coli        | D. Yellow    |
|                            | E. Black     |
- 60. The suitable temperature to transport viral culture is -**
- 30°C
  - 5°C
  - 25°C
  - 45°C
  - None of these
- 61. Growth curve does not include following phases of bacteria -**
- Decline phase
  - Stationary phase
  - Lag phase
  - Synchronous growth
- 62. Bacteria are more sensitive to antibiotics at which phase of growth curve?**
- Decline phase
  - Stationary phase
  - Lag phase
  - Log phase

**ANSWERS**

1. b	2. d	3. b	4. a	5. a	6. a
7. b	8. d	9. a	10. c	11. a	12. b
13. a	14. d	15. c	16. a	17. b	18. c
19. c	20. d	21. d	22. a	23. d	24. d
25. c	26. c	27. b	28. a	29. c	30. c
31. b	32. c	33. c	34. c	35. a	36. c
37. d	38. c	39. b	40. b	41. d	42. b
43. a	44. a	45. b	46. b	47. c	48. a
49. a	50. b	51. d	52. b	53. a	54. d
55. b	56. a	57. 1.b, 2.c, 3.d, 4.a		58. 1.e,2.a,3.b,4.c	
59. 1.e,2.c,3.a,4.b		60. b	61. d	62. d	

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# CHAPTER 7

## STRUCTURE OF DNA & RNA

- 1. A peculiar cytochrome is observed in bacteria and it can react with molecular oxygen, what is it?**
  - a. Cyt b
  - b. Cyt c
  - c. Cyt d
  - d. Cyt o
- 2. The genetic material in HIV is**
  - a. ds DNA
  - b. ss DNA
  - c. s RNA
  - d. None of these
- 3. Which one of the following mutagens act only on replicating DNA?**
  - a. Ethidium bromide
  - b. Nitrosoguanidine
  - c. Acridine orange
  - d. None of above
- 4. Poly A tail is frequently found in**
  - a. Histone in RNA
  - b. Bacterial RNA
  - c. eukaryotic RNA
  - d. TRNA
- 5. Which of the following is an example of RNA virus?**
  - a. SV 40
  - b. T<sub>4</sub> phage
  - c. Tobacco mosaic virus
  - d. Adeno virus
- 6. Genomic DNA is extracted, broken into fragments of reasonable size by a restriction endonuclease and then inserted into a cloning vector to generate chimeric vectors. The cloned fragments are called**
  - a. Clones
  - b. Genomic library
  - c. mRNA
  - d. None of these
- 7. Transgenic animals are produced when GH gene fused with**
  - a. MT gene
  - b. GH
  - c. GRF
  - d. FIX
- 8. In which medium the hybridoma cells grow selectively?**
  - a. Polyethylene glycol
  - b. Hypoxanthine aminopterin thymine
  - c. Hypoxanthine-guanine phosphoribosyl transferase
  - d. Both b and c
- 9. The enzymes which are commonly used in genetic engineering are**
  - a. Exonuclease and ligase
  - b. Restriction endonuclease and polymerase
  - c. Ligase and polymerase
  - d. Restriction endonuclease and ligase
- 10. A successful hybridoma was produced by fusing**
  - a. Plasma cells and plasmids
  - b. Plasma cells and myeloma cells
  - c. Myeloma cells and plasmids
  - d. Plasma cells and bacterial cells

- 11. The technique involved in comparing the DNA components of two samples is known as**
- Monoclonal antibody techniques
  - Genetic finger printing
  - Recombinant DNA technology
  - Polymerase chain reaction
- 12. Plasmids are ideal vectors for gene cloning as**
- They can be multiplied by culturing
  - They can be multiplied in the laboratory using enzymes
  - They can replicate freely outside the bacterial cell
  - They are self replicating within the bacterial cell
- 13. Humans normally have 46 chromosomes in skin cells. How many autosomes would be expected in a kidney cell?**
- 46
  - 23
  - 47
  - 44
- 14. Pasteur effect is due to**
- Change from aerobic to anaerobic
  - Providing oxygen to anaerobically respiring structures
  - Rapid utilization of ATP
  - Nonsynthesis of ATP
- 15. A mechanism that can cause a gene to move from one linkage group to another is**
- Trans location
  - Inversion
  - Crossing over
  - Duplication
- 16. The smallest unit of genetic material that can undergo mutation is called**
- Gene
  - Cistron
  - Replicon
  - Muton
- 17. The two chromatids of metaphase chromosome represent**
- Replicated chromosomes to be separated at anaphase
  - Homologous chromosomes of a diploid set
  - Non-homologous chromosomes joined at the centromere
  - Maternal and paternal chromosomes joined at the centromere
- 18. Malate dehydrogenase enzyme is a**
- Transferase
  - Hydrolase
  - Isomerase
  - Oxido reductase
- 19. In E.Coli att site is in between**
- Gal and biogenes
  - Bio and niacin genes
  - Gal and B genes
  - None of these
- 20. The best vector for gene cloning**
- Relaxed control plasmid
  - Stringent control plasmid
  - Both a and b
  - None of these
- 21. A gene that takes part in the synthesis of polypeptide is**
- Structural gene
  - Regulator gene
  - Operator gene
  - Promoter gene
- 22. DNA replicates during**
- G1 – phase
  - S – phase
  - G2 – phase
  - M – phase
- 23. A human cell containing 22 autosome and a 'Y' chromosome is probably a**
- Male somatic cell
  - Zygote
  - Female somatic cell
  - Sperm cell
- 24. Crossing-over most commonly occurs during**
- Prophase I
  - Prophase II
  - Anaphase I
  - Telophase II
- 25. DNA-replication is by the mechanism of**
- Conservative
  - Semiconservative
  - Dispersive
  - None of the above
- 26. Production of RNA from DNA is called**
- Translation
  - RNA splicing
  - Transcription
  - Transposition
- 27. Nucleic acids contain**
- Alanine
  - Adenine
  - Lysine
  - Arginine

- 28. What are the structural units of nucleic acids?**  
a. N-bases                      b. Nucleosides  
c. Nucleotides                d. Histones
- 29. The most important function of a gene is to synthesize**  
a. Enzymes                      b. Hormones  
c. RNA                            d. DNA
- 30. One of the genes present exclusively on the X-chromosome in humans is concerned with**  
a. Baldness  
b. Red-green colour blindness  
c. Facial hair/moustache in males  
d. Night blindness
- 31. Peptide linkages are formed in between**  
a. Nucleotides  
b. Amino acids  
c. Glucose molecules  
d. Sucrose
- 32. The nucleic acid of polio viruses is**  
a. DNA                            b. RNA – (+) type  
c. t-RNA                         d. m-RNA
- 33. Rabies virus is**  
a. Naked RNA virus  
b. Naked DNA virus  
c. Enveloped RNA virus  
d. Enveloped DNA virus
- 34. Example for DNA virus:**  
a. Polio virus                    b. Adeno virus  
c. Echo virus                    d. Poty virus
- 35. In genetic engineering breaks in DNA are formed by enzymes known as**  
a. Restriction enzymes  
b. Ligases  
c. Nucleases  
d. Hydrolases
- 36. DNA transfer from one bacterium to another through phages is termed as**  
a. Transduction                b. Induction  
c. Transfection                 d. Infection
- 37. Microorganisms usually make acetyl CO-A by oxidizing**  
a. Acetic acid  
b. Pyruvic acid  
c.  $\alpha$ -ketoglutaric acid  
d. Fumaric acid
- 38. The method of DNA replication proposed by Watson and Crick is**  
a. Semi conservative  
b. Conservative  
c. Dispersive  
d. Rolling loop
- 39. The distance between each turn in the helical strand of DNA is**  
a. 20 Å                            b. 34 Å  
c. 28 Å                            d. 42 Å
- 40. Self-replicating, small circular DNA molecules present in bacterial cell are known**  
a. Plasmids                        b. Cosmids  
c. Plasmomers                    d. plastids
- 41. Western blotting is the technique used in the determination of**  
a. RNA                             b. DNA  
c. Proteins                        d. All of these
- 42. m RNA synthesis from DNA is termed**  
a. Transcription                b. Transformation  
c. Translation                    d. Replication
- 43. Western blotting is a technique used in the determination of**  
a. DNA                             b. RNA  
c. Protein                         d. Polysaccharides
- 44. Building blocks of Nucleic acids are**  
a. Amino acids                    b. Nucleosides  
c. Nucleotides                    d. Nucleo proteins
- 45. DNA finger printing is based on**  
a. Repetitive sequences  
b. Unique sequences  
c. Amplified sequences  
d. Non-coding sequences

- 46. The enzyme required for DNA from RNA template:**
- RNA polymerase
  - Reverse transcriptase
  - DNA polymerase
  - Terminal transferase
- 47. Double standard RNA is seen in**
- Reo virus
  - Rhabdo virus
  - Parvo virus
  - Retro virus
- 48. Example for DNA viruses:**
- Adeno virus
  - Bacteriophage  $T_1, T_2, T_3, T_4, T_5, T_6$
  - Papova virus
  - Herpes virus and cauliflower mosaic
  - All of the above
- 49. The following are the RNA viruses, except**
- Reo viruses
  - Retro viruses
  - Bacteriophage  $\Phi C$
  - Tmv and Bacteriophages Ms2, F2
  - Dahlia mosaic virus and Bacteriophages  $\Phi \times 174, M12, M13$
- 50. The two strands of DNA are joined non-covalently by**
- Ionic bonds
  - Covalent bonds
  - Hydrogen bonds between bases
  - Polar charges
- 51. The bases Adenine and Thymine are paired with**
- Double hydrogen bonds
  - Single hydrogen bonds
  - Triple hydrogen bonds
  - Both b and c
- 52. The no. of hydrogen bonds existing between Guanine and Cytosine are**
- 5
  - 2
  - 3
  - None of these
- 53. The length of each coil in DNA strand is**
- 15  $\text{A}^\circ$
  - 34  $\text{A}^\circ$
  - 30  $\text{A}^\circ$
  - 5  $\text{A}^\circ$
- 54. Nucleic acids are highly charged polymers due to**
- There is phosphodiester bond between 5'-hydroxyl of one ribose and 3'-hydroxyl of next ribose
  - They have positive and negative ends
  - Nucleotides are charged structures
  - Nitrogenous bases are highly ionized compounds
- 55. The best studied example for specialized transduction is**
- $P_1$  phage
  - $P_{22}$  phage
  - $\lambda$ -phage
  - Both a and c
- 56. The diagrammatic representation of the total no. of genes in DNA is**
- Genome
  - Gene map
  - Gene-structure
  - Chromatin
- 57. During specialized transduction**
- Large amount of DNA is transferred
  - A few no. of genes are transferred
  - Whole DNA is transferred
  - None of these
- 58. The cell donating DNA during transformation is**
- Endogenate
  - Exogenate
  - Mesozygote
  - Merosite
- 59. Genetic information transfer DNA to RNA is called -**
- Transcriptase
  - Transduction
  - Transformation
  - Recombination
- 60. The gene transfer occurs by -**
- Transformation
  - Transduction
  - Conjugation
  - Cell fusion

