LD/721

2012

Series **C**

MICRO BIOLOGY

Paper - II

Time : 150 Minutes *Max. Marks : 300*

INSTRUCTIONS

1. Please check the Test Booklet and ensure that it contains all the questions. If you find any defect in the Test Booklet or Answer Sheet, please get it replaced immediately.

2. The Test Booklet contains **150** questions. Each question carries **two** marks.

3. The Test Booklet is printed in four (4) Series, viz. [A][B][C][D] . The Series, [A] or [B] or [C] or [D] is printed on the right-hand corner of the cover page of the Test Booklet. Mark your Test Booklet Series [A] or [B] or [C] or [D] in Part C on side 1 of the Answer Sheet by darkening the appropriate circle with Blue/Black Ball point pen.

   Example to fill up the Booklet Series

   If your Test Booklet Series is **A**, please fill as shown below :

   ● (B) (C) (D)

   If you have not marked the Test Booklet Series at Part C of side 1 of the Answer Sheet or marked in a way that it leads to discrepancy in determining the exact Test Booklet Series, then, in all such cases, your Answer Sheet will be invalidated without any further notice. No correspondence will be entertained in the matter.

4. Each question is followed by 4 answer choices. Of these, you have to select one correct answer and mark it on the Answer Sheet by darkening the appropriate circle for the question. If more than one circle is darkened, the answer will not be valued at all. Use Blue/Black Ball point pen to make heavy black marks to fill the circle completely. Make **no** other stray marks.

   e.g. : If the answer for Question No. **1** is Answer choice (2), it should be marked as follows :

1	(1)	●	(3)	(4)

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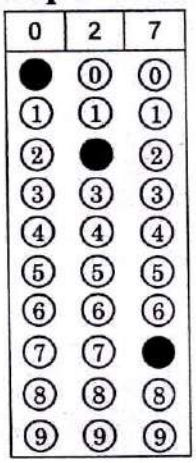
5. Mark Paper Code and Roll No. as given in the Hall Ticket **with Blue/Black** Ball point pen by darkening appropriate circles in Part A of side 1 of the Answer Sheet. **Incorrect**/not encoding will lead to ***invalidation*** of your Answer Sheet.

Example : If the Paper Code is **027**, and Roll No. is **95640376** fill as shown below :

Paper Code



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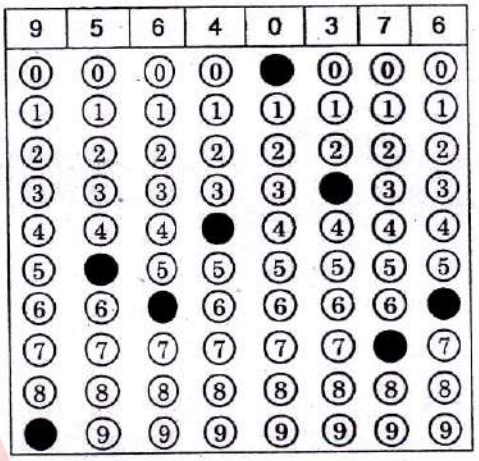

6. Please get the signature of the Invigilator affixed in the space **provided** in the Answer Sheet. An Answer Sheet without the signature of the Invigilator is liable for ***invalidation.***

7. The candidate should **not** do rough work or write any irrelevant matter in the Answer Sheet. Doing so will lead to ***invalidation.***

8. Do **not** mark answer choices on the Test Booklet. Violation of this will be viewed seriously.

9. Before leaving the examination hall, the candidate should hand over the original OMR Answer Sheet (top sheet) to the Invigilator and carry the bottom sheet (duplicate) for his/her record, failing which disciplinary action will be taken.

