11th

BIOLOGY

Bio-Botany

Complete Guide

Unit-1

The Living World

Success Starts Here

BY

Mr.D.Purushothaman M.Sc.,M.Sc.,M.Ed.,M.Phil.,

&

Mr.V.Selvam M.Sc.,M.Ed.,M.Phil.,

SSC Study Centre

98420 44373, 94443 48488

Bio-Botany
Lesson : 1 The Living World

Textbook Evaluation :

1. **Which one of the following statement about virus is correct?**
   (a) Possess their own metabolic system. (b) They are facultative parasites
   (c) They contain DNA or RNA (d) Enzymes are present
2. **Identify the incorrect statement about the Gram positive bacteria**
   (a) Techoic acid absent (b) High percentage of peptidoglycan is found in cell wall
   (c) Cell wall is single layered **(d) Lipopolysaccharide is present in cell wall**
3. **Identify the Archaebacterium**
   (a) *Acetobacter* (b) *Erwinia* (c) *Treponema* **(d) *Methanobacterium***
4. **The correct statement regarding Blue green algae is**
   (a) **lack of motile structures** (b) presence of cellulose in cell wall
   (c) absence of mucilage around the thallus (d) presence of floridean starch
5. **Identify the correctly matched pair**
   (a) Actinomycete - (a) Late blight
   (b) Mycoplasma - (b) Lumpy jaw
   (c) Bacteria - (c) Crown gall
   (d) Fungi - (d) Sandal spike

Additional important One Mark

6. _____ is a basic unit of life.
   (a) Atoms (b) Compounds (c) Soils **(d) Cell**
7. Earth was formed around _____ billion years ago.
   (a) 3.3 (b) 5.6 **(c) 4.6** (d) 5.9
8. According to Mora et.al., in 2011, the number of estimated species on Earth is _____
   (a) 8.7 Million (b) 9.7 million (c) 7.7 million (d) 9.7 million
9. Which of the following is NOT a prokaryote?
   (a) Bactetria (b) Blue green algae **(c) Oedogonium** (d) Nostoc
10. Which of the following organism undergoes regeneration?
    (a) Spirogyra **(b) Planaria** (c) Yeast (d) Aspergillus
11. Vaccination for small pox was discovered by ·
    (a) W.M. Stanley (b) Adolf Mayer (C) Robert Koch **(d) Edward Jenner**
12. Who coined the term 'Bacteriophage'?
    (a) F.W. Twort **(b) d'Herelle** (c) Ivanowsky (d) Robert Gallo
13. The size of TMV is ———
    (a) 300 x 20 mm (b) 300 X 200 µm **(c) 300 x 20 nm** (d) 300 X 20 A
14. One nanometer equals to .....metres.
    (a) 10^{-9} (b)10^{-6} (C)10^{-5} (d)10^{-12}
15. Which is a non-living character of viruses?
    (a) Undergoes mutation (b) Host-specific **(c) Crystallized** (d) Irritability
16. 10.According to David Baltimore, the viruses are classified into ..... classes.
    (a) 6 (b) 5 **(c) 7** (d) 8

17. Identify the criteria not used in classifying viruses by Baltimore ..... .
(a) ss (or) ds (b) use of RT **(c) capsid** (d) sense or antisense

18. Viruses with dsRNA is ....
(a) Toga viruses (b) Retroviruses **(c) Reo viruses** (d) Rhabdo viruses

19. Which of the plant virus contains DNA as genome?
(a) Tobacco mosaic virus **(b) Cauliflower mosaic virus**
(c) Sugarcane mosaic virus (d) Cucumber mosaic virus

20. Parvo viruses have ....
(a) ssDNA (b) dsDNA (c) ssRNA (d) dsRNA

21. Molecular weight of TMV is .....dalton.
(a) 39×10^{6} (b)39×10^{-6} (c)39×10^{9} (d)39×10^{-9}

22. Approximate number of capsomeres is TMV is
(A) 3120 (b)1203 **(c)2130** (d) 3021

23. The empty proteincoat left outside after penetration is
(A) host **(b) ghost** (c) capsid (d) capsomeres

24. The genome of viroid is
(a) Linear ssRNA (b) dumb-bell shaped ss RNA
(c) Circular ss RNA (d) Linear ds RNA

25. Viriods were discovered by
(a) Ivanowsky (b) Robert Gallo **(C)Diener** (D)d'Herelle

26. Mad cow disease is caused by
(a) Viriods (b) Virusoids **(c) prions** (d) viruses

27. Match the following

1. Adenoviruses	dsRNA
2. Retro viruses	+sense ssRNA-RT
3. Reo virus	dsRNA
4. Parvo virus	+sense ss DNA

28. Identify the correct sequence regarding lytic cycle of viruses.
(a) Penetration (B) Adsorption (C) Assembly (D) Synthesis
(a) BADC (b) CABD (c) BDAC (d) ADBC

29. Mycophages infect ..... .
(a) *blue*green algae (b) bacteria **(c) fungi** (d) cyanobacteria

30. Rice tungro is caused by ..... .
(a) fungi (b) bacteria (c) mycoplasma **(d) viruses**

31. Father of Botany .....
(a) Aristotle **(b) Theophrastus** (c) Leder berg (d) Whittaker

32. Three kingdom classification was proposed by.....
(a) Copeland (b) Theophrastus (c) Linnacus **(d) Haeckel**

33. Which is not a part of five kindgom classification?
(a) Viruses (b) Monera (c) Protista (d) Mycoplasma

34. Six kingdom classification was proposed by .....
(a) Haeckel (b) Copeland (c) Woese **(d) Cavalier-Smith**

35. Ruggerio et al., in 2015 proposed ..... kingdom classification.
(a)5 (b)6 **(c)7** (d)8

36. ..... is a new kingdom in seven kingdom classification.
(a) Eubacteria (b) Plantae **(c) Chromista** (d) Archaebacteria

37. Actinomycetes comes under .....kindgom.
(a) fungi (b)chromista **(c) monera** (d) protista

38. The sourness of curd is due to .....
(a) acetic acid (b) galactic acid **(c) lactic acid** (d) lactone

39. Who is the founder of Modern Bacteriology?
(a) Aristotle **(b)Robert Koch** (c) Pasteur (d) Linnaeus

40. The term bacterium was coined by ..... .
(a) Stanley **(b) Ehrenberg** (c) Gram (d) Koch

41. Plasmids were discovered by ....
(a) Ehrenberg (b) H.Bergy **(c) Joshua Lederberg** (d) Koch

42. Genophore is seen in ..... .
(a) Amoeba **(b) Cyanobacteria** (c) Chlamydomonas (d) Euglena

43. Number of domains of life are there according to Carl Woese ..... .
(a) 3 (b)2 (c)4 (d) 5

44. Which is not a component of bacterial cell?
(a) Mesosomes (b) Glycocalyx (c) Polysomes **(d) Histones**

45. The most abundant polypeptide in bacterial cell wall is____
(a) Chitin (b) Amylopectin **(c) Porin** (d) Pectin

46. Extra chronmsornal element in bacterial cells are
(a) Plasmids (b) mesosomes (c) histones (d) genophores

47. Bacteriocins are found in
(a) geonophore **(b)plasmids** (c) nucleoids (d)mesosomes

48. Colour revealed by Gram positive bacteria after Gram staining is
(a) red (b) indigo **(c) dark violet** (d) blue

49. How mnay number if basak body rings seen in the flagella of Gram negative bacteria?
(a) 2 (b) 9 **(c) 4** (d) 1

50. Capnophilic bacteria require _____ for growth
(a) O_2 (b) CO **(c) CO_2** (d) O_3

51. The pigment present in green sulphur bacteria is
(a) Bacteriaoviridin **(b) Bacteriochlorophyll** (c) cholorophylla (d) Xanthophyll

52. The hydrogen donor of purple sulphurbactena is.....
(a) H_2s **(b) thiosulphate** (c) ethanol (d) acehc acid

53. *Campylohacter* is a .....
(a) obligate aerobe (b) obligate anaerobe **(c) capnophilic** (d) aerobe

54. *Mycobacterium* is a ..... .
(a) parasite (b) symbiont (c) saprophyte (d) free-living

55. Which is *the* most common mode of asexual reproduction in bacteria?
(a) Endospore formation **(b) Fission** *(c)* Budding (d) Conidia

56. —– are thick walled resting spores
(a) Aplanospores **(b) Endospores** (c) Conidia (d) Zoospore

57. In which of *the* following method genetic recombination does not occur?
(a) Generalised transduction (b) Conjugation (c) Transformation **(d) Fission**

58. During conjugation in bacteria, which of thw following is transferred from donor to receipient cell?
(a) R factor **(b) F factor** (c) Ti factor (d) Ri factor

59. Griffith used ..... for his experiment.
(a) rat (b) rabbit **(c) mice** (d) monkey

60. Transformation in bacteria was demonstrated by _____
(a) Lederberg (b) Zinder (c) Edward **(d) Griffith**

61. Lederberg studied transduction in _____ bacterium
(a) Diplococcus pneumoniae (b) Streptococcus **(c) Salmonella typhi** (d) Escherichia coli

62. Bacteria used in the curing of tea is ..... .
(a) *Mycococcuscandisans* (b) *Escherichia coli*
(c) *Acetobacter aceti* (d) *Streptococcus lactis*