**ANSWERS**

1. d	2. a	3. c	4. c	5. c	6. b
7. a	8. b	9. a	10. b	11. b	12. d
13. d	14. b	15. a	16. d	17. a	18. d
19. a	20. a	21. a	22. b	23. b	24. a
25. b	26. c	27. b	28. c	29. a	30. b
31. b	32. b	33. c	34. b	35. b	36. a
37. a	38. a	39. b	40. a	41. b	42. a
43. a	44. c	45. b	46. b	47. a	48. e
49. e	50. c	51. a	52. c	53. b	54. a
55. c	56. b	57. b	58. b	59. a	60. a



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# CHAPTER 8

## IMMUNOLOGY

- 1. Which of the following is called serum Hepatitis?**
  - a. HCV
  - b. HAV
  - c. HBV
  - d. HIV
- 2. Which of the following was a non-neural vaccine for rabies?**
  - a. HEPV
  - b. Card vaccine
  - c. BPL
  - d. Simple
- 3. Which type of antibodies will associate in blood cell coagulation?**
  - a. IgE
  - b. IgA
  - c. IgM
  - d. IgG
- 4. In a antigen haptens are**
  - a. Immunogenic
  - b. Non-immunogenic
  - c. Antigenic
  - d. None of these
- 5. The antibody that is first formed after infection is**
  - a. IgG
  - b. IgM
  - c. IgD
  - d. IgE
- 6. Antibodies in our body are produced by**
  - a. B-lymphocytes
  - b. T-lymphocytes
  - c. Monocytes
  - d. RBC's
- 7. The points at which crossing over has taken place between homologous chromosomes are called**
  - a. Chiasmata
  - b. Synaptonemal complex
  - c. Centromeres
  - d. Protein axes
- 8. How much of globulin is present in human serum?**
  - a. 8%
  - b. 12%
  - c. 16%
  - d. 4%
- 9. The substance which acts as anti-metabolites are called**
  - a. Activators
  - b. Substrates
  - c. Inhibitor
  - d. Cofactor
- 10. Enzymes are chemically**
  - a. Lipids
  - b. Proteins
  - c. Carbohydrates
  - d. None of these
- 11. Monoclonal antibodies are produced by**
  - a. Hybridoma technology
  - b. Biotechnology
  - c. Fermentation Technology
  - d. None of these
- 12. First line of body defence is**
  - a. Antibody molecules
  - b. Unbroken skin
  - c. Antigen molecules
  - d. Phagocytic cells
- 13. What is the strength of the bond between antigen and antibody?**
  - a. Affinity
  - b. Avidity
  - c. Covalent
  - d. None of these

- 14. Syphilis is caused by**
- Staphylococcus aureus
  - Yersinia psdtis
  - Treponema pallidum
  - Streptococcus syphilitis
- 15. Nergibodies produced by rabies virus show characteristic \_\_\_\_\_ inner granues**
- Basophilic
  - Eosinophilic
  - Neutrophilic
  - Acidophilic
- 16. The widely used yeast for the production of single cell protein is**
- Saccharomyces cerevisiae
  - Rhizopus
  - Candida utilis
  - All of the above
- 17. Analysis of protein antigen is by**
- Southern blot
  - Northern blot
  - Western blot
  - None of these
- 18. Which of the following can provide naturally acquired passive immunity for the new born.**
- IgA
  - IgG
  - IgE
  - IgM
- 19. AIDS disease is caused by a virus which belongs to**
- Retro virus group
  - Rhabdo virus group
  - Hepatitis virus group
  - Adeno virus group
- 20. Complement based agglutination reaction is known as**
- Haem agglutination
  - Coplement fixation
  - Conglutination
  - Schultz Dale Phenomenon
- 21. Reverse transcriptase is an enzyme involved in the synthesis of**
- DNA
  - Soluble RNA
  - m-RNA from DNA
  - Nucleotides
- 22. The cellular immune response is mediated by**
- B cells
  - T cell
  - BT cells
  - Endothelial cells
- 23. The major immunoglobulin present in the human serum is**
- IgG
  - IgA
  - IgE
  - IgG
- 24. Reagenic type antibody is**
- IgG
  - IgA
  - IgM
  - IgE
- 25. Blood group antigens are**
- Species specific
  - Isospecific
  - Autospecific
  - Organ specific
- 26. The reaction of soluble antigen with antibody is known by**
- Precipitation
  - Flocculation
  - Agglutination
  - Complement fixation
- 27. Interferon is composed of**
- Lipids
  - Lipoprotein
  - Glycoprotein
  - Nucleic acid
- 28. Agglutination reaction is strongest with the immunoglobulin:**
- IgM
  - IgG
  - IgA
  - IgD
- 29. The use of monoclonal antibodies is**
- Immunotherapy
  - Gene therapy
  - Blood transfusion
  - Organ transfusion
- 30. Hybridoma technique is used for**
- Monoclonal antibodies
  - Polyclonal antibodies
  - Both a and b
  - None of these
- 31. Test used for AIDS is**
- Widal test
  - ELISA
  - Agglutination
  - CFT
- 32. Antibody having high valency is**
- IgG
  - IgA
  - IgD
  - IgM

- 33. Intensity of attraction between antigen and antibody molecule is known as**
- Affinity
  - Avidity
  - Reaction
  - None of these
- 34. Active immunity is induced by**
- Infection
  - Placental transfer of antibodies
  - Injection of antibodies
  - Injection of gamma-globulins
- 35. Pasteur developed the vaccines for**
- Anthrax
  - Rabies
  - Chicken cholera
  - All of the above
- 36. Delayed type of hypersensitivity is seen in**
- Penicillin allergy
  - Contact dermatitis
  - Arthus reaction
  - Anaphylaxis
- 37. The following are used for the preservation of virus, except**
- Freezing ( $-20^{\circ}\text{C}$ – $-70^{\circ}\text{C}$ )
  - Lyophilization
  - Ether
  - Formaldehyde
- 38. Antibody formation depends on**
- Age of the person
  - Amount of antigen
  - Well being of the person
  - All of the above
- 39. Local immunity is important in**
- Influenza
  - Allergy
  - Polio
  - All of these
- 40. Role of magnesium in vaccine is**
- Adjuvant
  - Stabilizer
  - Conditioner
  - All of these
- 41. Immunity is life long following**
- Diphtheria
  - Tetanus
  - Measles
  - Yellow fever
- 42. To prepare vaccine for small pox, the material used by Edward Jenner is**
- Small pox material
  - Chicken pox material
  - Cow-pox material
  - Measles material
- 43. During recombination, the strain that donates genetic material frequently with high rate:**
- Hfr-Strain
  - F<sup>+</sup>-Strain
  - F-Strain
  - both a and c
- 44. The character acquired by the cell due to recombination is**
- Inheritable
  - Suppressed
  - Dominating
  - Heritable
- 45. T-cells are produced from**
- Bonemarrow
  - Thymus
  - Spleen
  - None of these
- 46. Antibodies are produced from**
- T-cells
  - $\hat{a}$ -cells
  - NK cells
  - Eosinophils
- 47. Incomplete antigens are called**
- Immunogens
  - Epitomes
  - Haptens
  - Paratope
- 48. To be antigen, the chemical molecule (protein) needs**
- High molecular weight
  - Chemical complexity
  - Both a and b
  - None of these
- 49. The parts which filter lymph are**
- Lymph nodes
  - Spleen
  - Thymus
  - Bone marrow
- 50. The primary cells involved in immune response are**
- NK-cells
  - K-cells
  - Lymphocytes
  - None of these
- 51. Plasma cells are the end cells of**
- T-cells
  - $\beta$ -cells
  - Killer cells
  - Nk-cells
- 52. Basophils have receptors for antibodies**
- IgG
  - IgA
  - IgM
  - IgE

- 53. Because of denaturation, antigens become functionless, these are called:**
- Cross-reactive antigens
  - Epitopes
  - Hidden epitopes
  - Forsman antigens
- 54. Capacity of antigen to breakdown into small fragments each with a single epitopic region is known as**
- Solubility
  - Foreignness
  - Denaturation
  - None of these
- 55. Antigenic specificity is due to**
- Chemical complexity
  - Solubility
  - Steric configuration
  - All of these
- 56. Antibodies are**
- Proteins
  - Glycoproteins
  - Phospholipids
  - None of these
- 57. General purpose antibody is**
- IgA
  - IgG
  - IgM
  - IgD
- 58. Antibody present in colostrums is**
- IgG
  - IgA
  - IgM
  - IgE
- 59. Which antibody is called millionaire molecule?**
- IgA
  - IgM
  - IgG
  - IgD
- 60. IgE is discovered by**
- Ishizaka
  - Porter
  - Richet
  - None of these
- 61. Antigen-antibody reactions are**
- Reversible
  - Irreversible
  - Specific
  - Both a and b
- 62. Serological reactions are useful for**
- Detection of antigens
  - Detection of antibodies
  - Both a and b
  - None of these
- 63. For the separation of antigens the method used is**
- Immuno-electrophoresis
  - Flocculation
  - Agglutination
  - None of these
- 64. Counter immunoelectrophoresis is useful for detection of**
- One antigen/antibody
  - Two antigens/antibody
  - More than two
  - None of these
- 65. When a particular antigen is mixed with antibody in the presence of an electrolyte at suitable temperature and pH the particles are clumped, this is called:**
- Precipitation
  - Agglutination
  - Electrophoresis
  - CIE
- 66. Toxins and viruses can be detected by**
- Precipitation
  - Agglutination
  - Neutralisation
  - None of these
- 67. Which is most antigenic?**
- Exotoxins
  - Endotoxins
  - Viruses
  - All of these
- 68. Shick test is used for the detection of**
- Diphtheria
  - T.B.
  - Cholera
  - Typhoid
- 69. Secondary function of complements are**
- Haemolysis
  - Phagocytosis
  - Both a and b
  - None of these
- 70. Very effective, less time consuming and at a time so many samples can be detected by**
- ELISA
  - CFT
  - Neutralization
  - Agglutination
- 71.  $\hat{\alpha}$ -cells are involved in**
- Humoral immunity
  - Cell-mediated immunity
  - Active immunity
  - Passive immunity

**72. Innate immunity is**

- a. Specific
- b. Non-specific
- c. Active
- d. Passive

**73. Innate immunity is developed by**

- a. Mechanical barriers
- b. Chemical barriers
- c. Both a and b
- d. None of these

**74. Acquired immunity is**

- a. Natural
- b. Artificial
- c. Active & Passive
- d. All of these

**75. Acquired immunity can be developed by**

- a. Natural means
- b. Artificial means
- c. Both a and b
- d. None of these

**76. Immediate type hypersensitivity reactions are**

- a. Type-I
- b. Type-II
- c. Type-III
- d. All a, b and c

**77. Immediate type of hypersensitivity reactions are mediated by**

- a. T-cells
- b.  $\beta$ -cells
- c. Mast cells
- d. Macrophages

**78. Example for cell-mediated immunity are**

- a. Tuberculin type
- b. Contact dermatitis
- c. Granulomatous
- d. All of these

**79. Mountax reaction is used for detection of**

- a. T.B.
- b. Diphtheria
- c. Cholera
- d. None of these

**80. All the antibodies produced from a  $\hat{a}$ -cell are having**

- a. Similar specificity
- b. Different specificities
- c. Similar size
- d. None of these