10. Use of whitener is prohibited. If used, the answer sheet is liable for invalidation.

1. The first known disease for which a chemotherapeutic agent was used was for

(1) Syphilis

(2) UTI

(3) Rheumatic fever

(4) Meningitis

2. Prontosil inhibits

(1) Tetra hydrofolate biosynthesis

(2) Cell wall biosynthesis

(3) Protein synthesis

(4) Nucleic acid replication

3. Penicillin G is effective against

(1) Gram positive bacteria

(2) Gram negative bacteria

(3) Viruses

(4) Mycoplasma

4. Cephalosporins are effective against

(1) gram +ve bacteria

(2) gram –ve bacteria

(3) both gram +ve and gram –ve bacteria

(4) mycoplasma

5. Streptomycin is

(1) a polypeptide antibiotic

(2) a β-lactam antibiotic

(3) an amino glycoside antibiotic

(4) a polyene antibiotic

6. Gramicidins are produced by

(1) Streptomyces sp

(2) Bacilli

(3) Cephalosporium sp

(4) Penicillium sp

7. Streptomycin inhibits

(1) Protein biosynthesis by binding to large ribosomal subunit

(2) Protein biosynthesis by binding to small ribosomal subunit

(3) Nucleic acid synthesis by intercalating between the bases

(4) Cell wall biosynthesis by inhibiting the formation of peptidoglycan

8. Iodophores are

(1) a mixture of iodine and potassium iodide

(2) a mixture of iodine with surface active agents

(3) iodine in distilled water

(4) none of the above

9. Phenol coefficient method is useful for

(1) for evaluation of disinfectants

(2) for evaluation of antibiotics

(3) for evaluation of germicidal activity of phenol

(4) none of the above

10. Quartenary ammonium compounds act by

(1) Destroying the membrane structure

(2) Altering the permeability

(3) Denaturing the proteins

(4) All of the above

11. Michaelis Menton equation is

(1) $V = V_{max} \cdot \frac{S}{[S] + K_m}$

(2) $V = V_{max} \cdot \frac{[S] + K_m}{S}$

(3) $V = \frac{1}{V_{max}} \cdot \frac{S}{[S] + K_m}$

(4) $V = \frac{1}{V_{max}} \cdot \frac{[S] + K_m}{S}$

12. A low K_m value indicates that an enzyme has

(1) a low affinity for the substrate

(2) a high affinity for the substrate

(3) no affinity for the substrate

(4) a moderate affinity for the substrate

13. Allosteric enzymes have

(1) a catalytic and a regulatory site

(2) only catalytic site

(3) no regulatory sites

(4) none of the above

14. In competitive inhibition

(1) K_m is increased

(2) V_{max} is altered

(3) K_m remains constant

(4) Intercept of double reciprocal plot on Y axis is altered

15. Enzyme activity can be regulated
(1) at the level of transcription
(2) at the level of translation
(3) at the protein level by covalent modification
(4) all of the above

16. Ribozymes are
(1) Proteins with enzyme activity
(2) Non protcinaceous molecules with enzyme activity
(3) Ribonucleic acid molecules with enzyme activity
(4) Ribonucleic acid molecules with no enzyme activity

17. Enzymes can be purified by
(1) Precipitation methods
(2) Membrane separation methods
(3) Chromatographic methods
(4) A combination of all the above methods

18. The purity of an enzyme can be ascertained by
(1) Electrophoresis in agarose gels
(2) Electrophoresis in acrylamide gels
(3) Electrophoresis in urea-acrylamide gels
(4) Electrophoresis in SD S-poly acryl amide gels

19. In GPC the separation of proteins is based on
(1) Cofactor bound to the enzyme
(2) Net charge on the protein
(3) Molecular weight of the protein
(4) None of the above

20. Holoenzyme is
(1) an enzyme with its cofactor
(2) an enzyme without the cofactor
(3) enzyme with substrate
(4) enzyme without the substrate

21. DNA is a circular double stranded molecule in all prokaryotes except in
(1) Borrelia
(2) Neisseria
(3) Thermus aquaticus
(4) None of the above

22. Primase synthesizes
(1) Short DNA primer required for DNA replication
(2) Short RNA primer required for DNA replication
(3) Both (1) and (2)
(4) None of the above