63. Syphilis is caused by ..... .
(a) *Mycococcuscandisans*. **(b) *Treponema pallidum***
(c) *Yersinia pestis* (d) Mycobacterium*leprae*

64. *Methanohacterium*is ....
(a) Cyanobacteria (b) Malobacteria (c)Eubacteria **(d) Archaebacteria**

65. ..... Is NOT a phycobiont in lichens.
(a) Gloeocapsa **(b)Dermacarpa** (c) Scytonema (d)Nostoc

66. Red sea is red colour due to
(a) Dermacarpa sps **(b) Trichodesmium sps** (c) Scytonema sps (d) Gloeocapsa sps.

67. Filamentous trichome is the plant body of
(a) Chroococcus (b) Gloeocapsa **(c) Nostoc** (d) Oscillatoria

68. Stromatolites are the colonies of cyanobacteria bind with .....
(a) calcium carbonate (b) calcium hydroxide (c) magnesium sulphate (d) calcium silicate

69. .....sps. is an endophyte in coralloid roots of *Cycas.*
(a) *Gloeocapsa* (b) *Scytonema* **(c) *Nostoc*** *(d)Azolla*

70. Myxophyccae refers to ——
(a) Algae (b) Fungi (c) Archaebacteria **(d) Cyanobacteria**

71. _____ is used in single cell protein
(a) Spirulina (b) Azolla (c)Dermacarpa (d) Nostoc

72. _____ is a pleomorphic organism.
(a) Fungi **(b) Mycolasma** (c) Bacteria (d) Algea

73. Pleuropneumonia is caused by ____
(a) Bacteria (b) Fungi **(c) Mycoplasma** (d) Viruses

74. _____ is also called as Ray fungi.
(a) Basidiomycetes (b) Ascomycetes **(c)Actinmycetes** (d) Deuteromycetes

75. Earthy odour of soil after rain is due to ——
(a) Basidiomycetes (b) Ascomycetes **(c) Actinomycetes** (d) Deuteromycetes

76. Viruses that attack blue green algae are called as .....
(a) Mycophages (b) Phycophages **(c) Cyanophages** (d) Bacteriophages

77. Cell membrane of Archaebacteria has .....
(a) glycine and isopropyl ethers (b) glycerol and isobutyl ethers
(c) glycerol and isopropyl ethers (d) celluose and isobutyl ethers

78. Which is a true bacteria?
(a) *Halobacterium* (b) *Thermoplasma* (c) *Methanobacterium* **(d) Azotobacter**

79. Study of fungus is called as.....
(a) phycology **(b) mycology** (c) algology (d) biology

80. Who is considered as the founder for mycology?
(a) K.C.Mehta (b) G C Ainsworth **(c) P.A.Micheli** (d) T.S.sadasivan

81. Asexual phase of fungi is calledas .....
(a) telomorph (b) holomorph (c)metamorph **(d) anamorph**

82. In which mycelium, the hypae are arranged loosely?
(a) Prosenchyma (b) Plectenchyma (c) Pseudoparenchyma (d) Arenchyma

83. Number of nuclei in coenocytic mycelium
(a) 2 **(b) many** (c) nil (d) 9

84. Thallospores are produced by
(a) *Aspergillus* **(b) *Erysiphe*** (c) *Saccharomyces* (d) *Fusarium*

85. In *Agaricus,* ..... type of sexual reproduction occurs. .
(a) spennatization **(b) somatogamy** (c) oogamy (d) isogamy

86. *Albugo* belongs to ..... .
(a) oomycetes (b) zygomycetes (c) ascomycetes (d) deuteromycete

87. Fungi growing on dung is called as .....
(a) Mold fungus (b) Saprophytes (c) Capnophilous **(d) Coprophilous**

88. Coprophilous belongs to .....group.
(a) basidiomycetes (b) ascomycetes **(c) zygomycetes** (d) oomycetes .

89. Which of the following is a coprophilous fungi?
(a) *Albugo* (b) *Entomophthora* (c) *Rhizopus* **(d) *Pilobolus***

90. Cup fungus belongs to .....
(a) zygomycetes (b) oomycetes **(c) ascomycetes** (d) actinomycetes

91. Which group of fungus is called as Sac fungi?
(a) Deuteromycetes (b) Zygomycetes **(c) Ascomycetes** (d) Oomycetes

92. Number of ascospores in an asci is ....
(a) 2 (b) 4 (c) 6 **(d) 8**

93. Shape of perithecium is ....
(a) cup shaped **(b) flask shaped** (c) completely closed (d) open type

94. ..... are called as Club fungi.
(a) Ascomycetes (b) Zygomycetes **(c) Basidiomycetes** (d) Deuteromycetes

95. Parasexual cycle is observed in ——~—
(a) basidiomycetes (b) zygomycetes **(c) deutcromycetes** (d) Ascomycetes

96. Which is called as imperfect fungi?
(a) Basidiomycetes (b) Zygomycetes **(c) Deuteromycetes** (d) Ascomycetes

97. In basidiomycetes, clamp connections are formed to maintain .....condition
(a) monokaryotic (b) coenocytic **(c) dikaryotic** (d) zygotic

98. ..... is a single celled fungus used in dairy industry.
(a) Volvariella (b) Agaricus (c) Penicillin **(d) Yeast .**

99. Ergot alkaloids are produced by .....
(a) *Penicilliumnotatum* (b) *Acremoniumchrysogenum*
(c) Claviceps purpurea (d) *Penicilliumgriseofulvum*

100. Kojic acid is produced by .....
(a) *Aspergillus terreus* (b) *Aspergillus niger* **(c) *Aspergillus oryzae*** (d) Agaricus*bisporus*

101. .....infest dried fi doo s and produ .
a) *Aspergillus flavus* (b) *Amanita verna* (c) *Amanita phalloides* (d) *Rhizopus*

102. Rust of wheat is produced by
(a) *Albugo candida* **(b) *Puccinia graminis*** (c) *Candida albicans* *(d) Colltotrichum sps*

103. VAM is a type of .....
(a) Endomycorrhiza (b) Ectomycorrhiza (c) Ectendomycorrhiza (d) Endectomycorrhiza

104. Algal partner of lichen is
(a) phycobiant (b) phytobiont (c) mycobiont **(d) both (a) & (c**

105. Asexual reproduction by *Soredia* is seen in
(a) fungi **(b) lichen** (c) mycorrhiza (d) algae

106. Saxicolous lichen grow on
(a) ground (b) bark (c) wood **(d) rock**

107. _____ is a sexual method of reproduction.
(a) Binary fission (b) Budding (c) Conidia **(d) Gametangial contact**

108. Vaccination for small pox was discovered by ____.
(a) d' Herelle **(b) Edward Jenner** (c) Robert Gallo (d) F.W. Twort

109. Viruses were classified into seven classes by _____.
(a) David Baltimore (b) Twort (c) Ehrenberg (d) Alexopoulos

110. Identify the criteria not used for classification of viruses.
(a) –ss or – ds (b) Use of RT (c) (+) RNA or (–) RNA **(d) Reproduction**

111. A virus with ds DNA.
(a) Pappo viruses (b) Reo viruses **(c) Adeno viruses** (d) Retro viruses

112. TMV has a molecular weight of _____Daltons.
(a) 39 × 10^6 (b) 38 × 10^5 (c) 39 × 10^7 (d) 39 × 10^{10}

113. Match the following :

1. Toga Virus	(a) Mottling
2. TMV	(b) Eaters of bacteria
3. Phage	(c) Cauliflower Mosaic Virus
4. Ribo virus	(d) ss RNA

(a) 1 - c, 2 - d, 3 - a, 4 – b (b) 1 - b, 2 - c, 3- d, 4 – a (c) 1 - a, 2 - b, 3 - c, 4 – d **(d) 1 - d, 2 - a, 3 - b, 4 - c**

114. Identify the sequence involved in lytic life cycle.
(A) Pinning (B) Maturation (C) Synthesis (D) Ghost
(a) A B C D **(b) A D C B** (c) D A C B (c) A C D B

115. Mad cow disease is caused by _____.
(a) Prions (b) Virion (c) Viroid (d) Phage

116. _____is considered to be a new kindgom.
(a) Protista **(b) Chromista** (c) Monera (d) Plantae

117. The classification published in recent times was given by _____.
(a) Carlwoese **(b) Ruggero et al** (c) Whittaker (d) Copeland

118. Founder of modern Bacteriology_____.
(a) Koch (b) Griffith (c) Lederberg (d) Gram

119. Bacteria was first discovered by a _____ scientist.
(a) German **(b) Dutch** (c) French (d) American

120. Identify the correct statement regarding bacterial genome.
A) Nucleoid B) Contains histone C) Linear D) Absence of nuclear membrane

(a) A and D (b) A and B (c) C and D (d) All the above

121. _____ are obligate aerobes.
(a) *Streptococcus* (b) *Clostridium* **(c) *Micrococcus*** (d) *E. Coli*

122. Griffith demonstrated Transformation in _____.
(a) 1928 (b) 1930 (c) 1975 (d) 1900

123. Food poisoning is caused by _____.
(a) *Yersinia* **(b) *Clostridium*** (c) *Treponema* (d) *Vibrio*

124. _____ was awarded a Nobel prize for his work on TMV.
(a) Jenner (b) Mayer **(c) W.M. Stanley** (d) Robert Gallo