**81. Hybridoma formation in hybridoma technique is from**

- a. Spleen cell – Myeloma cell
- b. Spleen cell – Spleen cell
- c. Myeloma cell – Myeloma cell
- d. None of these

**82. Anthrax vaccine is prepared by**

- a. Attenuated bacilli
- b. Killing the bacilli
- c. Live bacilli
- d. None of these

**83. Attenuated, oral poliomyelitis vaccine is**

- a. BCG
- b. Measles vaccine
- c. Sabin vaccine
- d. TAB vaccine

**84. Killed, polio vaccine is**

- a. Sabin vaccine
- b. Salk
- c. BCG
- d. TAB

**85. Measles vaccine is given to children at the age of**

- a. 1 year
- b. 7 months
- c. between 9 months and 10 years
- d. None of these

**86. Pertussis vaccine is**

- a. Heat killed
- b. Formalin killed
- c. Attenuated
- d. live

**87. DPT is**

- a. Triple vaccine
- b. Double vaccine
- c. Tetanus toxoid
- d. All of these

**88. DPT, is used as vaccine for**

- a. Diphtheria
- b. Pertussis vaccine
- c. Tetanus toxoid
- d. All of these

**89. DPT is given to children at the age of 16-24 months, as the dose is**

- a. 0.5 ml at intervals of 4 weeks
- b. A booster dose of 0.5 ml
- c. Both a and b
- d. None of these

**90. If more than one kind of immunizing agent is included in the vaccine, it is**

- a. Cellular vaccine
- b. Recombinant vaccine
- c. Mixed vaccine
- d. Toxoid vaccine

**91. Vaccines are prepared from killed microbes, they are**

- Inactivated (killed) vaccine
- Attenuated vaccines
- Autogenous vaccine
- None of these

**92. Vaccines used against viral infections are**

- Measles and Mumps vaccine
- Cholera vaccine
- Typhoid vaccine
- Anti-rickettsial vaccine

**93. If the microbes used in the vaccine are obtained from patient, they are**

- Anti viral vaccines
- Anti bacterial vaccines
- Autogenous vaccines
- None of these

**94. Vaccines prepared from toxins and chemicals are**

- Cellular vaccines
- Sub-cellular vaccines
- Attenuated vaccines
- Heterologous vaccines

**95. Example for live vaccine is**

- Rubella & BCG
- Polio & TAB
- Diphtheria & Tetanus
- Hepatitis A & Rabies

**96. DPT is given for the prevention of**

- Diphtheria, Tetanus
- Diphtheria, Pertusis
- Diphtheria, Tetanus & pertusis
- None of these

**97. The live vaccines are available against the following viruses, except:**

- Influenza
- Measles
- Rabies
- Polio

**98. HIV can be transmitted through**

- Blood
- Semen
- Vaginal fluid
- All of these

**99. Match the following terms with their respective definitions A to E used in virology :**

- |                       |   |
|-----------------------|---|
| 1. Haemagglutination  | A. A phenomenon of acquiring resistance to infection by a second virus    |
| 2. Virus titre        | B. A virus does not cause cytopathogenic changes in tissue culture        |
| 3. Virus interference | C. Determination of the number of infective units in the virus suspension |
| 4. Interferon         | D. A substance by which viruses can attack themselves to red blood cells  |
|                       | E. Substance used to destroy virus  |

**100. Match the following vaccines with their respective contents A to E:**

- |                    |                        |
|--------------------|------------------------|
| 1. Typhoid vaccine | A. Killed rickettsia   |
| 2. Typhus vaccine  | B. Killed bacteria     |
| 3. Measles vaccine | C. Attenuated viruses  |
| 4. Smallpox        | D. Killed viruses      |
|                    | E. Attenuated bacteria |

**101. Match the following immunoglobulins with their respective occurrences A to E:**

- |        |  |
|--------|--|
| 1. IgM | A. In the seromucous secretions          |
| 2. IgG | B. After the primary antigenic stimulus  |
| 3. IgA | C. Synthesized during secondary response |
| 4. IgE | D. Plasma                                |
|        | E. Serum                                 |

**102. Match the following viral vaccines with their source materials A to E:**

- |                 |   |
|-----------------|---|
| 1. Influenza    | A. Fluid from cultures of human diploid cells |
| 2. Rabies       | B. Dermal scraping from infected animals      |
| 3. Smallpox     | C. Allantoic fluid from fertile hen's eggs    |
| 4. Yellow fever | D. Fluid from cultures of rabbit kidney       |
|                 | E. Aqueous homogenate of chick embryo         |

**103. Animals are naturally immune to infection caused by**

- V. Cholera
- S.typhosa
- Both a and b
- None of these

- 104. The immunity acquired by inoculation of living organism of attenuated virulence is**
- Artificial active immunity
  - Passive immunity
  - Natural active immunity
  - Local immunity
- 105. Organisms can be attenuated for inoculation by**
- Growing it at a temperature higher than optimum
  - By passage through animals of different species which are less susceptible to it
  - By continuous cultivation in presence of antagonistic substance
  - Any one of the above
  - None of these
- 106. Passive immunity lasts for the period of about**
- 10 days
  - 2 – 3 months
  - 10 years
  - None of the above
- 107. The markers helpful in detecting anti-immunity are**
- Hyper gamma globulinaemia
  - Circulating antibodies
  - Response to cortisone
  - Lymphoid hyperplasia
  - All of these
- 108. Following substance may act as an antigen**
- Egg albumin
  - RBC and serum
  - Vegetable protein
  - Snake venom
  - All of these
- 109. H antigen are present in**
- Motile organ
  - Non-motile organ
  - Both a & b
  - None of these
- 110. Antitoxin is used for \_\_\_\_\_ immunization.**
- Active
  - Passive
  - Both a and b
  - None of these
- 111. The agglutinin test is used for \_\_\_\_\_**
- Identification of isolated bacteria
  - Typing of bacterial species
  - Study of antigenic structure of bacteria
  - All of these
  - None of these
- 112. In blood transfusion it is essential that**
- Blood of homologous group should always be same
  - Direct matching between patient's serum and donor's corpuscles be performed
  - Both a & b
  - None of these
- 113. To be anaphylactic, the sensitizing substance should be**
- Protein in nature
  - Should have a large molecular weight
  - Soluble in tissue fluids
  - All of the above
  - None of these
- 114. The basics of pathology in asthma, allergic rhinitis, urticaria are**
- Local vasodilation
  - Increased capillary secretion
  - Excess eosinophils in tissue secretion and blood
  - All of these
- 115. Which test is used for detecting susceptibility of an individual to diphtheria toxin?**
- Schick tests
  - Dick test
  - V-P test
  - Precipitin test
- 116. Syndromes associated with Human T lymphotropic virus type I (HTLV-I) are**
- Adult T-cell lymphoma
  - Hairy cell leukemia
  - Adult T cell leukemia
  - All of these



- 117. Plague and Tularemia vaccine can be prepared from**
- Chemical fraction of the causative bacteria
  - Heat killed suspension of virulent bacteria
  - Formalin inactivated suspension of virulent bacteria
  - Avirulent live bacteria
  - All of these
- 118. AIDS patients suffer from pneumoniae due to**
- Pneumocystis carinii
  - Cryptosporidium
  - S.pneumoniae
  - Toxoplasma
- 119. Statements applicable to human lice:**
- Cause pruritic skin lesions.
  - Are wingless
  - Transmit epidemic typhus, relapsing fever and Trench fever
  - Pediculus humanus and phthirus pubis are two species
  - All of these
- 120. Natural killer cells**
- Belongs to B-cell lineage
  - Belongs to T-cell lineage
  - Display cytotoxic effect on tumour cell
  - Require previous antigen exposure for activation
- 121. Immunoglobulin is associated with anaphylactic delayed hypersensitivity reaction**
- IgE
  - IgA
  - IgD
  - IgM
  - IgG
- 122. The most abundant antibody found in serum is**
- IgA – 1
  - IgG – 1
  - IgG – 2
  - IgG – 3
  - IgG – 4
- 123. Patients suffering from AIDS have following immune abnormalities**
- Decreased CD4 + T cells
  - Increased CD8 + T cells
  - Hypergammaglobulinemia
  - CD4 +/CD8 + ratio greater than 21
  - Both b & d
- 124. Immunoglobulin which cannot activate complement**
- IgM
  - IgE
  - IgA
  - IgG
- 125. Hydatid disease is identified by**
- Schick test
  - Dick test
  - Casoni test
  - Freis test
- 126. Prausnitz kustner reaction is generated by**
- IgA
  - IgE
  - IgG
  - IgD
- 127. Immunoglobulin which are found in asthma at elevated level:**
- IgA
  - IgE
  - IgM
  - IgD
- 128. What is the similarity between IgM & IgG?**
- A complement fixation
  - Placental transport
  - Heat stability at 56°C
  - Sedimentation coefficient
- 129. What is the technique for quantitative estimation of immunoglobulin?**
- Single diffusion in one dimension
  - Single diffusion in two dimension
  - Double diffusion in one dimension
  - Double diffusion in two dimension
- 130. Cell mediated immunity can be identified by**
- Sheep bred blood corpuscles rosette formation
  - Microphase inhibiting factor
  - Skin test for delayed hyper sensitivity
  - All of these

- 131. Out of the following which are the examples of autoimmune disease?**
- Acquired Haemolytic anaemia
  - Rheumatoid arthritis
  - Hashimoto disease
  - All of these
- 132. Which of the following is a true statement regarding Purified Protine Derivative (PPD) used in tuberculin test?**
- Prepared from tubercle bacilli
  - It is inferior to old tuberculin
  - Consists of filtrate of glycerol broth
  - None of these
- 133. Which of the following are inactive viral vaccines?**
- Influenzae
  - Rabies
  - Russian spring summer encephalitis
  - All of these
- 134. Antigenic variation is most extensive in**
- Influenza virus
  - Small pox virus
  - Measles virus
  - Herpes virus
- 135. Which is the correct statement related to hepatitis B virus?**
- Paramyxo virus
  - Orthomyxo virus
  - Reo viruses
  - Retro viruses