23. The starting material for site directed mutagenesis is

(1) a bacterial DNA library

(2) a eukaryotic DNA library

(3) a known gene cloned in any vector

(4) none of the above

24. Chaperones aid in

(1) Breakdown of proteins

(2) Protein synthesis

(3) Folding of nascent peptides

(4) None of the above

25. Inteins are

(1) Intervening sequences in the primary transcript

(2) Intervening sequences in the translated product

(3) Non coding regions interspersed with the coding regions of DNA

(4) None of the above

26. Si RNAs are

(1) Present in E. Coli

(2) Present in mammalian systems

(3) Useful for regulating RNA function

(4) All of the above

27. Two component phosphorelay systems are seen in

(1) Chemotaxis

(2) Sporulation

(3) Both (1) and (2)

(4) None of the above

28. Plasmid PAD2 belongs to the type

(1) Virulence plasmids

(2) Metabolic plasmids

(3) Col plasmids

(4) Resistance factor plasmids

29. Insertion of transposons can cause

(1) Duplication of certain genes

(2) Deletion of genes

(3) Both (1) and (2)

(4) None of the above

30. Conjugation was first reported by

(1) Hershey and Chase

(2) Lederberg and Tatum

(3) Griffith

(4) Avery and Macleod

31. Bacillus sphaericus toxin is effective against

(1) Dipteran larvae

(2) Lepidopteran larvae

(3) Thymenopteran larvae

(4) Coleopteran larvae

32. δ endotoxin is produced by

(1) Bacillus anthracis

(2) Escherichia coli

(3) Clostridium tetani

(4) Bacillus thuringiensis

33. Ethylene oxide can

(1) Kill bacteria and fungi

(2) Also kill the bacterial spores

(3) Both (1) and (2)

(4) None of the above

34. Copper sulfate is effective against

(1) Algae

(2) Molds

(3) Both (1) and (2)

(4) None of the above

35. Microorganisms involved in leaching are

(1) Autotrophic aerobic bacteria

(2) Heterotrophic aerobic bacteria

(3) Autotrophic anaerobic bacteria

(4) Heterotrophic anaerobic bacteria

36. The micro organism involved in denitrification is

(1) Xanthobacter

(2) Chromatium

(3) Nitrobacter

(4) Achromobacter

37. Gnotobiotic animals are

(1) Those animals that are germ free

(2) Those that live in association with one or more known organisms

(3) Both (1) and (2)

(4) None of the above

38. Germ free animals

(1) have an underdeveloped immune system

(2) are more susceptible to infection

(3) require high levels of B vitamins and Vitamin K

(4) all of the above

39. The pH of the skin is between

(1) 3 and 5

(2) 4 and 6

(3) 6 and 8

(4) 7 and 9

40. Acne is caused by sp of

(1) Propionibacterium

(2) Streptococcus

(3) Staphyllococcus

(4) Lactobacillus

41. Major etiological agent of dental carries is

(1) Streptococcus mutans

(2) Staphyllococcus aureus

(3) Lactobacillus

(4) Actinomyces

42. The anaerobic gram negative bacteria present in the intestine include

(1) Bacteroides

(2) Eubacterium

(3) Lactobacillus

(4) Bifidobacterium

43. Infection with Leptospira eventually ends up in

(1) Heart failure

(2) Liver failure

(3) Kidney failure

(4) None of the above

44. The LPS toxin of gram negative bacteria is

(1) Heat stable

(2) Pyrogenic

(3) Both (1) and (2)

(4) None of the above

45. Protein A of S aureus binds

(1) IgG

(2) Fibronectin

(3) Histamine

(4) Interferon

46. Siderophores are

(1) Mg binding proteins

(2) Proteins that interact with porins

(3) Nucleic acid binding proteins

(4) Iron binding compounds

47. Amoebiasis is a

(1) Water borne infection

(2) Food borne infection

(3) Both (1) and (2)