125. _____ shows cuboid symmetry.
(a) TMV (b) Bacteriophage **(c) Herpes virus** (d) Influenza

126. The base plate of T_4 phage has _____ tail fibres.
(a) 5 (b) 4 **(c) 6** (d) 8

127. Lysozyme is secreted by phage during _____ .
(a) Adsorption (b) Synthesis **(c) Penetration** (d) Maturation

128. _____ is a capnophilic bacteria.
(a) *Campylobacter* (b) *Chlorobium* (c) *Chromatium* (d) *Clostridium*

129. _____is a disease affecting animals.
(a) Scab **(b) Anthrax** (c) Ring rot (d) Canker

130. _____is found in corolloid roots of *Cycas*.
(a) *Dermacarpa* **(b) *Nostoc*** (c) *Scytonema* (d) *Chara*

131. A marine cyanobacterial species_____.
(a) *Trichodesmium* (b) *Gloeocapsa* (c) *Nostoc* (d) *Cycas*

132. The organisms isolated from pleural fluid of cattle _____.
(a) Actinomycetes (b) Virus (c) Phage **(d) Mycoplasma**

133. Nitrogen fixation in non leguminous plants is done by_____.
(a) *Rhizobium* (b) *Alnus* **(c) *Frankia*** (d) *Streptomyces*

134. Yellow powder which saved lives of soldiers in world war II was_____.
(a) Streptomycin (b) Aureomycin **(c) Penicillin** (d) Bacitracin

135. _____is considered as founder of mycology.
(a) P.A. Micheli (b) Webster (c) Blackley (d) Ainsworth

136. Spermatization is a sexual mode of reproduction in _____.
(a) *Rhizopus* **(b) *Neurospora*** (c) *Ascomycetes* (d) *Penicillium*

137. Sac fungi refers to_____.
a) Ascomycetes (b) Zygomycetes (c) Basidiomycetes (d) Deuteromycetes

138. Basidiomycetes do not possess this feature.
(a) Clamp connection (b) Club Fungi (c) Dolipore septum **(d) Lack sexual reproduction**

139. A plant growth promoter got from fungi is _____.
(a) Rennet **(b) Gibberellin** (c) Ergot (d) Griseofulvin

140. Monotropa derives nutrition by_____.
(a) Root Nodules (b) Lichens **(c) Mycorrhizae** (d) Roots

141. _____**are considered as pollution indicators.**
(a) Mycorrhiza (b) Actinomycete **(c) Lichens** (d) Cyanobacteria

142. Living organisms constitute _____ .
(a) Living world (b) Non-living world (c) Animal kingdom (d) Plant kingdom

143. Living things are made of _____ .
(a) Organisms (b) Atoms (c) Organs **(d) Cells**

144. Sum total of constructive reactions is called as _____ .
(a) Anabolism (b) Catabolism (c) Metabolism (d) Embolism

145. Sum total of destructive reactions is called as _____ .
(a) Metabolism **(b) Catabolism** (c) Embolism (d) Anabolism

146. A multicellular organism grows by _____ .
(a) budding **(b) cell division** (c) fission (d) spore formation

147. Organisms grow by _____ .
(a) cell division (b) spore formation (c) fragmentation (d) vegetative propagation

148. Increase in body mass is considered as _____ .
(a) cell division (b) homeostasis (c) reproduction **(d) growth**

149. _____ multiply and spread very fast by producing millions of asexual spores.
(a) Bacteria (b) Pteridophytes **(c) Fungi** (d) Sea weeds

150. Some fungi, filamentous algae and the protonema of mosses multiply by _____ .
(a) fission (b) fertilization (c) pollination **(d) fragmentation**

151. Yeast and *Hydra* reproduce by _____ .
(a) Budding (b) Fission (c) Spore formation (d) Vegetative propagation

152. _____ is the building block of all living things.
(a) Cells (b) Organs (c) Atoms (d) Compounds

153. Detection of changes in their living place by organisms is called _____ .
(a) Interactions **(b) Consciousness** (c) Autotropic (d) Meterotropic

154. _____ are superior among all living things as they have an additional ability of self-consciousness.
(a) Animals (b) Plants **(c) Humans** (d) Monera

155. Bacteriophage varies in size from _____ .
(a) 10-100nm (b) 1-10nm (c) 50-500nm (d) 20-40nm

156. Viruses that cause diseases in fungi are called _____ .
(a) Cyanophages (b) Bacteriophages (c) Lactophages **(d) Mycophages**

157. Viruses that attack blue green algae or cyanobacteria and cause diseases are called _____ .
(a) Bacteriophages **(b) Cyanophages** (c) Mycophages (d) Lactophages

158. Virus that infects bacteria is called _____ .
(a) Mycophage (b) Lactophage **(c) Bacteriophage** (d) Cyanophage

159. The cancer causing viruses are also called _____ .
(a) Oncogenic viruses (b) Corona viruses (c) HIV (d) Mycoviruses

160. The term bacteria was first used by _____ .
(a) Stanley (b) Pasteur (c) Hooke **(d) Ehrenberg**

161. Bacterial cell wall contains _____ .
(a) peptidoglycan (b) glucose (c) flagellin (d) chitin

162. Which Gram negative bacterium caused Duodenal and Gastric ulcers?
(a) *Helicobacter Pylori* (b) *Helicobacter Vibrio* (c) *E.Coli* (d) *Haemophillus*

163. _____ is a thermophilic gram negative bacteria.
(a) *Rhizobium* (b) *Salmonella* (c) *Pseudomonas* **(d) *Thermus aquaticus***

164. Which one of the following bacterium can cause crown gall disease in plants?
(a) *Bacillus* (b) *Clostridium* **(c) *Agrobacterium tumefaciens*** (d) *E.Coli*

165. Actinomycetes are also called _____

(a) Ray Fungi (b) Liverworts (c) Hyphae (d) Pileus

166. Extra chromosomal self-replicating DNA segments called _____ .
(a) CDNA (b) rDNA **(c) Plasmid** (d) RNA

167. Which one of the following is a rod-shaped bacteria?
(a) *Coccus* **(b) *Bacillus*** (c) *Spirillum* (d) *Vibrio*

168. An example of photoautotrophic bacteria is ____ .
(a) *Nitrosomonas* (b) *Nitrobacter* **(c) *Chlorobium*** (d) *Spirillum*

169. An example of chemoautotrophic bacteria is ___ .
(a) *Chlorobium* (b) *Rhizobium* **(c) *Nitrosomonas*** (d) *Escherichia*

170. A bacterial cell is covered by _____ .
(a) glycocalyx (b) flagellin (c) chitin (d) peptidoglycan

171. Disease causing organisms are called as _____ .
(a) organisms **(b) pathogens** (c) recipients (d) decomposers

172. Bacterial photosynthesis differs from higher plants in evolution of _____ .
(a) Oxygen (b) Hydrogen sulphide (c) Hydrogen (d) CO_2

173. Who discovered the Transformation process?
(a) Griffith (b) Ehrenberg (c) Pasteur (d) Hooke

174. Which of the following is called 'true bacteria'?
(a) Archaebacteria **(b) Eubacteria** (c) *Methanobacterium* (d) *Halobacterium*

175. Identify the fastest growing cyanobacteria.
(a) *Halobacterium* (b) *Methanobacterium* **(c) *Spirulina*** (d) *Thermoprotens*

176. Which one of the following organisms completely lacks a cell wall?
(a) Eubacteria (b) Archaebacteria (c) Fungi **(d) Mycoplasma**

177. Who introduced the Gram staining method?
(a) Bergy **(b) Christian Gram** (c) Ehrenberg (d) Lederberg

178. The study of Bacteria is called _____ .
(a) Virology (b) Mycology (c) Physiology **(d) Bacteriology**

179. Who discovered plasmid ?
(a) David (b) Koch **(c) Joshua Lederberg** (d) Griffith

180. Bacteria were first discovered by _____ .
(a) Ehrenberg **(b) Leeuwenhoek** (c) Koch (d) Bergy

181. Who is the Father of Indian Mycology?
(a) P.A. Micheli **(b) Sir Edwin John Butler** (c) Blackley (d) Raper

182. Dermatophytes are fungi which cause infection in the _____ .
(a) Head (b) Foot **(c) Skin** (d) Nail

183. _____ is the branch of science that deals with the study of fungi.
(a) Phycology (b) Oncology **(c) Mycology** (d) Psychology

184. If a mycelium contains multinucleate and aseptate hyphae, it is described as _____ .
(a) Coenocytic (b) Septate (c) Aseptate (d) Multinucleate

185. The fungal cell wall is made up of _____ .
(a) cellulose (b) peptidoglycan (c) pectin **(d) chitin**

186. A completely closed ascocarp is called _____ .
(a) cleistothecium (b) perethecium (c) apothecium (d) pseudothecium

187. _____ is a edible fungus.
(a) Aspergillus (b) Claviceps **(c) Agaricus** (d) Penicillium

188. The term animalcules was coined by _____ when he saw bacteria.
(a) Koch **(b) Leeuwenhoek** (c) Pasteur (d) Iwanosky