**ANSWERS**

- |                         |                         |                        |                         |        |        |
|-------------------------|-------------------------|------------------------|-------------------------|--------|--------|
| 1. c                    | 2. a                    | 3. c                   | 4. b                    | 5. b   | 6. a   |
| 7. a                    | 8. a                    | 9. c                   | 10. b                   | 11. a  | 12. b  |
| 13. b                   | 14. c                   | 15. a                  | 16. c                   | 17. c  | 18. b  |
| 19. a                   | 20. a                   | 21. a                  | 22. a                   | 23. a  | 24. d  |
| 25. b                   | 26. a                   | 27. b                  | 28. a                   | 29. a  | 30. a  |
| 31. b                   | 32. d                   | 33. a                  | 34. a                   | 35. d  | 36. b  |
| 37. c                   | 38. d                   | 39. d                  | 40. b                   | 41. c  | 42. c  |
| 43. a                   | 44. d                   | 45. b                  | 46. b                   | 47. c  | 48. c  |
| 49. a                   | 50. c                   | 51. b                  | 52. d                   | 53. c  | 54. a  |
| 55. c                   | 56. b                   | 57. b                  | 58. b                   | 59. b  | 60. a  |
| 61. d                   | 62. c                   | 63. a                  | 64. a                   | 65. b  | 66. c  |
| 67. a                   | 68. a                   | 69. c                  | 70. a                   | 71. a  | 72. b  |
| 73. c                   | 74. d                   | 75. c                  | 76. d                   | 77. b  | 78. d  |
| 79. a                   | 80. a                   | 81. a                  | 82. a                   | 83. c  | 84. a  |
| 85. c                   | 86. b                   | 87. a                  | 88. d                   | 89. c  | 90. c  |
| 91. a                   | 92. a                   | 93. c                  | 94. b                   | 95. a  | 96. c  |
| 97. c                   | 98. d                   | 99. 1.d, 2.c, 3.b, 4.a | 100. 1.b, 2.a, 3.d, 4.c |        |        |
| 101. 1.b, 2.c, 3.a, 4.e | 102. 1.c, 2.a, 3.b, 4.e |                        |                         |        |        |
| 103. c                  | 104. a                  | 105. d                 | 106. a                  | 107. e | 108. c |
| 109. a                  | 110. b                  | 111. d                 | 112. c                  | 113. b | 114. e |
| 115. a                  | 116. b                  | 117. e                 | 118. d                  | 119. e | 120. c |
| 121. a                  | 122. a                  | 123. e                 | 124. b                  | 125. c | 126. b |
| 127. b                  | 128. a                  | 129. b                 | 130. d                  | 131. d | 132. a |
| 133. d                  | 134. a                  | 135. c                 |                         |        |        |

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# CHAPTER 9

## MEDICAL MICROBIOLOGY

**1. Food poisoning is caused by**

- a. Clostridium tetani
- b. Clostridium Welchi
- c. Diphtheria
- d. Clostridium botulinum

**2. Koplic's spots will develop in**

- a. HIV
- b. Measles
- c. Mumps
- d. Rubella

**3. Viral DNA is resistant to DNA of the host cell because it contains**

- a. 5'-HMC
- b. 5'-HMA
- c. 5'-CHM
- d. 5'-MHC

**4. Which of the following is an example of live vaccine?**

- a. pertusis
- b. mumps
- c. cholera
- d. rabies

**5. Triple toxoid vaccine gives protection against**

- a. Diphtheria, tetanus and rabies
- b. Tetanus, whooping cough, Tuberculosis
- c. Whooping cough, tetanus and Diphtheria
- d. Whooping cough, cancer and T.B.

**6. Higher does of chloramphenicol affects the eukaryotic cells because**

- a. They have 30 S ribosomes
- b. They have mitochondria

- c. They have 70 S ribosomes
- d. None of the above

**7. AIDS is caused by**

- a. Retrovirus
- b. Prion
- c. Rhabdovirus
- d. Retroprison

**8. Penicillin is a**

- a. Primary metabolite
- b. Secondary metabolite
- c. Tertiary metabolite
- d. None of the above

**9. The rejection of an organ transplant such as a kidney transplant, is an example of \_\_\_\_\_ Hypersensitivity.**

- a. Immediate
- b. Delayed
- c. Allergy
- d. None of these

**10. Listeriosis was \_\_\_\_\_ disease.**

- a. Food borne
- b. Water borne
- c. Milk borne
- d. Air borne

**11. Pus-forming forms are called as**

- a. Pyoderm
- b. Pyogenic
- c. Pyrogen
- d. None of the above

**12. In Elisa technique, the antibodies are labeled by**

- a. Acridine orange
- b. Alkaline phosphate
- c. Neutral red
- d. Bromothymol blue

- 13. \_\_\_\_\_ is a genetic disease characterized by a total or partial inability to synthesize globulins.**
- Apitosis
  - Agamma globulinemia
  - Gammaglobulinemna
  - Sickle-cell anemia.
- 14. A study involving analysis of risk for genetic defects in a family is**
- Genetic Engineering
  - Genetic counseling
  - Genetic drift
  - Genetic equilibrium
- 15. Viral antigens are likely**
- Proteins
  - Glyco proteins
  - Lipo proteins
  - Both a and b
- 16. The suitable assay method for antibiotics is**
- Enzymatic assay
  - Turbidometric assay
  - End point determination assay
  - Metabolic assay
- 17. ELISA test is used for the identification of**
- Janudice
  - AIDS
  - Cancer
  - Diabetis
- 18. Incubation period for infective Hepatitis disease**
- 45 – 80 days
  - 15 – 35 days
  - 35 – 50 days
  - 5 – 15 days
- 19. All of the following are bacteriostatic chemotherapeutic agents except**
- Bacitracin
  - Chloramphenicol
  - Novobiocin
  - Tetracycline
- 20. Kinetosomes are observed in**
- Algae
  - Fungi
  - Protozoa
  - Viruses
- 21.  $\beta$ -lactum ring is present in**
- Erythromycin
  - Penicillin
  - Tetracyclins
  - Chromphenical
- 22. Antibiotic produced from streptomyces orientalis is**
- Streptomycin
  - Penicillin
  - Vancomycin
  - Both a and b
- 23. The drug of choice for dermal, oral and vaginal candidiasis is**
- Griseofulvin
  - Amphoterein B
  - Gentian violet
  - Nystatin
- 24. Botulism means**
- Food adultration
  - Food poisoning by streptococcus bacteria
  - Chemical contamination of food
  - Food processing
- 25. Chloramphenicol is obtained from**
- Streptomyces griseus
  - Streptomyces venezuelae
  - Streptomyces pyrogenes
  - None of these
- 26. Streptomycin is obtained from**
- Streptococcus species
  - Streptomyces griseus
  - Straphylococcus aureus
  - None of these
- 27. The treatment required for small bodies of water is**
- Disinfection
  - Filtration
  - Purification
  - All of these
- 28. Surface ropiness is caused by**
- Alkaligenes viscolactis
  - Streptococcus
  - both a and b
  - None of these
- 29. Septicaemia is**
- Bacteria in blood
  - Toxin in blood
  - Pus in blood
  - Multiplication of bacteria and toxins in blood
- 30. In AIDS, Kaposi sarcoma may respond to**
- Interleukin – 2 infusion
  - Azathioprine
  - Alpha interferon
  - None of these

- 31. Ciprofloxacin acts by inhibiting**
- Cellwall synthesis
  - RNA synthesis
  - Folate synthesis
  - DNA gyrase
- 32. Lyme disease is caused by**
- Bacteria
  - Fungi
  - Spirochaete
  - Virus
- 33. Toxic shock syndrome is caused by**
- Staph. albus
  - Staph. aureus
  - Strep. viridana
  - None of these
- 34. Black water fever is caused by**
- P. vivax
  - P. falciparum
  - P. ovale
  - None of these
- 35. Mantoux test detects**
- M. tuberculosis
  - Cynaobacteria
  - Clostridia
  - Both a and b
- 36. The antibiotic acting on cell wall is**
- Bactracin
  - Penicillin
  - Cyclosporine
  - All of these
- 37. Aflatoxin is produced by**
- Aspergillus sps
  - Penicillium sps
  - Alternaria sps
  - None of these
- 38. Penicillin is discovered by**
- Fleming
  - Pasteur
  - Koch
  - None of these
- 39. Antibiotics used in combination may demonstrate**
- Synergism
  - Antaginism
  - both
  - None of these
- 40. The drug of choice in anaphylactic shock is**
- Histamine
  - Corticosteroid
  - Epinephrine
  - None of these
- 41. Drugs of choice for treatment of Mycoplasma infections:**
- Tetracyclines
  - Erythromycin
  - a and b
  - Penicillins
- 42. A number of viruses are known to infect mycoplasmas, called**
- Bacteriophages
  - Mycoplasma phages
  - Virions
  - Tiny strains
- 43. The following are true about Rickettsiae.**
- Unicellular organisms
  - Prokaryotic intracellular parasites
  - Presence of 70 S ribosomes
  - It causes hemolysis in human beings
  - Gram negative plemorphic rods
- 44. The causative agent of scrub typhus:**
- R.Quintana
  - R.rickettsii
  - R.orinetalis
  - R.prowazekii
- 45. Lymphogranuloma venerum (LGV) is a sexually transmitted disease is caused by**
- Cophthalmia
  - C.trachomatis
  - C.pneumonias
  - C.psittasi
- 46. Intradermal test employed for diagnosis of LGV is**
- Frei test
  - Mantoux test
  - Schick test
  - Dick test
- 47. Which algae is pathogenic to human?**
- Cephaloeuros
  - Ulothrix
  - Macrocystis
  - Prototheca
- 48. Erythromycin is obtained from**
- S.griseus
  - S.rimosus
  - S.scabies
  - S.erythraeus
- 49. Common cold is caused by**
- Adeno virus
  - Corono virus
  - Hepatitis virus
  - Pox virus
- 50. The causative agent of conjunctivitis:**
- Adeno virus
  - Corono virus
  - Paramyxo virus
  - None of these
- 51. Antibiotics used for treatment of cholera are**
- Tetracyclines
  - Penicillins
  - Streptomycines
  - None of these

- 52. Salmonella typhi is causative organism of**
- Undulant fever
  - Remittent fever
  - Dengue fever
  - Enteric fever
- 53. Which of the following Salmonella paratyphi is the commonest in India?**
- A
  - B
  - C
  - None of these
- 54. In enteric fever, the organ lodging maximum number of the organism is**
- Liver
  - Gall bladder
  - Small intestine
  - Large intestine
- 55. True about Enteric fever is**
- Bacteraemia in first week
  - Carrier in 90%
  - All serotypes cause the disease
  - Rosy spots on 18th day
- 56. Gastroenteritis is caused by**
- Shigella
  - V.cholerae
  - V.cholera Parahaenolyticus
  - S.typhi
- 57. E.coli produces the following toxins:**
- Enterotoxins
  - Endotoxins
  - Verocytotoxins
  - Hemolysins
- 58. The following infections caused by Esch. Coli, except**
- Urinary tract infections
  - Septic infections of wounds
  - Diarrhoea
  - Dysentery
  - Meningitis
- 59. Diphtheria is caused by**
- Corynebacterium diphtheriae
  - C. Bovis
  - C. Jeikeium
  - C. equi
- 60. Causative organism of diphtheria was first demonstrated by**
- Robert Koch
  - Lois Pasteur
  - Klebs and Loeffler
  - Volhard and Fahr
- 61. Coryne bacterium is**
- Gram positive
  - Resistant to Penicillin
  - Gram negative
  - Resistant to Chloramphenicol
- 62. C. diphtheriae consists of**
- Starch granules
  - Polymeta phosphate granules
  - Lipid granules
  - None of these
- 63. The incubation period of diphtheriae is**
- Upto 2 weeks
  - Upto 1 week
  - 2-4 weeks
  - None of these
- 64. Diphtheria virulence test is**
- Ascoli's thermoprecipitation test
  - Elek's gel precipitation test
  - C.R.P test
  - M.R.T. test
- 65. Diphtheria toxoid is prepared by using**
- Aldehyde
  - Formalin
  - Phenols
  - None of these
- 66. Diphtheria is an example of**
- Bacteraemia
  - Pyaeemia
  - Septicemia
  - Toxaemia
- 67. Main symptom of tuberculosis is**
- Tubercle formation
  - Liquid formation
  - Both a and b
  - None of these
- 68. BCG vaccine is for the prevention of**
- Brucellosis
  - Diphtheria
  - Botulism
  - Tuberculosis
- 69. Dose of BCG vaccine is**
- 0.2-0.5 ml
  - 0.1 ml
  - 0.05 ml
  - 0.2 to 0.3 ml
- 70. Negative Mantoux test is important in**
- Pulmonary Koch's syndrome
  - Sarcoidosis
  - Carcinoma bronchus
  - Lymphoma