(4) Air borne infection

48. Souring of milk is brought about by

(1) Streptococcus lactis

(2) Staphyllococcus aureus

(3) Bacillus polymyxa

(4) Mycobacterium bovis

49. Ropy of stringy fermentations are caused by

(1) Alcaligenes viscolactis

(2) Enterobacter aerogenes

(3) Streptococcus cremorius

(4) All of the above

50. The common molds present in mouldy bread are

(1) Rhizopus

(2) Saccharomyces

(3) Coccidic

(4) Leuconostoc

51. Canning is also known as

(1) Pasteurization

(2) Sterilization

(3) Appertization

(4) None of the above

52. Chemicals used for food preservation are

(1) Benzoic acid

(2) Acetic acid

(3) Nitrate

(4) All of the above

53. Penicillium roqueforti is used in the manufacture of

(1) Blue cheese

(2) Mozarella cheese

(3) Moldy cheese

(4) None of the above

54. The organisms used in Sauerkraut fermentation are

(1) Enterobacter

(2) Lactobacillus

(3) Leuconostoc

(4) All of the above

55. An example of mycotoxin is

(1) Aflatoxin

(2) Shigatoxin

(3) Exotoxin

(4) Dendotoxin

56. In good quality water, the plate count should be less than

(1) 100/ml

(2) 1000/ml

(3) 10,000/ml

(4) None of the above

57. Infectious hepatitis is a

(1) Blood borne infection

(2) Water borne infection

(3) Air borne infection

(4) None of the above

58. In waste waters, the higher the BOD

(1) More is the organic material

(2) Lower is the organic material

(3) Cleaner the water

(4) None of the above

59. The predominant type of bacteria during the end stages in anaerobic digesters are

(1) Bacilli

(2) Enterobacter

(3) Methanobacterium

(4) E. coli

60. Indicators of fecal contamination are

(1) Streptococcus faecalis

(2) Thiobacillus

(3) Sphaerotilus

(4) Gallionella

C

61. The restriction enzymes used in recombinant DNA technology belong to

(1) Type I

(2) Type II

(3) Type III

(4) All of the above

62. PCR was developed by

(1) Robert Gallo

(2) Kary Mullis

(3) Southern

(4) None of the above

63. M13 vectors are useful for the purpose of

(1) Cloning

(2) Expression of the cloned gene

(3) Sequencing of the gene

(4) All of the above

64. DNA micro arrays are useful for

(1) Evaluation of gene expression

(2) Evaluation of protein expression

(3) Both (1) and (2)

(4) None of the above

65. Microbes producing organic acids can be detected by

(1) Spraying iodine on the plates

(2) Incorporating neutral red in the medium

(3) Incorporating casein in the medium

(4) Incorporating phenophthalin into the medium

66. Beet and cane molasses are sources of

(1) Nitrogen

(2) Sugars

(3) Vitamins

(4) Amino acids

67. An example of dual fermentation is seen in the case of

(1) β carotene production using fungi

(2) Production of L Lysine by using bacteria

(3) Both (1) and (2)

(4) None of the above

68. β lactamase is also known as

(1) Penicillin acylase

(2) Penicillinase

(3) Amino glycosidase

(4) Penicillin oxidase

69. Preparation of semisynthetic penicillins involves the use of enzyme

(1) Penicillin acylase

(2) Penicillinase

(3) Aminoglycosidase

(4) Penicillin oxidase

70. Bacitrain is produced by

(1) Bacillus polymyxa

(2) Bacillus licheniformis

(3) Bacillus subtilis

(4) Bacillus sphaericus

71. An example of macrolide antibiotic is

(1) Neomycin

(2) Amphoterecin

(3) Erythromycin

(4) Griseofulvin

72. The principal contaminants of acetone butanol fermentation is

(1) Lactobacillus leishmannii

(2) Acetobacter

(3) Propionibacterium

(4) None of the above

73. Some components present in Beer are

(1) Ethanol and Carbondioxide

(2) Glycerol and acetic acid

(3) Higher alcohols and acids

(4) All of the above

74. Brewing of beer with barley containing high protein content results in

(1) Light colored beer

(2) Light colored beer with good aroma

(3) Dark colored beer

(4) Strong odoured beer

75. In Krausen process carbonation of beer is achieved by

(1) Injecting clean carbondioxide

(2) Injecting air enriched with carbondioxide

(3) Adding actively fermenting yeast

(4) Adding actively growing candide

76. Ethanol is recovered after fermentation by

(1) Fractional distillation

(2) Steam distillation

(3) Batch distillation

(4) Continuous distillation

77. Lactic acid is miscible with

(1) Water

(2) Alcohol

(3) Ether

(4) All of the above

78. The by-product of streptomycin fermentation is

(1) Folic acid

(2) Vitamin B_1

(3) Niacin

(4) Vitamin B_{12}

79. Common contaminants of Beer fermentation are

(1) Lactobacillus

(2) Streptococcus

(3) Pediococcus

(4) All of the above

80. A common example of a product formed by biotransformation of a substrate is

(1) Acetic acid

(2) Gluconic acid

(3) Both (1) and (2)