NEET RELATED QUESTIONS

189. Which of the following are found in extreme saline conditions? (NEET- 2017)
a. **Archaebacteria** b. Eubacteria c. Cyanobacteria d. Mycobacteria

190. Select the mismatch (NEET – 2017)
a. *Frankia Alnus* **b. Rhodospirillum Mycorrhiza** c. *Anabaena Nitrogen fixer* d. *Rhizobium Alfalfa*

191. Which among the following are the smallest living cells, known without a definite cell wall, pathogenic to plants as well as animals and can survive without oxygen? (NEET – 2017)
a. *Bacillus* b. *Pseudomonas* **c. Mycoplasma** d. *Nostoc*

192. Read the following statements (A to E) and select the option with all correct statements (AIPMT – 2015)
i. Mosses and Lichens are the first organisms to colonise a bare rock.
ii. *Selaginella* is a homosporous pteridophyte. C. Coralloid roots in *Cycas* have VAM.
iii. Main plant body in bryophytes is gametophytic, whereas in pteridophytes it is sporophytic.
iv. In gymnosperms, male and female gametophytes are present within sporangia located on sporophyte.
a. B, C and E A, C and D B, C and D **A, D and E**

193. An example of colonial alga is (NEET –2017)
a. Chlorella **b. Volvox** c. *Ulothrix* d. *Spirogyra*

194. Five kingdom system of classification suggested by R.H. Whittaker is not based on (AIPMT – 2014)
a. **Presence or absence of a well defined nucleus** b. Mode of reproduction
b. Mode of nutrition d. Complexity of body organisation

195. Mycorrhizae are the example of (NEET – 2017)
a. Fungitasis c. Amensalism b. Antibiosis **d. Mutualism**

196. Which of the following shows coiled RNA strand and capsomeres? (AIPMT – 2014)
a. Polio virus **b. Tobacco mosaic virus** c. Measles virus d. Retrovirus

197. Viroids differ from viruses in having : (NEET – 2017)
a. DNA molecules with protein coat b. DNA molecules without protein coat
b. RNA molecules with protein coat **d. RNA molecules without protein coat**

198. Select the mismatch (NEET – 2017)
a. Pinus — Dioecious
b. Cycas — Dioecious
c. *Salvinia* — Heterosporous
d. *Equisetum* — Homosporous

199. Life cycle of *Ectocarpus* and *Fucus* respectively are (NEET – 2017)
a. Haplontic, Diplontic
b. Diplontic, Haplodiplontic
c. Haplodiplontic, Diplontic
d. Haplodiplontic, Halplontic

200. Zygote meiosis is characterisitic of (NEET – 2017)
a. *Marchantia* b. *Fucus* c. *Funaria* **d. Chlamydomonas**

201. Which of the following is correctly matched for the product produced by them? (NEET – 2017)
a. *Acetobacter acetic* : Antibiotics
b. *Methanobacterium* : Lactic acid
c. *Penicillium notatum* : Acetic acid

d. Saccharomyces cerevisiae : Ethanol

202. Which of the following components provides sticky character to the bacterial cell? (NEET – 2017)
a. Cell wall b. Nuclear membrane c. Plasma membrane **d. Glycocalyx**

203. Which of the following statements is wrong for viroids? (NEET – 2016)
a. They lack a protein coat b. They are smaller than viruses
b. They causes infections **d. Their RNA is a high molecular weight**

204. In bryophytes and pteridophytes, transport of male gametes require (NEET – 2016)
a. Wind b. Insects c. Birds **d. Water**

205. How many organisms in the list below are autotrophs? (AIPMT Mains 2012)
Lactobacillus, *Nostoc, Chara, Nitrosomonas, Nitrobacter, Streptomyces, Saccharomyces,Trypanosoma, Porphyra, Wolffia*
a. Four b. Five **c. Six** d. Three

206. Which of the following would appear as the pioneer organisms on bare rocks?
a. **Lichens** b. Liverworts c. Mosses d. Green algae

207. Monoecious plant of *Chara* shows occurrence of (NEET-2013)
a. Stamen and carpel on the same plant b. Upper antheridium and lower oogonium on the same plant
b. **Upper oogonium and lower antheridium on the same plant** d. Antheridiophore and archegoniophore on the same plant

208. Read the following five statement (AE) and answer as asked next to them (AIPMT Prelims – 2012)
a. In *Equisetum*, the female gametophyte is retained on the parent sporophyte
b. In *Ginkgo*, male gametophyte is not independent
c. The sporophyte in *Riccia* is more developed than that in *Polytrichum*
d. Sexual reproduction in *Volvox* is isogamous
e. The spores of slime moulds lack cell walls

209. How many of the above statement are correct? (AIPMT Prelims – 2012)
a. Two b. Three c. Four **d. One**

210. 21 One of the major components of cell wall of most fungi is (NEET – 2016)
a. **Chitin** b. Peptidoglycan c. Cellulose d. Hemicellulose

211. Which one of the following statements is wrong? (NEET – 2016)
a. Cyanobacteria are also called bluegreen algae b. Golden algae are also called desmids
b. **Eubacteria are also called false bacteria** d. Phycomycetes are also called algal fungi

212. Flagellated male gametes are present in all the three of which one of the following sets? (AIPMT –2007)
a. **Riccia, Dryopteris and Cycas** b. *Anthoceros, Funaria* and *Spirogyra*
b. Zygnema, Saprolegnia and *Hydrilla* *c. Fucus, Marsilea* and *Calotropis*

213. Ectophloic siphonostele is found in (AIPMT Prelims – 2005)
a. *Adiantum* and Cucurbitaceae **b. Osmunda and Equisetum**
b. c. *Marsilea* and *Botrychium* d. *Dicksonia* and maiden hair fern

214. Which part of the tobacco plant is infected by *Meloidogyne incognita*? (NEET – 2016)
a. Flower b. Leaf c. Stem **d. Root**

215. Select the correct statement (NEET – 2016)
a. Gymnosperms are both homosporous and heterosporous
b. *Salvinia, Ginkgo* and *Pinus* all are gymnosperms
c. **Sequoia is one of the tallest trees**
d. The leaves of gymnosperms are not well adapted to extremes of climate

216. Seed formation without fertilization in flowering plants involves the process of (NEET – 2016)

a. Sporulation b. Budding c. Somatic hybridization **d. Apomixis**

217. Chrysophytes, Euglenoids, Dinoflagellates and Slime moulds are included in the kingdom (NEET – 2016)
a. Animalia **b, Monera** c. Protista d. Fungi

218. The primitive prokaryotes responsible for the production of biogas from the dung of ruminant animals, include the (NEET – 2016)
a. Halophiles b. Thermoacidophiles **c. Methanogens** (d) Eubacteria

2 Marks

1. **Define Growth.**

❖ Growth is an intrinsic property of all living organisms through which they can **increase cells both in number and mass.**

2. **Growth of living thing is an intrinsic property- Justify.**

➲ Living cells grow by the **addition of new protoplasm** within the cells.
➲ Therefore, growth in living thing is **intrinsic.**

3. **Define reproduction and Mention its types.**

➲ Reproduction is the tendency of a living organism to **replicate its own species.**
➲ There are two types of reproduction namely **asexual and sexual**.

4. **What is metabolism? Mention its types.**

➲ The sum total of all the chemical reactions taking place in a cell of living organism is called metabolism.
➲ It is broadly divided into anabolism and catabolism.

5. **What is consciousness and irritability?**

➲ Animals **sense their surroundings** by sense organs. This is called **consciousness.**
➲ Respond of plants to the stimuli is called **irritability.**

6. **Differentiate plant growth from animal growth.**

Plant growth	Animal growth
Growth is **indefinite.**	Growth is **definite.**
It occurs **throughout life**	It occurs for **some period.**

7. **Define cyclosis.**

➲ The **movement of cytoplasm** inside the cell is called cytoplasmic streaming or cyclosis.

8. **Define viruses?**

➲ Viruses are **sub-microscopic, obligate intracellular parasites**.
➲ They have nucleic acid core surrounded by **protein coat**.

9. **Classify viruses based on nature of nucleic acid with example.**

➲ On the basis of nature of nucleic acid viruses are classified into four categories. They are viruses with
1. **ssDNA** (Parvo viruses),

2. **dsDNA** (Bacteriophages),
3. **ssRNA** (TMV) and
4. **dsRNA** (wound tumour virus).

10. Distinguish between deoxyviruses and riboviruses.

Deoxyviruses	Riboviruses
Viruses having **DNA as a genetic materials** are called deoxyviruses. E.g. **Animal viruses** except HIV	Viruses having **RNA as a genetic materials** are called riboviruses. E.g.: **Plant viruses except** cauliflower mosaic virus (CMV)

11. Write the constituents of virions.

➲ The virion is made up of two constituents, **a protein** coat called **capsid** and a core called **nucleic acid**.

12. What are capsomeres?

➲ The protein coat of viruses is made up of approximately **2130 identical protein subunits** called capsomeres.

13. What do you mean by a 'ghost' in virology?

➲ The **empty protein coat left outside** by the phage after penetrating the host cell is called as ghost.

14. What do you understand by "pinning" of phage?

➲ Once the contact is established between tail fibres of phase and bacterial cell, **tail fibres bend to anchor the pins and base plate** to the cell surface.

➲ This step is called **pinning.**

15. What is prophage?

➲ As soon as the phage injects its linear DNA into the host cell, it becomes **circular and integrates into the bacterial chromosome** by recombination.