- 71. Bacilli Calmette Guerin (BCG) contains the avirulent strains of**
- Human tubercle bacilli
  - Avian tubercle bacilli
  - Bovine tubercle bacilli
  - A typical mycobacteria
- 72. Drugs used against tuberculosis (TB) are**
- Refampicin, Isoniazid
  - Pyrazinamide, Streptomycin
  - Both a and b
  - None of these
- 73. The greatest number of tubercle bacilli is present in**
- Large sized tuberculomas
  - Miliary tuberculosis
  - Tuberculous lymphadenitis
  - Tuberculous cavity of the lung
- 74. Histoid Hansen is a variety of**
- Tuberculoid Leprosy
  - Borderline tuberculoid
  - Borderline lepromatous
  - Lepromatous leprosy
- 75. Streptococcus pyogenes produces all of the following lesions, except**
- Impetigo contagiosa
  - Erysipelas
  - Boil
  - Paronychia
- 76. Causative agent of Scarlet fever:**
- Staphylococcus aureus
  - Streptococcus viridans
  - Stre. pyogenes
  - None of these
- 77. Rheumatic fever is most commonly caused by**
- Str. viridans
  - Str. pyogenes
  - Stph. aureus
  - None of these
- 78. Penicillin is the drug of choice for**
- Scarlet fever
  - Whooping cough
  - Brucellosis
  - Cholera
- 79. In human being str. pneumoniae causes**
- Septicaemia
  - Paronychia
  - Pneumonia
  - None of these
- 80. Virulence factor for Stre. pneumoniae:**
- Capsular polysaccharide
  - Specific soluble substance
  - Vi-antigen
  - Forsmann antigen
- 81. Conjunctivitis in a new born is caused by**
- Streptococcus
  - Pneumococcus
  - Meningococci
  - None of these
- 82. Influenza is belonging to**
- Orthomyxoviridae
  - Retroviridae
  - Both a and b
  - None of these
- 83. Influenza virus contains**
- Eight segments of RNA
  - Two strands of RNA
  - Single RNA
  - None of these
- 84. 'Reye's syndrome' is caused by**
- St.pneumoniae
  - St.pyogenes
  - Influenza
  - None of these
- 85. German measles is also known as**
- Rubella / 2-day measles
  - Rubella / 3day measles
  - Rubella / 4-day measles
  - Rubella / 1-day measles
- 86. The commonest cause of rubella in new bornes**
- Congenital rubella
  - Post natal rubella
  - Expanded rubella syndrome (ERS)
  - Both a and c
- 87. Mumps virus is belonging to**
- Retroviridae
  - Paramyxoviridae
  - Orthomyxo viridae
  - None of these
- 88. Measles is characterized by**
- Negribodies
  - Babes-Ernest granules
  - Koplik's spots
  - Fever



- 89. Brucella causes**
- Pertusis
  - Plague
  - Brucellosis
  - None of these
- 90. Mediterranean fever is caused by**
- M. tuberculosis
  - S. typhi
  - C. neoformans
  - Brucella
- 91. Which of the following test is specific for Brucellosis?**
- Frei
  - Weil
  - Castaneda strip
  - Rose water
- 92. Malignant pustule is caused by**
- Anthrax
  - Tetanus
  - Diphtheria
  - None of these
- 93. The commonest form of anthrax in man is**
- Alimentary
  - Cutaneous
  - Pulmonary
  - Hepatic
- 94. The animals most frequently infected with anthrax are**
- Sheep
  - Cattle
  - Goats
  - All of these
- 95. Virus causing Rabies is**
- Orthomyxo virus
  - Paramyxo virus
  - Rhbdo virus
  - Toga viruses
- 96. Rhabdo viruses are belonging to the family:**
- Rhabdo viridae
  - Toga viridae
  - Paramyxo viridae
  - None of these
- 97. Rabies Virus isolated from natural human or animal infection is termed as**
- Street virus
  - Fixed virus
  - Both a and b
  - None of these
- 98. Rabies virus can multiply in**
- The central nervous system only
  - The peripheral nerves
  - Muscle tissues
  - All the above
- 99. Neurological complications following rabies vaccines is common with**
- Chick embryo vaccine
  - HDCS vaccine
  - Semple vaccine
  - BPL vaccine
- 100. Which anti rabic vaccine has been recommended by WHO as the most effective?**
- Duck embryo vaccine
  - HDCS vaccine
  - Sheep brain vaccine
  - BPL vaccine
- 101. The causative agent of tetanus is**
- Clostridium botulinum
  - Cl. tetani
  - Cl. welchii
  - Cl. perfringens
- 102. The mode of spread of tetanus neurotoxin from blood to brain is**
- Via lymphatics
  - Arterial blood
  - Cranial nerves
  - None of these
- 103. Tetanus is caused by spread of**
- Exotoxin in sympathetic system
  - Exotoxin in para sympathetic system
  - Endotoxin in sympathetic system
  - Endotoxin in parasympathetic system
- 104. The first symptom of tetanus is**
- Lock jaw
  - Trismus
  - Anorexia
  - Dyspagia
- 105. Of which clostridia, the neurotoxin is most powerful?**
- Cl. tetani
  - Cl. welchii
  - Cl. botulism
  - Cl. septicum
- 106. Toxin produced by C. botulism is**
- Botulin
  - Tetanospasmin
  - Tetanolysin
  - Cholaragen

- 107. "Toxic shock syndrome" is caused by the toxin of**
- Staphylococcus aureus
  - Streptococcus pyogenes
  - Vibrio cholerae
  - Candida
- 108. Causative agent of syphilis**
- T. pallidum
  - T. pertenuis
  - T. carateum
  - T. endemicum
- 109. Spirochaetes are sensitive to**
- Penicillin
  - Chloramphenicol
  - Erythromycin
  - Tetracyclins
- 110. Specific test for syphilis is**
- VDRL test
  - ELISA
  - FTA
  - None of these
- 111. VDRL test is a**
- Agglutination test
  - Slide flocculation test
  - Precipitation test
  - None of these
- 112. The following characters are true about Neisseria gonorrhoeae except**
- Gram-negative, aerobic bacteria
  - Non-motile diplococci
  - Oxidase positive organisms
  - Air borne infection
- 113. Gonorrhoea is**
- Air borne disease
  - Water borne disease
  - Sexually transmitted venereal disease
  - Both a and c
- 114. Bartholin cyst is caused by**
- Candida
  - Streptococcus
  - Staphylococcus
  - Gonococcus
- 115. Neisseria gonorrhoeae causes**
- Urethritis
  - Conjunctivitis
  - Arthritis
  - All of the above
- 116. Virulence in gonococcus is due to**
- Pili
  - Cell membrane
  - Its cellular location
  - Cyclic enzymes
- 117. Japanese encephalitis is caused by**
- Toga Viruses
  - Arbo Viruses
  - Para myxo Viruses
  - Ortho myxo Viruses
- 118. In India, Japanese encephalitis was first isolated from the mosquitoes of the**
- Culex tritaeniorhynchus
  - Culex annulirostris
  - Culex vishnui
  - None of these
- 119. Dengue virus is transmitted from man to man by the**
- Sand fly
  - Ticks
  - Aedes aegypti
  - Culex
- 120. Yellow fever is caused by**
- Bunya virus
  - Calci virus
  - Arbo virus
  - None of these
- 121. Vector for leishmaniasis is**
- Tick
  - Mite
  - Sand fly
  - Tsetse fly
- 122. Splenomegaly is an important manifestation of**
- Kala-azar
  - Typhoid
  - Malaria
  - All of these
- 123. Which of the following is most severely affected in Kala-azar?**
- Liver
  - Spleen
  - Adrenal gland
  - Bone marrow
- 124. In India, malaria most often spreads by**
- Anopheles culicifacies
  - Anopheles fluviatilis
  - Anopheles stephensi
  - Anopheles minimus
- 125. Man is intermediate host for**
- Guinea Worm
  - Filaria
  - Malaria
  - Kala-azar

- 126. Which of the following preferably infects reticulocytes?**  
 a. *P. ovale*                      b. *P. vivax*  
 c. *P. falciparum*                d. *P. malaria*
- 127. In which type of material parasite in the exoerythrocytic stage absent?**  
 a. *P. ovale*                      b. *P. vivax*  
 c. *P. falciparum*                d. *P. malariae*
- 128. In falciparum malaria, all of the following stages are seen except**  
 a. Ring stage                    b. Schizont  
 c. Gametocyte                  d. None of these
- 129. Sporozite vaccine in malaria has**  
 a. Induces antibodies  
 b. Prevents only asexual forms with reproduction  
 c. No effects on clinical illness  
 d. None of the above
- 130. Growing trophozoites and schizonts are not seen in the peripheral blood in malaria due to**  
 a. *P. falciparum*                b. *P. vivax*  
 c. *P. ovale*                        d. *P. malaria*
- 131. Thin blood smear for malaria is used to identify**  
 a. Plasmodium                b. Gametocytes  
 c. Type of parasite            d. Schizont
- 132. The radical treatment of malaria is to half**  
 a. Gametocyte  
 b. Exo-erythrocytic phase  
 c. Erythrocytic phase  
 d. All of these
- 133. Symptoms of acute aflatoxicosis**  
 a. Osteogenic sarcoma  
 b. Lymphatic leukemia  
 c. Malaise & Anorexia  
 d. Both a and b
- 134. Most important *Penicillium* toxins are**  
 a. Citrinin  
 b. Patulin  
 c. Penicillic acid  
 d. All of the above
- 135. Penicillic acid is produced by**  
 a. *A. ochraceus*                b. *P. puberulum*  
 c. Both a and b                d. None of the above
- 136. Fungi producing mycelium are called**  
 a. Moulds                        b. Filamentous fungi  
 c. Both a and b                d. Yeasts
- 137. Candidiasis is caused by**  
 a. *Candida albicans*        b. *Aspergillus* spp.  
 c. *E. floccosum*                d. *M. audouinii*
- 138. *Candida albicans* is capable to form**  
 a. Single cells                  b. *Pseudomonas*  
 c. Multicellular forms        d. None of these
- 139. *Aspergillus fumigatus* can infect**  
 a. *A. niger*                        b. *A. fumigatus*  
 c. *A. flavus*                      d. *A. oryzae*
- 140. *A. fumigates* can produce**  
 a. Endotoxins                  b. Exotoxins  
 c. Enterotoxins                d. None of these
- 141. The drug of choice for dermal, oral and vaginal candidiasis is**  
 a. Griseofulvin                b. Amphotericin B  
 c. Gentian violet                d. Nystatin
- 142. The following *Penicillium* species are pathogenic except**  
 a. *P. commune*                b. *P. bicolor*  
 c. *P. glaucum*                  d. *P. notatum*
- 143. *Tinea versicolor* is caused by**  
 a. *Candida albicans*        b. *Malassezia furfur*  
 c. *Aspergillus niger*        d. None of these
- 144. Causative agent of *Tinea nigra***  
 a. *Malassezia furfur*  
 b. *Exophiala werneckii*  
 c. *Candida albicans*  
 d. *Aspergillus flavus*
- 145. Causative agent of African histoplasmosis**  
 a. *Histoplasma capsulatum*  
 b. *Histoplasma duboisii*  
 c. *Aspergillus niger*  
 d. *Aspergillus flavus*