(4) Lactic acid

81. An organism most commonly used as a probiotic is

(1) Yeasts

(2) Lactobacilli

(3) Both (1) and (2)

(4) Bacilli

82. Glucose oxidase is useful

(1) in the manufacture of dry egg powder

(2) for glucose determination

(3) for removal of oxygen or glucose from foods

(4) all of the above

83. Recombinant vaccines are produced as

(1) High volume high value products

(2) High value low volume products

(3) Low volume high value products

(4) None of the above

84. Symbiotic relationship can also be called as

(1) Mutualism

(2) Syntrophism

(3) Both (1) and (2)

(4) None of the above

85. The vast difference in microbial numbers between plate count and direct microscopic count could be due to

(1) Differences in nutritional requirements and physiological types of bacteria

(2) Loss of viability upon transfer to microbiological media

(3) Both (1) and (2)

(4) None of the above

86. Bdellovibrio is

(1) a gram negative bacteriovorous bacterium

(2) a gram positive parasitic bacterium

(3) a gram negative pathogen

(4) a gram positive free living soil bacterium

87. One of the following is a nitrite oxidizing bacterium

(1) Nitrosomonas

(2) Nitrosococcus

(3) Nitrobacter

(4) Nitrovibrio

88. The Nitrogenase in Azotobacter is protected from oxygen inactivation due to the presence of

(1) Sethna protein

(2) Bacterial haemoglobin

(3) Bacterial haemocyanin

(4) None of the above

89. The microbes responsible for production of energy from agricultural wastes are

(1) Methanogens

(2) Phosphate solubilizers

(3) Nitrogen fixers

(4) None of the above

90. Some of the rhizosphere bacteria include

(1) Hydrogen producers

(2) Sulfur bacteria

(3) Flavobacterium

(4) Nitrogen fixers

91. The approximate size range of viruses is

(1) 20 – 300 nm

(2) 50 – 1000 nm

(3) 1.5 – 30 µm

(4) 75 µm – 150 µm

92. Bacteriophages were first discovered by

(1) Frederick W. Twort

(2) Hershey and Chase

(3) Dmitrii Ivanoski

(4) Theobald Smith

93. Bacterial viruses belonging to the F group have a

(1) Hexagonal head and no tail

(2) Hexagonal head with hollow tail and tail fibres

(3) Hexagonal head with rigid tail

(4) None of the above

94. The representative phage MV-L2 belongs to the group

(1) A

(2) C

(3) E

(4) G

95. Bacteriophage typing is useful for

(1) Identification of different species of bacterial pathogens

(2) Identification of different viral pathogens

(3) Identification of different strains of the same bacterial species

(4) None of the above

96. Vaccines for viral infections were traditionally produced by

(1) Culturing them in the respective host

(2) Culturing in tissue culture cells

(3) Culturing in defined medium in a fermentor

(4) None of the above

97. Pox viruses have

(1) Icosahedral symmetry

(2) Helical symmetry

(3) Complex or uncertain symmetry

(4) All of the above

98. Retroviruses are

(1) Haploid viruses

(2) Diploid viruses

(3) SS DNA containing viruses

(4) None of the above

99. The genome of orthomyxoviridae is

(1) SS RNA

(2) DS RNA

(3) SS DNA

(4) DS DNA

100. An example for an enveloped virus is found in

(1) Herpesviridae

(2) Papovaviridae

(3) Picornaviridae

(4) Reoviridae

101. The order followed in Electron transport chain is

(1) NADH → FMN → COQ → Cyt

(2) COQ → Cyt → FMN → NADH

(3) FMN → NADH → COQ → Cyt

(4) NADH → COQ → FMN → Cyt

102. The end products of glycolysis are

(1) $2CH_3COCOOH+2NADH_2+2ATP$

(2) $CH_3COOH+NADH_2+2ATP$

(3) $CH_3COCOOH+2NADH_2+2ATP$

(4) $2CH_3COOH+2NADH_2+2ATP$

103. Lactic acid bacteria produce lactic acid by

(1) Homofermentation

(2) Respiration

(3) Heterofermentation

(4) Both (1) and (3)