➲ The integrated phage DNA is now called **prophage.**

16. When does a prophage enters lytic cycle?

➲ On exposure to UV radiation and chemicals the excision of phage DNA may occur and results in lytic cycle.

17. Define virion.

➲ Virion is an **intact infective virus particle** which is non-replicating outside a host cell.

18. What are viroids?

➲ Viroid is a circular molecule of **ssRNA without a capsid**. RNA is of low molecular weight.

19. What are virusoids? Name any two disease caused by viroids.

➲ Virusoids are the **small circular RNAs** which are similar to viroids but they are always linked with larger molecules of the viral RNA.

➲ **Disease caused by viroids**

(a) **Citrus exocortis**

(b) **Potato spindle tuber disease**

20. What are cyanophages? Who reported it first?

Viruses infecting blue green algae are called **Cyanophages** and are first reported by **Safferman and Morris** in the year 1963.

21. Name any two disease caused by Prions.

a. **Bovine Spongiform Encephalopathy** (BSE) (mad cow disease)
b. **Creutzfeldt- Jakob Disease** (CJD)

22. What are mycophages? Who first reported it?

Viruses infecting fungi are called **mycophages or mycoviruses**.
Mycophages were first reported by **Hollings in 1962**.

23. Expand the following acronyms: (a) SARS and (b) AIDS.

a. **SARS: S**evere **A**cute **R**espiratory **S**yndrome
b. **AIDS: A**cquired **I**mrnuno **D**eficiency **S**yndrome

24. Name the two groups of animals according to Aristotle.

➲ **Enaima** - animals with red blood.
➲ **Anaima** - animals without red blood.

25. Which are the demerits of Linnaeus classification?

⌦ Linnaeus classification faced major setback because **prokaryotes and eukaryotes were grouped together.**
⌦ Similarly **fungi,** heterotrophic organisms were **placed along with the photosynthetic plants.**

26. Name the viruses which are used as potential insecticides?

➲ **Cytoplasmic polyhedrosis Granulo viruses** and **Entomopox virus** were employed as potential insecticides.

27. List out the criteria undertaken for Whittaker's classification.

➲ The criteria adopted for the classification include
- **Cell structure,**
- **Thallus organization,**
- **Mode of nutrition,**
- **Reproduction and**
- **Phylogenetic relationship.**

28. **List out demerits of five kingdom classification.**

⌦ The kingdom Monera and Protista accommodate **both autotrophic and heterotrophic organisms**, cell wall lacking and cell wall bearing organisms thus making these two groups more heterogeneous.
⌦ **Viruses were not included** in the system.

29. How milk is changed into curd, if a few drops of curd is added to it? What is the reason for its sourness?

- The change is brought by *Lactobacillus lac tis,* a bacterium present in the curd.
- The sourness is due to the **formation of lactic acid**.

30. What is Porin? How it helps the bacteria?

- Porin is an **abundant polypeptide** present in bacterial cell walls. It helps in the diffusion of solutes.

31. List out the cytoplasmic inclusions of bacterial cell.

- **Glycogen, poly-B-hydroxybutyrate granules, sulphur granules** and **gas vesicles.**

32. Define Genophore.

- The bacterial chromosome is a **single circular DNA molecule**, tightly coiled and is not enclosed in a membrane as in Eukaryotes.
- This genetic material is called **nucleoid or genophore.**

33. Write the chemical composition of bacterial cell wall.

- The chemical composition of cell wall is rather complex and is made up of **peptidoglycan** or **mucopeptide** (**N-acetyl glucosamine, N-acetyl muramic acid** and peptide chain of 4 or 5 aminoacids).

34. What are polysomes?

- During protein synthesis, the **ribosomes are held together by mRNA** and form the polysomes.

35. What are Pili?

- Pili or fimbriae are **hair like appendages found on surface** of cell wall of gram-negative bacteria.

36. What are capnophilic bacteria? Give an example.

- Bacteria which **require CO_2 for their growth** are called as capnophilic bacteria. Example: *Campylobacter.*

37. Distinguish between Photolithotrophs and Photoorganotrophs.

Photolithotrophs	Photoorganotrophs
In photolithotrophs, the **hydrogen donor is an organic acid** or **alcohol.**	In Photoorganotrophs, the **hydrogen donor is an inorganic substance.** *E.g., Chlorobium E.g., Rhodospirillum*

38. Name the hydrogen donor of green sulphur bacteria and purple sulphur bacteria.

- Hydrogen donor of green sulphur bacteria is **H_2S.**
- Hydrogen donor of purple Sulphur bacteria is **thiosulphate.**

39. Name the bacterial pigment of green sulphur bacteria and purple sulphur bacteria.

- Green sulphur bacteria - **Bacterioviridin**
- Purple sulphur bacteria - **Bacteriochlorophyll**

40. What are endospores?

- Endospores are **thick walled resting spores developed by bacteria** during unfavourable condition. E.g., ***Clostridium tetani*** produces endospores.

41. Mention the various ways by which genetic recombination occurs.

- Genetic recombination in bacteria occurs by **conjugation, transduction and transformation.**

42. What is transformation? Name the bacteriologist who described it.

a. The process of Transfer of **DNA from one bacterium to another** is called transformation.
b. **Frederick Griffith** demonstrated the transformation process.

43. List out the asexual modes of reproduction of bacteria.

Asexual reproduction in bacteria includes **binary fission, conidia formation and endospore formation.**

44. Who discovered transduction? Define it.

- Zinder and Lederberg (1952) discovered transduction in ***Salmonella typhimurum.***
- Phage mediated DNA transfer is called **transduction.**

45. **Name any two bacterial species and the antibiotic produced by them.**

Bacteria	Antibiotic
❖ *Streptomyces griseus*	Streptomycin
❖ *Bacillus polymyxa*	Polymyxin

46. How bacteria helps in vinegar production?

- ***Acetobacter aceti*** bacteria **oxidises ethanol** obtained from molasses by 'fermentation to form vinegar.

47. What do you mean by retting of fibres?

- The fibres from the fibre yielding plants are **separated by the action of *Clostridium*** is called retting of fibres.

48. Name any two plant disease caused by the bacteria and mention the host.

Host Disease	Pathogen
Rice Bacterial blight	*Xanthomonas oryzae*
Citrus Citrus canker	*Xanthomonas citri*

49. Name any four animal disease caused by bacteria.

- **Anthrax, Brucellosis, Bovine tuberculosis and black leg.**

50. Name any four human disease caused by bacteria.

- **Cholera, Typhoid, Tuberculosis and Leprosy.**

51. What are Archaebacteria?

- Archaebacteria are **primitive prokaryotes and are adapted to live in extreme** environment like hot springs, high salinity and low pH. E.g., *Thermoplasma.*

52. How stromatolites are formed?

- Stromatolites are deposits formed when colonies of **cyanobacteria bind with calcium carbonate**.

53. What is the reason for the colour of Red Sea?

- A cyanobacteria called ***Trichodesmium erythraeum*** imparts red colour to sea.

54. **Define Cyanobacteria.**

- Cyanobacteria are popularly called as **'Blue green algae' or 'Cyanophyceae'**.
- They are **photosynthetic, prokaryotic** organisms.
- Cyanobacteria are primitive forms and are in different habitats.

55. **Blue green algae can also be called as Myxophyceae. How?**
The presence of **mucilage around the thallus** is characteristic feature of cyanobacteria group. Therefore, this group is also called **Myxophyceae.**

56. **Name few plant disease caused by mycoplasma.**
- **Little leaf of brinjal**,
- **witches broom of legumes**,
- **phyllody of cloves** and
- **sandal spi**

57. **What is the reason behind the earthy odour after raining?**
Streptomyces is a mycelial forming **Actinobacteria** which lives in soil, they impart "eodour" to soil after rain which is due to the presence of geosmines (volatile or compound).

58. **Define Fungi.**
Fungi are **ubiquitous, eukaryotic, achlorophyllous heterotrophic** organisms. They exist in **unicellular or multicellular forms.**

59. **Define mycology. Who is the founder of mycology?**
- **Study of fungi** is called mycology. **P.A. Micheli** is considered as the founder of mycology.

60. **With example define coenocytic mycelium.**
In lower fungi the hypha is **aseptate, multinucleate** and is known as **coenocytic mycelium** (Example: *Albugo).*

61. **What is plectenchyma? Mention its types.**
- The **mycelium is organised** into loosely or compactly interwoven fungal tissues called **plectenchyma**.
- It is further divided into two types: **prosenchyma and pseudoparenchyma.**

62. **Distinguish between Anamorph and Telomorph.**
The **asexual phase** of fungi is called anamorph.
The **sexual phase** of fungi is called telomorph.