- 146. Sun ray fungus is**
- Actinomyces irraeli
  - Chromoblastomycosis
  - Streptomyces griseus
  - Cryptococcosis
- 147. Which agent on addition to a colony inhibits its growth and on removal the colony regrows is?**
- Bacteriostatic
  - Bactericidal
  - Antibiotic
  - Antiseptic
- 148. Griseofluvin is obtained from**
- Penicillium notatum
  - Streptomyces griseus
  - Penicillium griseofluvin
  - None of these
- 149.  $\beta$ -lactum ring is present in**
- Erythromycin
  - Penicillin
  - Tetracyclins
  - Chloramphenicol
- 150. All of the following drugs act on cell membrane, except**
- Novobiocin
  - Nystatin
  - Chloromycetin
  - Colicins
- 151. Cycloserine related to the amino acid in structure**
- Serine
  - Aspergine
  - Alanine
  - None of these
- 152. In Tuberculosis therapy mainly used antibiotic is**
- Penicillin
  - Streptomycin
  - Chloramphenol
  - Cycloserine
- 153. The antibacterial action of penicillin is due to its effect on**
- Cell membrane permeability
  - Cell wall synthesis
  - DNA synthesis
  - Protein synthesis
- 154. The antibiotic produced from Bacillus subtilis is**
- Vancomycin
  - Bactiracin
  - Both a and b
  - None of these
- 155. bacitracin sensitivity test is done for**
- Pneunocci
  - Group 'A' Streptococci
  - Gonococci
  - Staphylococci
- 156. The effect of antibiotics on micro organisms is mainly due to**
- Inhibition of cell-wall synthesis
  - Damage to the cytoplasmic membrane
  - Inhibition of nucleic acid and protein synthesis
  - All of the above
- 157. The antibiotic acting on cell wall is**
- Penicillin
  - Bacitracin
  - Cyclosporin
  - All of the above
- 158. Erythromycin belongs to chemical class of antibiotics**
- $\hat{\alpha}$ -lactose
  - Tetracyclines
  - Macrolides
  - Aminoglycosides
- 159. Bacterial resistance to antibiotics is transmitted by**
- Transduction
  - Transformation
  - Mutation
  - Plasmids
- 160. Erythromycin inhibits protein synthesis by**
- Attaching to 30 S ribosome unit
  - Attaching to 50 S unit or ribosome
  - By the attachment to t-RNA
  - By the attachment to m-RNA
- 161. The function of (THFA) Tetrahydrofolic acid coenzyme include**
- Amino acid synthesis
  - Thymidine synthesis
  - Protein synthesis
  - Both a and b
- 162. Resistant to drugs in tuberculosis develops by**
- Transduction
  - Transformation
  - Conjugation
  - Mutation

- 163. Which of the following is penicillinase resistant acid labile penicillin?**
- Amoxicillin
  - Cloxacillin
  - Carbenicillin
  - Methicillin
- 164. Which of the following does not inhibit cell wall synthesis?**
- Penicillin
  - Carbenicillin
  - Amikacin
  - Vancomycin
- 165. The anti tumor antibiotics act by inhibiting**
- Cell wall synthesis
  - RNA synthesis
  - Cell membrane synthesis
  - The DNA structure & function
- 166. Drug resistance to sulphonamides is due to**
- Production of PABA
  - Folic acid synthetase
  - Drug alteration
  - Low affinity for drug synthesis by bacteria
- 167. Amoxicillin is combined with clavulanic acid to inhibit**
- DNA gyrase
  - Cell synthesis
  - Protein synthesis
  - $\beta$ -lactamase enzymes
- 168. Drug of choice for methicillin resistant staph. Aureus is**
- Ampicillin
  - Erythromycin
  - Neomycin
  - Vancomycin
- 169. Nalidixic acid activity is due to**
- The inhibition of DNA synthesis
  - Inhibition of protein synthesis
  - The inhibition of cell wall synthesis
  - Both b and c
- 170. The best test for the susceptibility of a microorganism to antibiotics and other chemotherapeutic agents:**
- Tube-dilution test
  - Paper-disc test
  - Both a and b
  - None of these
- 171. The smallest amount of chemotherapeutic agents required to inhibit the growth of the organism in Vitro is known as**
- MIC (minimum inhibitory concentration)
  - Thermal death point (TDP)
  - Death rate
  - None of these
- 172. Clear-zones formation around antibiotic disc is due to**
- Growth of the bacterium surrounding of the disc
  - Lysis of the bacterial cells surrounding the disc
  - The destruction of paper disc (antibiotic)
  - None of these
- 173. Bacitracin is obtained from**
- B. subtilis*
  - B. anthracis*
  - B. cereus*
  - B. anthracoid*
- 174. Vancomycin is obtained from**
- Streptococcus* species
  - Aspergillus niger*
  - Streptomyces orientalis*
  - Bacillus anthracis*
- 175.  $\hat{\alpha}$ -lactum antibiotics are**
- Penicillin
  - Cephalosporin
  - Both a & b
  - None of these
- 176. Following are the test organisms used for the I.P microbiological assay of antibiotics match them correctly:**
- Rifampicin
  - Tetracyclin
  - Streptomycin
  - Chloramphenol
  - Escherichia Coli
  - Klebsiella pneumonia
  - Micrococcus luteus
  - Bacillus subtilis
  - Bacillus cereus
- 177. The drugs mentioned below are produced by the species mentioned from Ato E. Match them correctly :**
- Rifampicin
  - Nystatin
  - Amphotericin B
  - Candididin
  - Streptomyces griseus
  - Bacillus polymyxa
  - Streptomyces mediterranei
  - Streptomyces nodosus
  - Streptomyces noursei

**178. Match the correct method of sterilization listed A to E for the following drugs :**

- |                          |  |
|--------------------------|--|
| 1. Tetracyclin injection | A. Sterilised by dry heat                |
| 2. Insulin injection     | B. Sterilised by heating with a bacteria |
| 3. Quinine injection     | C. Sterilised by aseptic method          |
| 4. Morphine injection    | D. Prepared by aseptic method            |
|                          | E. Sterilised by heating in an autoclave |

**179. Match the following rickettsial disease with their respective organisms:**

- |                    |                         |
|--------------------|-------------------------|
| 1. Epidemic typhus | A. Rickettsia rickettsi |
| 2. Scrub typhus    | B. Rickettsia prowazeki |
| 3. Trench typhus   | C. Rickettsia typhus    |
| 4. Murine typhus   | D. Rickettsia Quintana  |
|                    | E. Rickettsia typhus    |

**180. Match the following antimicrobial with their respective side effects A to E:**

- |                          |   |
|--------------------------|---|
| 1. Acridines             | A. Showed adverse effects on proteins                             |
| 2. Benzalkonium chloride | B. exhibit synergism and unsuitable for preservative in eye drops |
| 3. Parahydroxy benzoates | C. Haemolytic   |
| 4. Formalin              | D. Very toxic   |
|                          | E. Toxic to leucocytes and retard granulation process             |

**181. Match the following antibiotics with their respective modes of administration A to E:**

- |                          |                               |
|--------------------------|-------------------------------|
| 1. Penicillin V          | A. Intramuscular suspension   |
| 2. Benzathine penicillin | B. Oral                       |
| 3. Methicillin sodium    | C. Both as oral and injection |
| 4. Ampicillin            | D. Locally applied            |
|                          | E. Intramuscular injection    |

**182. Match the following antibiotics with respective strains A to E used for their production :**

- |                    |                               |
|--------------------|-------------------------------|
| 1. Tetracyclin     | A. Streptomyces erythreus     |
| 2. Chloramphenicol | B. Streptomyces garyphalus    |
| 3. Erythromycin    | C. Streptomyces niveus        |
| 4. Cycloserine     | D. Streptomyces viridifaciens |
|                    | E. Streptomyces venezuelae    |

**183. Match the following strains with their respective produced antibiotics A to E:**

- |                                       |                      |
|---------------------------------------|----------------------|
| 1. Streptomyces griseus.              | A. Oxytetracycline   |
| 2. Streptomyces aureofaciens          | B. Neomycin sulphate |
| 3. Streptomyces rimosus               | C. Viomycin          |
| 4. Streptomyces griseus var. purpurea | D. Chlortetracycline |
|                                       | E. Streptomycin      |

**184. Match the following antibiotics with their respective disease A to E to be cured :**

- |                 |                              |
|-----------------|------------------------------|
| 1. Streptomycin | A. Staphylococcus infections |
| 2. Cycloserine  | B. Tuberculosis              |
| 3. Novobiocin   | C. Fungal tuberculosis       |
| 4. Griseofulvin | D. Pulmonary tuberculosis    |
|                 | E. Anti-spirochaetes         |

**185. Match the following antibiotics with their respective side effects A to E:**

- |                  |  |
|------------------|--|
| 1. Novobiocin    | A. Damages 8 <sup>th</sup> cranial nerve |
| 2. Neomycin      | B. Damages CNS                           |
| 3. Cycloserine   | C. Damages haemopoietic system           |
| 4. Chloramphenol | D. Skin rashes                           |
|                  | E. Kidney problems                       |

**186. Match the following antibiotics with their modes of action A to E:**

- |                  |   |
|------------------|---|
| 1. Tetracyclines | A. Form an irreversible complex with sterols    |
| 2. Erythromycin  | B. Chelation of light divalent salts            |
| 3. Novobiocin    | C. Blocks protein synthesis                     |
| 4. Griseofulvin  | D. Interferes with the conjugation of bilirubin |
|                  | E. Influences mitosis                           |

**187. Match the following dosage forms with their respective antibiotics A to E:**

- |                            |                         |
|----------------------------|-------------------------|
| 1. Tablets                 | A. Vancomycin Hcl       |
| 2. Intravenous injection   | B. Colistin             |
| 3. Capsules                | C. Polymixin B sulphate |
| 4. Intramuscular injection | D. Gentamycin           |
|                            | E. Paromomycin sulphate |

**188. Match the following side effects with their respective antibiotics A to E:**

- |                       |                          |
|-----------------------|--------------------------|
| 1. Nephrotoxic        | A. Triacetyloleandomycin |
| 2. Rashes             | B. Polymixin B sulphate  |
| 3. Hypersensitivity   | C. Cephaloridine         |
| 4. Gastric irritation | D. Gentamycin            |
|                       | E. Sodium fusidate       |