104. Anaerobes cannot tolerate oxygen because

(1) they do not require oxygen

(2) oxygen inactivates their enzyme systems

(3) they do not have superoxide dismutase

(4) both (2) and (3)

105. Bacterial growth curve follows the order

(1) Log, Lag, stationary and death phases

(2) Lag, Log, stationary and death phases

(3) Stationary, Lag, Log and death phases

(4) Death, Lag, Log and stationary phases

106. Anaerobes can be cultured by

(1) Excluding oxygen from the medium

(2) Incubating them in an anaerobic incubator

(3) Inoculating in the absence of air

(4) All of the above

107. The colories of Derxia gummosa are

(1) Pink

(2) Violet

(3) Brown

(4) Black

108. Storage of cultures at – 196°C keeps them viable for

(1) 2 – 4 years

(2) 10 – 30 years

(3) 0.5 – 2 years

(4) 50 – 80 years

109. Thermus aquaticus is a

(1) Psychrophile

(2) Mesophile

(3) Thermophile

(4) None of the above

110. Roll tube method is one of the methods for culturing

(1) Stringent anaerobes

(2) Aerobic microbes

(3) Fungi

(4) Algae

111. The following types of cells are involved in non specific defense mechanisms

(1) Phagocytes

(2) NK cells

(3) B lymphocytes

(4) Both (1) and (2)

112. Interferons, phagocytes, NK cells and complement system form a part of

(1) Racial immunity

(2) Non specific defense mechanism

(3) Acquired immunity

(4) None of the above

113. Antibodies are produced by

(1) B lymphocytes

(2) T lymphocytes

(3) NK cells

(4) Phagocytes

114. The first class of immunoglobulin to be formed soon after an infection is

(1) IgG

(2) IgE

(3) IgA

(4) IgM

115. Individuals with blood group AB have antibodies to

(1) A antigen

(2) B antigen

(3) Both A and B antigen

(4) Neither A nor B antigens

116. Toxoids are

(1) Exotoxins that have been inactivated without destroying the antigenic specificity

(2) Exotoxins administered in low doses to develop immunity

(3) Lipopolysaccharides of E. Coli

(4) Endotoxins of bacteria

117. Cell mediated immunity is due to

(1) B lymphocytes

(2) Phagocytes

(3) T lymphocytes

(4) NK cells

118. Kohler and Milstein were awarded nobel prize in medicine for

(1) Discovery of immune response

(2) Discovery of mechanism of antibody production

(3) Discovery and production of monoclonal antibodies

(4) Production of recombinant vaccines

119. In acquired immunodeficiency syndrome

(1) T cells are low and abnormal

(2) B cells are low and abnormal

(3) T cells are absent

(4) B cells are absent

120. Immediate hypersensitivity is due to

(1) Binding of IgE antibodies to Fc receptors of basophills and tissue mast cells

(2) Binding of Igm and IgG antibodies to particulate antigen

(3) Formation of circulating immune complexes

(4) Sensitized T lymphocytes

121. The word cell was first used by

(1) Robert Hooke

(2) Mathias Schleiden

(3) Theodor Schwann

(4) Louis Pasteur

122. A common character of biological system is

(1) reproduction

(2) metabolism

(3) excretion

(4) all of the above

123. Viruses are characterized by

(1) Presence of biosynthetic machinary

(2) Presence of nucleic acids

(3) Presence of proteins

(4) Both (2) and (3)