63. **What is holomorph?**
- **Fungi showing both sexual and asexual** phases are called **holomorph.**

64. **What is planogametic copulation? Mention its types.**
- Fusion of motile gamete is called **planogametic copulation**. Types - **Isogamy, Anisogamy and Oogamy.**

65. **List out the asexual spores produced by fungus.**
- **Zoospores, conidia, oidia and chlamydospores.**

66. **What are coprophilous fungi? Give an example.**
- Fungi **growing on dung** are called **coprophilous fungi**. Example: *Pilobolus.*

67. Ascomycetes are called sac fungi. Give reason.

- In ascomycetes the ascospores are found **inside a bag like structure** called ascus.
- Due to the presence of ascus, this group is popularly called **"Sac fungi"**

68. Name the four types of ascocarps produced by ascomycetes.

- **Cleistothecium, Perithecium, Apothecium and Pseudothecium.**

69. Basidiomycetes are called club fungi. Why is it so ?

- In basidiomycetes the **basidium is club shaped with four basidiospores**, thus this group of fungi is popularly called **"Club fungi".** The fruit body formed is called Basidiocarp.

70. Name the special structures in deuteromycetes that produces conidia.

- **Pycnidium, acervulus, sporodochium and synnemata.**

71. Deuteromycetes are imperfect fungi - Justify.

- The fungi belonging to deuteromycetes **lack sexual reproduction** and are called imperfect fungi.

72. List out the antibiotics produced by fungi.

Penicillin, cephalosporins and griseofulvin.

73. Name some toxins produced by Fungus.

Alfatoxin, Patulin and Ochratoxin-A.

74. Name two fungal species employed as Biopesticides.

Beauveria bassiana and *Metarhizium anisopliae.*

75. Name few fungal diseases in plants.

Blast of paddy, rust of wheat, red rot of sugarcane and **white rust of crucifers**.

76. Name few fungal diseases in Humans .

Human Diseases	Causative Fungi
Athlete's foot	*Epidermophyton floccosum*
Candidiasis	*Candida albicans*
Coccidioidomycosis	*Coccidioides immitis*
Aspergillosis	*Aspergillus fumigatus*

77. What is mycorrhiza? Add its types

- The symbiotic association between **fungal mycelium and roots of plants** is mycorrhiza.

Types : Ectomycorrhiza, Endomycorrhiza and Ectendomycorrhiza

78. Define lichen. What is its significance.

- Lichen is a symbiotic association **between algae and fungi.**
- In lichens, algae provide nutrition for fungal partner in tum fungi provide protect also help to fix the thallus to the substratum through rhizmae.

79. What is a phycobiont and mycobiont?

- **Fungal partner** of lichen is called as mycobiont.
- **Algal partner** of lichen is (phycobiont.

80. Classify lichens based on morphology.

- **Leprose** -Absence of distinct fungal layer
- **Crustose** - Crust-like
- **Foliose**- Leaf-like
- **Fruticose**- Branched pendulous shrub-like

81. Define ascolichen and basidiolichen.

- If the fungal partner of **lichen belongs to ascomycetes**, it is called as ascolichen. as basidiomycetes it is called **basidiolichen.**

82. Lichens are pollution indicators. How?

- Lichens are sensitive to air pollutants especially to **sulphur-di-oxide**.
- Therefore,considered as pollution indicators.

83. Differentiate Homoiomerous and Heteromerous lichens.

- Lichens is an Symbiotic association between algae and fungi.
- **Homoiomerous Lichens** - Algal cells are evenly distributed in the thallus.
- **Heteromerous Lichens** - A distinct layer of algae and fungi present in the thallus.

84. Write the distinguishing features of Monera.

- They are **prokaryotic organisms**.
- Cell wall is present and made of **peptidoglycan and mucopeptides.**
- They are unicellular. Eg : **Cyanobacteria, Mycoplasma.**

85. What is Homeostasis?

- Property of self-regulation and **tendency to maintain a steady state** within an external environment which is liable to change is called Homeostasis. It is essential for the living organisms.

86. What is a Prophage?

- In the lysogenic cycle of a phage, the **integrated phage DNA with bacterial DNA** is called prophage.

87. Mention any two features of Bacteria.

- They are **prokaryotes.**
- The genetic material is called **nucleoid and lacks nuclear membrane**.
- They reproduce by **fission. (Binary or Multiple)**

88. What are capnophilic bacteria?

- Bacteria which **require CO_2** for their growth are called **Capnophilic bacteria** . Eg : ***Campylobacter.***

89. What is the role of bacteria in production of Tea?

- The special flavor and aroma of the tea are due to fermentation of Tea leaves by bacteria.

Eg: *Bacillus megatherium*. This is called curing of Tea and Tobacco.

90. **What is ergot?**
- It's a fungal group refer to **genus Claciceps**
- It is a Alkaloid produced by ***Claviceps purpurea*** (fungus), called **ergotamine.**
- Its is used as **vasoconstrictor**.

91. **What is the significance of yeast?**
- Yeast is used for the fermentation of **sugars to yield alcohol.**
- Bakeries use yeast for the production of **bread, buns, rolls** etc.

92. **What are toads tools?**
- Fungi like *Amanita verna* are **highly poisonous** due to the production of Toxins. They are commonly referred to as **Toad stools.**

93. **What is heterothallism?**
- In sexual reproduction of fungi, the **two sexual hyphae are morphologically similar but dissimilar physiologically.**
- This phenomenon is called heterothallism. Eg : ***Rhizopus*.**

94. **Bt crops - What are they?**
- Bt toxin found in ***Bacillus thuringiensis*** finds application in raising **insect resistant crops** (Bt Crops).

95. **Name a biodegradable plastic. How it is produced ?**
- **PHB** (**Poly-β hydroxyl butyrate**) is a microbial plastic synthesize by *Ralstonia*.

96. **Name a microbe used in PCR Technology.**
- ***Thermus aquaticus*** is a thermophilic gram negative bacteria which produces **Taq Polymerase** a key enzyme for **Polymerase Chain Reaction** (PCR).

97. **Cyanobacteria helped in raising level of free oxygen in Atmosphere. How it was proved ?**
- *Their **abundance in fossil records** proves that they have helped to raise level of free oxygen in the atmosphere.*

98. **What is the significance of phytophthora infestans?**
- *It is a fungus which causes **late blight of Potato** and affected the potato crop in Ireland.*
- *It caused a million deaths forcing people to migrate, since potato is the staple food in Ireland.*

99. **Define Metabolism. Mention its types.**
- The sum total of all the chemical reactions taking place in a cell of a living organism is called **metabolism.**
- It is broadly divided into **anabolism** and **catabolism.**

100. **What does Mycophages mean?**
- The viruses attacking fungi are called **Mycoviruses** or **Mycophages.**

101. **Mention the function of Glycocalyx.**
- It is a thick, **gelatinous layer bound tightly** to the cell wall of bacteria.
- It protects the cell from **dehydration and antibodies.**

102. **What are polysomes?**
- Ribosomes held together, by mRNA form **polysomes or polyribosomes** and are the sites of protein synthesis in a cell.

103. **What are Hormogones?**
- A portion of filament of blue green algae that becomes **detatched** and reproduces by cell division. Eg : ***Nostoc.***

104. **Why do we call Actinomycetes as 'Ray fungi'?**
- Actinomycetes are also called 'Ray Fungi' **due to their mycelia** like growth. Eg : ***Streptomyces.***

105. **How do Viroids differ from Viruses?**

S.No.	Viroid	Viruses
1.	Viroid is a **circular molecule of ssRNA.**	Virus has a **nucleic acid - RNA or DNA.**
2.	Without a **capsid.**	Covered by **capsid.**
3.	RNA has **low molecular weight.**	RNA or DNA may be **single or double stranded.**

106. **Explain the statement of non-living things also grow.**
- Non-living things like mountains, boulders, sand dunes also grow by **accumulating the material** on their external surface.
- But, this growth is considered as external **growth in comparison to the growth** of living things which is internal.

107. **What is the need for classification?**
- **Need for classification:**
- **To relate things** based on common characteristic features.
- **To define organisms** based on the salient features.
- Helps in knowing the **relationship amongst different groups** of organisms.

108. **What are Magnetosomes?**
- Intracellular chains of 40 - 50 magnetite (Fe_3O_4)particles found in bacterium - ***Aquaspirillum magnetotacticum*** which helps the bacterium to locate nutrient rich sediments.

109. **What are endospores?**
- During unfavourable condition bacteria produce thick walled resting spores called **endospores.** Eg: ***Clostridium tetani.***

110. **What is Pruteen?**

"Pruteen" is a single cell protein derived from ***Methylophilus*** and ***Methylotropus***

111. **What is hyphae?**

The fungal body is an assemblage of **long extremely fine,** almost transparent threads called **hyphae**.

112. **What is mycelium?**

Numerous hyphae are **twined around** one another to form **mycellium** - vegetative body of a fungus.

113. **What is a lysogenic phage?**

- In the lysogenic cycle of phage, the **phage DNA gets integrated into the DNA** of the host cell and gets multiplied along with nucleic acid of the host.
- **No independent viral particle** is formed.

114. **Why are viruses considered to be a biologist's puzzle?**

- They exhibit both **living and non living characteristics**.
- Hence they are considered to be a **biologists puzzle**.
- They multiply within a living host and act as **non living particles** outside host cell.

115. **What are Gram-Positive bacteria?**

- The bacteria which retain the violet colour in Gram's staining procedure are called as Gram +ve.
- Eg: ***Pneumococcus, Streptococcus.***

116. **What is red tide ?**

- Red tide is caused by **toxic bloom of Dinoflagellates** like *Gymnodinium* species.
- A major red tide incident in west coast of Florida in the year (1982) killed thousands of fishes.