**189. Match the following antibiotics with their respective activity spectra A to E:**

- |                    |                          |
|--------------------|--------------------------|
| 1. Bacitracin      | A. Gram negative         |
| 2. Gentamycin      | B. Mainly staphylococci  |
| 3. Sodium fusidate | C. Mainly Ps. Aeruginosa |
| 4. Framycetin      | D. Gram positive         |

**190. Match the following enzymes with their activities A to E:**

- |                  |   |
|------------------|---|
| 1. Hyaluronidase | A. Inactivate leucocytes and aid bacterial invasion           |
| 2. Collagenase   | B. Reversibly catalyzes the breakdown of a major component    |
| 3. Lecithinase   | C. Disintegrates a constituent of muscle, cartilage and bone  |
| 4. Leucocidins   | D. Haemolysis of erythrocytes and the necrosis of other cells |
|                  | E. Clots plasma and surrounds the bacteria                    |

**191. Match the following aggresins with their respective modes of action from A to E:**

- |                  |   |
|------------------|---|
| 1. Hyaluronidase | A. Destroys RBC's and other tissues                                       |
| 2. Haemolysis    | B. Breaks down connective tissues, increases permeability of tissue space |
| 3. Streptokinase | C. Causes lysis of RBC's and other tissues                                |
| 4. Lecithinase   | D. Digest the fibrin of blood   |
|                  | E. Dissolves collagen   |

**192. Match the following terms with their respective effects A to E:**

- |                                   |   |
|-----------------------------------|---|
| 1. Brucella melitensis            | A. Causes trachoma, conjunctivitis and nongonococcal gamets |
| 2. Flavobacterium species         | B. Causes influenza like fever                              |
| 3. Chlamydia trachomatis          | C. Causes Malta fever in goats                              |
| 4. Leptospira icterohaemorrhagiae | D. Contaminates pharmaceutical products                     |
|                                   | E. Weil's disease (jaundice)                                |

**193. Virus causing mumps is also responsible for**

- |            |                |
|------------|----------------|
| a. Measles | b. Hepatitis A |
| c. Rabies  | d. Variola     |

**194. Epidemic pleurodynia and myocarditis of new born infants are both caused by**

- |                           |
|---------------------------|
| a. Group B cox sack virus |
| b. Reovirus               |
| c. Polyomavirus           |
| d. Cytomegalovirus        |

**195. Human papillomavirus causes following tumors:**

- |                         |
|-------------------------|
| a. Hepatic carcinoma    |
| b. Cervical cancer      |
| c. Condyloma acuminatum |
| d. Plantar wart         |

**196. Viral infection is caused due to**

- |   |
|---|
| a. Acute self limited illness                       |
| b. No apparent symptoms                             |
| c. Chronic infection with persistent viral shedding |
| d. All of these                                     |

**197. Viruses which do not carry enzymes for DNA synthesis as a part of their virion are**

- |                         |
|-------------------------|
| a. Hepatitis B virus    |
| b. Poxviruses           |
| c. Heepes simplex virus |
| d. Retroviruses         |
| e. All of these         |

**198. Following virus is known to establish latent infections:**

- |                    |                           |
|--------------------|---------------------------|
| a. Adeno virus     | b. Varicella-zoster virus |
| c. Cytomegalovirus | d. Hepes simplex virus    |
| e. All of these    |                           |

**199. Viruses which have teratogenic property are**

- |                         |
|-------------------------|
| a. Herpes simplex virus |
| b. Cytomegalovirus      |
| c. Rubella virus        |
| d. All of these         |

- 200. Kawasaki syndrome is**
- Most prevalent in Japan and Hawaii
  - Patients show rickettsia like bacteria in skin biopsies
  - Strain involved may be propionibacterium
  - All of these
- 201. Mode of action of quinolone antibiotics on growing bacteria was thought to be**
- Inhibition of  $\beta$  lactamase
  - Prevention of the cross linking of glycine
  - Inhibition of DNA gyrase
  - Inhibition of reverse transcriptase
- 202. The role that human play in the plague life cycle is**
- Secondary reservoir
  - Primary transmission vector
  - Primary host
  - Accidental intruder in rat flea cycle
  - None of these
- 203. Patient with presence of penile chancre should be advised by physician -**
- To take rest at home
  - To swab the chancre and culture on Thayer-Martin agar
  - To Gram stain the chancre fluid
  - To repeat VDRL test in 10 hours
  - Perform dark field microscopy for treponemes
- 204. Which organism is responsible for causing fever to a man dealing with goats?**
- Trepanema Pallidum
  - M.tuberculosis
  - Clostridium novyl
  - Brucella melitensis
  - None of these
- 205. Diphtheria toxins are produced from the strains of C.diphtheriae, which are**
- Encapsulated
  - Sucrose fermentors
  - Of the mitis and strain
  - Glucose fermentors
  - Lysogenic for  $\beta$  prophage
- 206. Skin of the healthy person has normal microbial flora which includes**
- Enterobacteriaceae
  - Aerobic diphtheria bacilli
  - Anaerobic diphtheriae bacilli
  - Nonhemolytic staphylococci
  - All of these
- 207. Which of the following organisms can infect humans if improperly cooked meat is used?**
- Trichinella spiralis
  - Taenia saginata
  - Taenia solium
  - Diphyllobothrium latum
  - Both a and c
- 208. The parasite related to ancylostoma duodenale is**
- Wuchereria bancrofti
  - Necatur americanes
  - Loa loa
  - Trichinella spiralis
- 209. Which of the following amoeba does not live in large intestine ?**
- Entamoeba coli
  - Entamoeda histolytica
  - Endolimax nana
  - Entamoeba gingivalis
- 210. Which of the following is not related to congenital syphilis?**
- Aneurysm
  - Saddle nose
  - Still birth
  - Hutchiso's teeth
- 211. Streptococcus pyogens produce infection -**
- Streptococcal sore throat
  - Acute glomerulo nephritis
  - Rheumatic fever
  - None of these
- 212. Salmonella which can cause prolong septicaemia.**
- Salmonella anetum
  - Salmonella cholerasuis
  - Salmonella typhimurium
  - Salmonella entritidis



**213. E.coli produce which type of toxins?**

- a. Exotoxins                      b. Endotoxins  
c. Leucocidin                      d. Both a and b

**214. Main causative organism of gas gangrene is**

- a. B.anthrax                      b. Clostridium tetani  
c. Cl.deficile                      d. Cl.perfringens

**215. Causative organism of whooping cough is**

- a. Bordetella pertussis  
b. Bordetella parapertussis  
c. Bordetella bronchi septica  
d. None of these

**216. Pfeiffer phenomenon is related to**

- a. Vibrio cholerae                      b. B.anthrax  
c. Rickettsial pox                      d. All of these

**217. Diagnostic test for the identification of primary syphilis:**

- a. VDRL test  
b. Treponema pallidum immobilization test  
c. Kahn's test  
d. Dark ground microscopic examination

**218. Sporadic summer diarrhea may be caused by**

- a. E.coli                      b. Enterobacter  
c. Hafnia                      d. Serratia

**219. Biological false reaction in VDRL is related to**

- a. Lepra bacilli  
b. Corynebacterium diphtheria  
c. Cl.welchi  
d. None of these

**ANSWERS**

- |        |        |        |        |        |        |
|--------|--------|--------|--------|--------|--------|
| 1. d   | 2. b   | 3. a   | 4. c   | 5. c   | 6. b   |
| 7. a   | 8. b   | 9. a   | 10. a  | 11. b  | 12. b  |
| 13. b  | 14. d  | 15. d  | 16. c  | 17. b  | 18. d  |
| 19. a  | 20. c  | 21. b  | 22. c  | 23. d  | 24. c  |
| 25. b  | 26. a  | 27. d  | 28. d  | 29. d  | 30. c  |
| 31. d  | 32. c  | 33. b  | 34. b  | 35. a  | 36. d  |
| 37. a  | 38. a  | 39. c  | 40. c  | 41. c  | 42. b  |
| 43. d  | 44. c  | 45. b  | 46. a  | 47. d  | 48. d  |
| 49. b  | 50. a  | 51. a  | 52. d  | 53. a  | 54. b  |
| 55. a  | 56. c  | 57. b  | 58. e  | 59. a  | 60. c  |
| 61. a  | 62. b  | 63. c  | 64. b  | 65. b  | 66. d  |
| 67. a  | 68. d  | 69. b  | 70. a  | 71. c  | 72. c  |
| 73. d  | 74. d  | 75. d  | 76. c  | 77. b  | 78. a  |
| 79. c  | 80. a  | 81. a  | 82. a  | 83. b  | 84. c  |
| 85. b  | 86. d  | 87. b  | 88. b  | 89. c  | 90. d  |
| 91. c  | 92. a  | 93. b  | 94. d  | 95. c  | 96. a  |
| 97. a  | 98. d  | 99. c  | 100. b | 101. b | 102. c |
| 103. a | 104. b | 105. c | 106. a | 107. a | 108. a |
| 109. b | 110. a | 111. b | 112. d | 113. c | 114. d |
| 115. d | 116. a | 117. b | 118. c | 119. c | 120. c |
| 121. c | 122. d | 123. b | 124. a | 125. c | 126. b |

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127. c	128. b	129. a	130. a	131. c	132. c
133. d	134. d	135. c	136. a	137. a	138. b
139. d	140. a	141. c	142. d	143. b	144. b
145. b	146. a	147. a	148. c	149. b	150. d
151. c	152. d	153. b	154. b	155. b	156. d
157. d	158. c	159. d	160. b	161. d	162. d
163. d	164. c	165. d	166. b	167. d	168. d
169. a	170. c	171. a	172. b	173. a	174. c
175. c	176. 1.d, 2.e, 3.a, 4.a		177. 1.c, 2.e, 3.d, 4.b		
178. 1.d, 2.c, 3.e, 4.b		179. 1.b, 2.c, 3.d, 4.e		180. 1.e, 2.c, 3.b, 4.a	
181. 1.b, 2.a, 3.e, 4.c		182. 1.d, 2.e, 3.a, 4.b		183. 1.e, 2.d, 3.a, 4.c	
184. 1.b, 2.d, 3.a, 4.c		185. 1.d, 2.e, 3.b, 4.c		186. 1.b, 2.c, 3.d, 4.e	
187. 1.b, 2.a, 3.e, 4.c		188. 1.b, 2.c, 3.a, 4.e		189. 1.e, 2.a, 3.d, 4.b	
190. 1.b, 2.c, 3.d, 4.a		191. 1.b, 2.a, 3.d, 4.c		192. 1.c, 2.b, 3.a, 4.e	
193. a	194. a	195. a	196. d	197. e	198. e
199. d	200. d	201. c	202. d	203. e	204. d
205. e	206. e	207. e	208. b	209. d	210. a
211. a	212. b	213. d	214. d	215. a	216. a
217. d	218. a	219. a			