124. The kingdom Protista was first suggested by

(1) Linnaeus

(2) Haeckel

(3) Whittaker

(4) Waksman

125. The five kingdom classification is based on

(1) Five levels of cellular organization

(2) Three levels of cellular organization

(3) Presence of well defined nucleus

(4) Absence of membrane bound organelles

126. Bacteria belong to the kingdom

(1) Protista

(2) Prokaryota

(3) Monera

(4) None of the above

127. The size of a typical bacterium ranges between

(1) 0.015 – 0.02 µm

(2) 5 – 10 µm

(3) 2 – 10 µm

(4) 0.5 – 1.5 µm

128. Anthrax and tuberculosis bacteria were first isolated by

(1) Robert Koch

(2) Louis Pasteur

(3) Theobald Smith

(4) Widal

129. The first person to recognize the significance of microbes in disease (between 1601 and 1680) was

(1) Athanasius Kircher

(2) Girolamo Fracastoro

(3) Roger Bacon

(4) Aristotle

130. The concept of spontaneous generation was disproved by

(1) Franscisco Redi

(2) John Needham

(3) Lazaro Spallanzani

(4) Louis Pasteur

131. Pure cultures were first obtained by

(1) Louis Pasteur

(2) Joseph Lister

(3) Robert Koch

(4) Elie Metchnikoff

132. The first virus to be used for vaccination against small pox was

(1) Vaccinia

(2) Varicella

(3) Variola

(4) Herpes simplex

133. Prokaryotes do not have

(1) Nucleic acids

(2) Well defined nucleus

(3) Unit membrane

(4) Ribosomes

134. The relationship between N.A. and resolution is

(1) $d=\frac{\lambda}{2NA}$

(2) $d=\lambda\times\frac{NA}{2}$

(3) $d=2\lambda\times\frac{1}{2NA}$

(4) $d=\frac{\lambda}{2}\times NA$

135. TEM is useful for

(1) Study of surface structures present on cells

(2) Study of cells at a magnification of 1000

(3) Study of internal cell structures

(4) Study of cells at a magnification of 5000

136. Serial dilution and plating provides a method for

(1) Ascertaining the purity of a culture

(2) Purifying a culture

(3) Separating the organisms present in a sample

(4) All of the above

137. Yeast extract serves as a source of

(1) Vitamins

(2) Carbohydrates

(3) Nitrogen source

(4) All of the above

138. Dry heat sterilization

(1) is not as penetrating as steam sterilization

(2) is more effective than autoclaving

(3) can be used instead of filter sterilization

(4) can be used for sterilization of culture media

139. A chemostat is useful for

(1) Continuous culturing of cells

(2) Culturing of synchronous cells

(3) For obtaining maximal cell mass

(4) For arresting the cell growth at desired phase of growth

140. The temperature of liquid nitrogen is

(1) – 20° C

(2) – 196° C

(3) + 4° C

(4) – 80° C

141. One of the following is a spirochaete

(1) Leptospira

(2) Borrellia

(3) Erwinia

(4) Yersinia

142. Plague is caused by

(1) Yersinia pestis

(2) Leptospira interrogans

(3) Treponema pallidum

(4) Bdellovibrio

143. The method of identification of bacterial culture is by

(1) Colony morphology

(2) Biochemical tests

(3) Gram staining

(4) All of the above

144. Listeria is a

(1) gram –ve sporulating bacterium

(2) gram +ve sporulating bacterium

(3) gram –ve non sporulating bacterium

(4) gram +ve non sporulating bacterium

145. Fungi are

(1) Prokaryotic organisms

(2) Eukaryotic organisms

(3) Heterotrophs

(4) Both (2) and (3)

146. Alginic acid is produced by

(1) Blue green algae

(2) Red algae

(3) Brown algae

(4) Green algae

147. Penicillin is produced by

(1) Penicillium chrysogenum

(2) Penicillium notatum

(3) Both (1) and (2)

(4) None of the above

148. Bacillus thuringiensis is

(1) an entomopathogenic bacterium

(2) a gram +ve sporulating bacterium

(3) both (1) and (2)

(4) a phytopathogenic bacterium

149. Eremothecium ashbyi produces

(1) Erythromycin

(2) Lysine

(3) Riboflavin

(4) Glutamic acid

150. Agrobacterium tumefaciens causes

(1) Crown gall tumor

(2) Shooty teratomas

(3) Hairy root disease

(4) Both (1) and (2)

ROUGH WORK