117. **Why is koch considered to be the founder of modern bacteriology?**

- He identified the causal organism for **Anthrax, Cholera and Tuberculosis.**
- He experimentally proved the **concept of infection.**
- He received a Nobel prize in Medicine (1905).

118. **What are Probiotics?**

- Probiotics are live microorganisms that when **administered in adequate amounts** confer health benefit on the host.
- Eg: **Yoghurt** is a probiotic food. It contains ***Lactobacillus*** species.
- It maintains **gut flora** in humans and maintains good health.

119. **Which bacteria is called a super bug?**

- A bacterium named ***Pseudomonas putida*** is a superbug genetically engineered which breakdown hydrocarbons.

120. **How does *Agrobacterium* help in genetic Engineering?**

- ***Agrobacterium tumefaciens*** causes crown gall disease in plants but its inherent tumour inducing principle helps to carry the desired gene into the plant through Genetic engineering.

121. **New phages are not formed in lysogenic cycle. Explain.**

- The integrated phage DNA (Prophage) activity is supressed by repressor proteins which checks the synthesis of new phage.

122. **What is Mycorrhiza? Mention the types.**

- The Symbiotic association between fungal mycelium and roots of plants is called as mycorrhizae. Types.
- **Ectomycorrhizae**
- **Endomycorrhizae**
- **Ectendomycorrhizae**

123. **Gamete formation and fusion are absent in bacteria. How do then bacteria undergo sexual reproduction? Justify the above statement.**

- It occurs by conjugation. It involves transfer of genetic material from one bacterium to another through cell to cell contact.

124. **What are Gram-Negative bacteria?**

- The bacteria which become decolourised and appear in red colour in Gram's staining procedure are called as Gram –ve. Eg: ***E.coli, Salmonella.***

125. **Why is Rhizopus called as 'Bread mould'?**

- Rhizopus is a saprophytic fungus and grows on substrates like bread, jelly, leather, decaying vegetables and fruits.
- It is commonly called 'Bread mould'. Since it easily grows on stale bread and is of common occurence on bread.

3 MARKS

1. **Mention the potential applications of fungi in agriculture.**

- Mycorrhiza forming fungi like **Rhizoctonia** helps in absorption of water and minerals.
- Fungi like ***Beauveria bassiana*** are used as biopesticides to eradicate crop pests.
- Gibberellin is a plant growth promoter produced by a fungus ***Gibberella fujikuroi***.

126. **What is transduction? Mention the types.**

- **Phage mediated DNA transfer** is called transduction. It is of two types.

Generalised Transduction.

- The ability of a bacteriophage to carry genetic material of any region of bacterial DNA is called **Generalised transduction**.

Specialized Transduction or Restricted Transduction.

- The ability of the bacteriophage to carry only a specific region of the bacterial DNA is called **specialized** or **restricted transduction**.

127. **Distinguish Prokaryotic and Eukaryotic organisms.**

S.No.	Prokaryotic	Eukaryotic
1.	**Unicellular organisms.**	Unicellular or multicellular organisms.
2.	**Lack membrane bound nucleus.**	**Definite mucleus** is present bound by nuclear membrane.
3.	Organelles like **mitochondria, endoplasmic reticulum are absent.**	Organelles like **mitochondria, endoplasmic reticulum are present.**
4.	Eg : ***Amoeba.***	Eg : ***Oedogonium.***

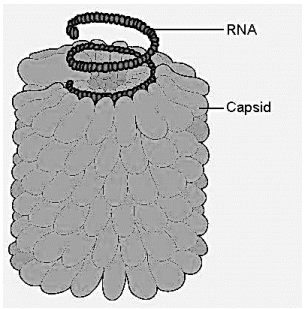
128. **What are the three main symmetry of viruses?**
- Generally viruses are of three types based on shape and symmetry.
- Cuboid symmetry - Eg : **Adenovirus, Herpes virus.**
- Helical symmetry - Eg : **Influenza virus, TMV.**
- Complex or Atypical symmetry - Eg : **Bacteriophage, Vaccinia virus.**

129. **Write down the living characteristic features of virus.**
- Presence of nucleic acid and protein.
- Capable of **mutation.**
- **Ability to multiply** within living cells.
- **Ability to infect** and cause diseases in living beings.
- **Show irritability.**
- **Host –specific.**

130. **Write down the non- living characteristic features of virus.**
- Can be **crystallized.**
- Absence of metabolism.
- **Inactive outside** the host.
- Do not show functional autonomy.
- Energy producing enzyme system absent.

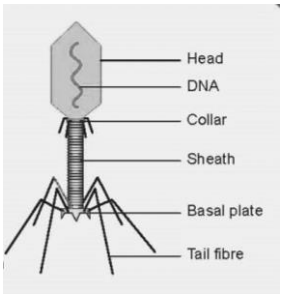
131. **What are Prions? Who discovered it?**
- Prions were discovered by **Stanley B. Prusiner** in the year **1982** and are proteinaceous infectious particles.
- They are the causative agents for about a dozen fatal degenerative disorders of the central nervous system of humans and other animals.
- For Eg : **Creutzfeldt – Jacob Disease (CJD), Bovine spongiform Encephalopathy (BSE)** – commonly known as **mad cow disease.**

132. **What are the symptoms of Tobacco Mosaic disease?**
- **Discoloration of leaf colour along the veins.**
- Typical yellow and green mottling which is the mosaic symptom.
- Downward curling of **young apical leaves.**
- **Stunted growth.**

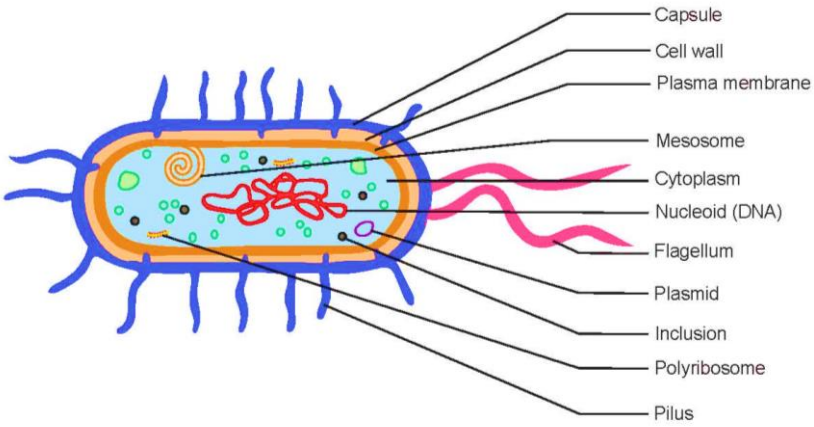


133. **Draw the structure of TMV and label the parts.**

134. **Draw a T_4 bacteriophage and label the parts.**



135. **Draw a neat diagram of Ultra structure of a bacterial cell.**



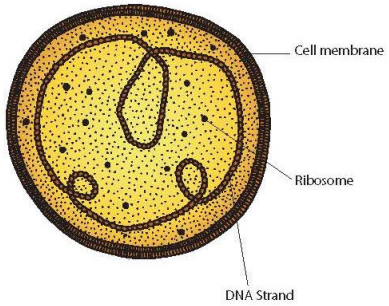


Figure 1.18: Structure of *Mycoplasma*

136. **Draw a labelled diagram of *Mycoplasma*.**

137. **List out the bacteria used in Dairy industry.**

1.	***Streptococcus lactis*** and ***Lactobacillus bulgaricus.***	Making curd (Convert milk sugar lactose into lactic acid).
2.	***Lactobacillus lactis.***	Used in making cheese.
3.	***Streptococcus lactis.***	Used in curd and making butter.

138. **What is Fimbriae or Pili?**

- Pili or Fimbriae are hair like appendages found on surface of cell wall of **gram-negative bacteria** Eg: ***Enterobacterium.***
- The pili are **0.2 to 20 µm** long with a diameter of about **250Aº.**
- In addition to normal pili there are **special type of pili** which help in conjugation called **sex pili** are also found.

139. **What are actinomycetes ? Give example.**

- Actinomycetes or 'Ray fungi' are anaerobic or facultative anaerobic microorganisms.
- They show mycelia like growth.
- Eg : **Streptomyces.**

140. **A complete virus particle is only capable of infection. Do you agree?**

- Yes a complete **virus particle refers to virus** with capsid and nucleic acid.
- Viruses cannot infect a host. If **nucleic acid is not present**.

141. **List out the Animal diseases caused by Bacteria.**

S. No	Name of the Animal	Name of the diseases	Name of the pathogen
1.	Sheep	Anthrax	***Bacillus anthracis***
2.	Cattle	Brucellosis	***Brucella abortus***
3.	Cattle	Bovine tuberculosis	***Mycobacterium bovis***
4.	Cattle	Black leg	***Clostridium chanvei***

142. **Mention the economic importance of lichens.**

- Lichens secrete organic acids like **Oxalic acids** which corrodes the rock surface and helps in weathering of rocks, acting as pioneers in **Xerosere.**
- Lichens are sensitive to air pollutants and are considered as **pollution indicators**.
- *Cladonia rangiferina* (Reindeer moss) is used as food for animals living in Tundra regions.
- Usnic acid produced from lichens show antibiotic properties.