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# CHAPTER 10

## INDUSTRIAL MICROBIOLOGY

- 1. The best medium for the production of Penicillin is**
  - Nutrient agar
  - Corn steep liquor
  - Sulfite waste liquor
  - Whey
- 2. Industrially important Antibiotic producing organisms shall be isolated by**
  - Disk plate method
  - Direct plate method
  - Serial dilution method
  - Crowded plate method
- 3. Industrial alcohol will be produced by using starter culture**
  - Top yeast
  - Middle yeast
  - Bottom yeast
  - Feeder yeast
- 4. Pyruvate decarboxylase acetaldehyde + CO<sub>2</sub> = This reaction is specially observed in**
  - Lactic acid fermentors
  - Ethanol fermentors
  - Algae
  - Plants
- 5. The pyruvate, dehydrogenase → multi-enzyme complex does not occur in**
  - Aerobic bacteria
  - Microphilic bacteria
  - Facultative anaerobic bacteria
  - Strictly anaerobic bacteria
- 6. A major ingredient of penicillin production media is**
  - Corn meal
  - Corn steep liquor
  - Cane steep liquor
  - None of these
- 7. the outstanding example of traditional microbial fermentation product is**
  - Vinegar
  - Penicillin
  - Citric acid
  - Tetracyclin
- 8. Which of the following involves the formation of nitrate from ammonia**
  - Ammonification
  - Denitrification
  - Nitrification
  - Nitrogen fixation
- 9. First genetically engineered and biotechnologically produced vaccine was against**
  - AIDS
  - Small pox
  - Herpes simplex
  - Hepatitis B.
- 10. one of the standard cloning vector widely used in gene cloning is**
  - Ti plasmid
  - EMBL 3
  - pBR 322
  - EMBL 4
- 11. In alcoholic fermentation, CO<sub>2</sub> is evolved during**
  - Decarboxylation of pyruvic acid
  - Formation of acetaldehyde
  - Oxidation of acetaldehyde
  - Both a and b

- 12. In the industrial production of streptomycin, the secondary metabolite or by-products is**
- Vitamin – B<sub>12</sub>
  - Vitamin – C
  - Vitamin – B<sub>6</sub>
  - Ethanol
- 13. Tobacco and tea leaves are fermented to give flavour and taste. This type of fermentation is known as**
- Alcohol fermentation
  - Curing
  - Degradation
  - Lactic acid fermentation
- 14. Vinegar fermentation involves**
- Yeasts only
  - Yeasts with lactic bacteria
  - Yeasts with acetic acid bacteria
  - Yeasts with butyric acid bacteria
- 15. Carcinoma refers to**
- Malignant tumours of the connective tissue
  - Malignant tumors of the skin or mucous membrane
  - Malignant tumours of the colon
  - Malignant tumors of the connective tissue
- 16. By-product of acetone-butanol fermentation include**
- Riboflavin
  - Penicillin
  - Isopropanol
  - All of these
- 17. Transgenic animals are for improvement of the quality of**
- Milk
  - Meat
  - Eggs
  - All of the above
- 18. Thermo resistant bacteria are important in the preservation of foods by**
- Freezing
  - Canning
  - Chemicals
  - Irradiation
- 19. The fungus used in the industrial production of citric acid:**
- Rhizopus Oryzac
  - Fusarium moniliformae
  - Rhizopus nigricans
  - Aspergillus nigricans
- 20. Penicillin is commercially produced by**
- P.notatum
  - P.chrysogenum
  - P.citrinum
  - P.roquefortii
- 21. The most commonly used microorganism in alcohol fermentation is**
- A spergilus niger
  - Bacillus subtilis
  - Sacharomyces cerevisiae
  - Escherichia coli
- 22. Vitamin B<sub>12</sub> can be estimated and determined by using organism**
- Lactobacillus sps
  - Lactobacillus Leichmanni
  - Bacillus subtilis
  - E.Coli
- 23. Batch fermentation is also called**
- Closed system
  - Open system
  - Fed-Batch system
  - Sub-merger system
- 24. To differentiate lactose and non-lactose fermentors the medium used is**
- Mac Conkey's medium
  - Stuart's medium
  - Sugar medium
  - Citrate medium
- 25. The micro-organism useful for fermentation are**
- Bacteria
  - Yeast
  - Fungi
  - None of these
- 26. Industrial microbiology, mainly depends on the phenomenon**
- Pasteurisation
  - Fermentation
  - Vaccination
  - Both b and c
- 27. Streptokinase is also termed as**
- Fibrinolysin
  - Catalase
  - Coagulase
  - Hyaluronidase
- 28. Streptokinase is produced by**
- Staphylococcus aureus
  - Streptococcus pneumoniae
  - Str. faecalis
  - Str. pyogenes

- 29. Large vessel containing all the parts and condition necessary for the growth of desired microorganisms is called**
- Bio reactor
  - Auto reactor
  - Impeller
  - None of these
- 30. Basic principle in industrial microbiology is**
- Suitable growth conditions
  - Fermentation
  - Providing aseptic conditions
  - All of these
- 31. For thorough mixing of medium of medium and inoculum the part of fermentor useful is**
- Shaft
  - Headspace
  - Impeller
  - Sparger
- 32. In fermentor the top portion left without broth is called**
- Shaft
  - Head space
  - Impeller
  - Sparger
- 33. Over heating of fermentator during fermentation is controlled by**
- Cooling jacket
  - Steam
  - Cool air
  - None of these
- 34. Antifoam agent is**
- Silicon compounds
  - Corn oil
  - Soyabean oil
  - All of these
- 35. The capacity of laboratory fermentors is**
- 12–15 liters
  - 2000 gallons
  - 500 liters
  - 10000 gallons
- 36. For the production of ethanol the raw material used is**
- Molasses
  - Cellulose
  - Sulphite waste liquor
  - None of these
- 37. Different methods of strain improvement are**
- Protoplast fusion
  - Recombinant DNA technique
  - Genetic recombination
  - All of these
- 38. Protoplasts can be prepared from**
- Gram positive bacteria
  - Gram negative bacteria
  - Both a & b
  - None of these
- 39. Upto the production of desirable production in the fermentor is called**
- Upstream process
  - Downstream process
  - Surface fermentation
  - None of these
- 40. The purification and recovery of the production after fermentation is called**
- Upstream process
  - Downstream process
  - Surface fermentation
  - None of these
- 41. If the microorganisms are allowed to nutrient medium is called**
- Submerged fermentation
  - Surface fermentation
  - Dual fermentation
  - All of these
- 42. Submerged fermentations are**
- Batch fermentation
  - Continuous fermentation
  - Both a and b
  - None of these
- 43. Batch fermentation is also called**
- Closed system
  - Open system
  - Fed-batch system
  - None of these
- 44. If more than one microorganism is used to obtain the required product, that type of fermentation is called**
- Batch
  - Continuous
  - Dual
  - Fed-batch
- 45. L. lysine is produced from**
- Coryne bacterium glutamicum
  - Corynebacterium sps.
  - Mycobacterium sps.
  - None of these

- 46. Methods used to get immobilized enzymes:**  
 a. Adsorption      b. Encapsulation  
 c. Covalent bonding      d. All of these
- 47. Raw-material used for the production of alcohol is**  
 a. Molasses  
 b. Starch  
 c. Sulphite waste water  
 d. All of these
- 48. Microorganisms used for alcohol production**  
 a. *Saccharomyces cereviceae*  
 b. *Bacillus subtilis*  
 c. *Penicillium chrysogenum*  
 d. None of these
- 49. For streptomycin production the microorganisms required are**  
 a. *Streptomyces griseus*  
 b. *Streptomyces niger*  
 c. *Saccharomyces cereviceae*  
 d. All of these
- 50. The by-product during streptomycin production is**  
 a. Vitamin A      b. Proline  
 c. Vitamin B<sub>12</sub>      d. None of these
- 51. For acetic acid production the methods followed are**  
 a. Orleans process  
 b. Rapid process  
 c. Submerged process  
 d. All of these
- 52. For amylase production the microorganism required is**  
 a. *B. subtilis*      b. *S. cereviceae*  
 c. *A. nigar*      d. None of these
- 53. Pectinase is industrially produced from**  
 a. *S.cereviceae*      b. *Trichoderma Koningi*  
 c. *A. nigar*      d. None of these
- 54. Cellulose are produced from**  
 a. *S.cereviceae*      b. *Trichoderma Koningi*  
 c. *A. nigar*      d. None of these
- 55. Industrial Production of Vitamin-B12 is from**  
 a. *Propionibacterium* sps.  
 b. *Pseudomonas* sps.  
 c. Both a and b  
 d. None of these
- 56. *Clostridium acetobutylicum* is used for the production of**  
 a. Acetone - Butanol      b. Ethanol  
 c. Vitamin-B12      d. None of these
- 57. In the production of ethanol industrially the yeast used is**  
 a. *K.pneumoniae*      b. *Kluyreromyces fragilis*  
 c. *S. cerevisiae*      d. Both b and c
- 58. Citric acid is used as**  
 a. Flavouring agent in food  
 b. As an antioxidant  
 c. As preservative  
 d. All of the above
- 59. Citric acid is produced in aerobic conditions by the fungi**  
 a. *Aspergillus*      b. *Penicillin*  
 c. *Mucor*      d. All of these
- 60. The raw material for citric acid production is**  
 a. Corn      b. Molasses  
 c. Starch      d. None of these
- 61. *Aspergillus niger* is used generally for the production of**  
 a. Ethanol      b. *Penicillin*  
 c. Citric acid      d. Lactic acid
- 62. In the citric acid production, the pH to be maintained in the fermenter is**  
 a. 7.0      b. 5.0 to 6.0  
 c. 8.0 to 9.0      d. 1.0 to 6.0
- 63. The required temperature for the production of citric acid is**  
 a. 10°C – 80°C      b. 30°C – 50°C  
 c. 20°C – 50°C      d. 25°C – 30°C

**64. The penicillin produced in large scale submerged fermentations are**

- a. Penicillin-A                      b. Penicillin-D
- c. Penicillin-G                      d. None of these

**65. The strain of fungi used for the large scale production of penicillin is**

- a. *Penicillium chrysogenum*
- b. *P-notatum*
- c. *Streptomyces Aureus*
- d. *Saccharomyces sps*

**66. 6-amino penicillic acid is prepared from penicillin sps by**

- a. Acylase
- b. Punicillin acylase
- c. Penicillinone
- d. None of these

**67. The pH, to be maintained for the production of penicillin is**

- a. 7.5                                      b. 6.5
- c. 8.0                                      d. 5.0

### ANSWERS

- |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|
| 1. b  | 2. d  | 3. c  | 4. b  | 5. b  | 6. b  |
| 7. a  | 8. c  | 9. b  | 10. c | 11. d | 12. a |
| 13. b | 14. c | 15. d | 16. a | 17. d | 18. b |
| 19. d | 20. b | 21. a | 22. b | 23. a | 24. a |
| 25. b | 26. b | 27. a | 28. d | 29. a | 30. b |
| 31. c | 32. b | 33. a | 34. d | 35. a | 36. c |
| 37. d | 38. b | 39. b | 40. b | 41. b | 42. c |
| 43. a | 44. c | 45. a | 46. d | 47. d | 48. a |
| 49. a | 50. c | 51. d | 52. a | 53. c | 54. b |
| 55. c | 56. b | 57. d | 58. d | 59. d | 60. a |
| 61. c | 62. b | 63. d | 64. c | 65. a | 66. b |
| 67. b |       |       |       |       |       |