143. **Cyanobacteria plays a major role in our ecology. Discuss.**

- Cyanobacteria, also known as '**blue green algae'** help in carbon fixation in a major way on the **ocean surface.**
- They are helpful in **nitrogen fixation** in paddy fields leading to a **better harvest**.
- About 80% of photosynthesis on ocean surface is done by cyanobacteria. So, it can be said that they play a **major role in our ecology**.

144. **Write down the characteristics features of Archaebacteria.**

- They are most **primitive prokaryotes.**
- They are found in **extreme environmental conditions**. Eg: Hot springs.
- Unique feature is presence of lipids like **glycerol and isopropyl** ethers in their cell membrane.
- Hence the membrane shows resistance against cell wall antibiotics. Eg: Methanobacterium.

145. **What is the importance of Mycorrhizae?**

Importance of Mycorrhizae :

- Mycorrhizae helps to derive nutrition in **Monotropa**, a saprophytic angiosperm.
- Improves the availability of **minerals and water to the plants**.
- Provides **drought resistance** to the plants.
- Protects **roots of higher plants** from the attack of plant pathogens.

146. **Lichens are the pioneer organisms. Justify.**

- Lichens are the pioneer organisms in the **new terrains** which colonise bare rocks, mountains and cliffs.
- They corrode the **rocks and accumulate a certain amount of minerals** and organic matter.
- The plants like mosses and grasses appear **later in sequence**, utilizing the first soil formed by lichens.
- Lichens thus, can convert a barren area into one that can support vegetation.

147. **Discuss in detail about the Bacterial Chromosome.**

- The Bacterial Chromosome is a single circular DNA molecule, tightly coiled and is not enclosed in a membrane as in Eukaryotes.
- This genetic material is called **Nucleoid or Genophore.**
- The DNA is not bound to **histone proteins**.

148. **Name some plant diseases caused by Fungi.**

Plant diseases caused by fungi:

S. No.	Name of the disease	Causal organism
1.	Red rot of sugarcane	*Colletotrichum falcatum*

2.	Anthracnose of Beans	*Colletotrichum lindemuthianum*
3.	White rust of crucifers	*Albugo candida*

149. **List out some Human diseases caused by Fungi.**

Human diseases caused by fungi:

S.No.	Human diseases	Causal organisam
1.	Athlete's foot	*Epidermophytonfloccosum*
2.	Candidiasis	*Candida albicans*
3.	Coccidioidomycosis	*Coccidioides immitis*
4.	Aspergillosis	*Aspergillus fumigatus*

150. **Tabulate the difference between anabolism and catabolism.**

Metabolism includes Anabolism and Catabolism.

S.No.	Anabolism	Catabolism
1.	**Building up process.**	**Breaking down process.**
2.	Smaller molecules combine together **to form larger molecule.**	Larger molecule break **into smaller units.**
3.	**Energy is consumed.**	**Energy is released.**
4.	Chemical energy is formed and stored.	The stored chemical energy is released and used.
5.	Eg: **Synthesis of proteins from amino acids.**	Eg: **Breaking down of glucose to $CO_2$and water**

151. **List some viral diseases which occur in plants.**

Plant Diseases :

i. Tobacco Mosaic Disease.
ii. Cauliflower Mosaic Disease.
iii. Sugarcane Mosaic Disease.
iv. Potato leaf roll.
v. Bunchy top of banana.
vi. Leaf curl of papaya.
vii. Vein clearing of Lady's finger.
viii. Rice tungro disease.
ix. Cucumber Mosaic Disease.
x. Tomato spotted wilt Disease.

152. **List some viral diseases which occur in Humans.**

i. **Human Diseases :**
ii. Common cold.
iii. Hepatitis B.
iv. Cancer.
v. SARS(Severe Acute Respiratory Syndrome).
vi. AIDS(Acquied Immuno Deficiency Syndrome).
vii. Rabies.

viii. Mumps.
ix. Polio.
x. Chikungunya.
xi. Small Pox.
xii. Chicken pox.
xiii. Measles.

153. **Why do farmers plant leguminous crops in crop rotations/mixed cropping?**

- The bacteria Rhizobium forms root nodules in the leguminous crops only and lives in symbiotic association with the plant.
- They help to convert atmospheric nitrogen to nitrate salts in the soil thereby adding to soil fertility.
- Hence growing leguminous crops in crop rotations / mixed cropping helps to maintain fertility of the soil.

154. **Can you imagine a world without bacteria and Fungi. How it will be?**

- No.
- The whole place would be littered with dead material of living organisms since bacteria and fungi are nature's scavengers and decompose the dead waste.
- Nutrients taken from soil by plants will not be returned to the soil without bacteria and fungi.
- There will be soil odour.
- Disease causing pathogens will increase in number and affect all living organisms.

155. **Stem cuttings in higher plants resemble the fragmentation in lower plants. Do you agree?**

- **Stem cuttings** : Cuttings of stems of higher plants are used for vegetative propagation. Eg : **Sugarcane.**
  Fragmentation : The plants body of lower plants like algae break into fragments and each fragment can grow independently into new plants.
- Both serve for vegetative propagation.
- But stem cutting is a artificial method.
- Fragmention is a natural method.

156. **A Farmer is cultivating different vegetable crops in a field. One day he could see white rust symptoms of *Albugo* destroying the Greens but all other crops are found healthy. He reports this observation to you. Can you find out the reason why this pathogen has not attacked other vegetable crops?**

- Each pathogen is specific to a host and cannot attack all organisms.
- ***Albugo*** causes white rust in greens which is the specific host plant for it. Hence other vegetable crops are found healthy.

157. **A farmer after testing the soil reports to you that his land is poor in nitrogen content. What suggestive measures you provide to him?**

- He can grow leguminous plants along with other crops by mixed cropping or crop rotation.
- The symbiotic bacteria Rhizobium forms root nodules in legume plants and fixes atmospheric nitrogen as nitrate salts in the soil which increases fertility of the soil.
- Biofertilizers Eg : **Nostoc, Anabaena** can also be used to increase soil fertility.

158. **Is bacterial photosynthesis similar to photosynthesis in higher plants? Reason out.**

S.No.	Bacteria	Higher Plants
1.	H_2S is hydrogen donor.	H_2O is hydrogen donor.
2.	Oxygen is not evolved.	Oxygen is evolved.
3.	*Chlorobium Chlorophyll* is an example of pigment.	*Chlorophylls* are the pigments involved in photosynthesis.

159. **Why reproduction is necessary? Is it essential for survival? If a living organism does not reproduce, to which category will it belong, living or non-living?**

- Reproduction is required for the perpetuation of a population.
- It is not necessary for the survival of living organisms.
- Many organisms. Eg: **Mules, Sterile worker bees,**infertile human couples are not able to reproduce, while they have all other defining properties of life, so they can be called as Living.

160. **Why reproduction cannot be the defining characteristic of living organisms?**

- There are many organisms, which never reproduce in their life, although all other characteristics of living things are present in them.
- Eg: **Sterile worker bees, mules, infertile human couples etc.,**
- Hence reproduction cannot be an all-inclusive defining property of living things.

161. **How is sexual reproduction different from asexual reproduction?**

- Sexual reproduction involves the formation and fusion of two kinds of gametes to produce an offspring.
- In asexual reproduction, new individuals can arise from the various parts of body without the fusion of gametes and by production of structures like spores, buds etc.

162. **All the organisms are not yet identified on the earth. Prove the statement.**

- There are diverse habitats on earth hosting millions of living organisms.
- Due to limited number of taxonomists, absence of thorough survey of different areas and occurrence of several inaccessible regions like **Hot springs, Underwater reefs,** etc., it is difficult to identify all the organisms.

163. ***Neurospora*, an ascomycetes fungus has been used as a biological tool to understand the mechanism of plant genetics much in the same way as *Drosophila* has been used to study animal genetics. What makes *Neurospora* as a genetic tool? Justify your answer.**

- *Neurospora* is used as a biological tool to understand the mechanism of plant genetics by the scientists. It because of the following reasons.
- It is haploid and so recessive traits can be studied easily.
- A lot of information is available about its genome.
- As a result of sexual reproduction, it produces eight ascospores which show a specific arrangement. This helps to study recombination.

164. **Lichens play important play role in biological succession and soil formation. Give the reason.**

- Lichens growing on rocks secrete organic acids like oxalic acid. The acids enter the rock and produce a number of honey comb-like small crevices.

- Moss spores are able to grow over such crevices and start the process of succession and soil formation.

5 MARKS

(Refer class notes guide)

1. Briefly discuss on five kingdom classification. Add a note on merits and demerits.
2. Give a general account on lichens.
3. Give a brief account on the attributes of living world.
4. Describe the structure of Tobacco Mosaic Virus.
5. Explain Lytic cycle of a phage.
6. Explain Lysogenic cycle of a phage.
7. Tabulate the comparison of kingdoms in the Five Kingdom classification based on the criteria used.
8. Write down the general characteristic features of Bacteria.
9. Explain the ultrastructure of bacterial cell.
10. Write down the salient features of cyanophyceae.
11. Explain the different methods of asexual reproduction in fungi.
12. Write down the salient features of Ascomycetes.
13. What are Mycorrhizae? Explain the types.
14. Why are viruses known as the intermediate between living and non-living entities?
15. Differentiate Gram positive and Gram negative bacteria.
16. Explain conjugation in bacteria.
17. List the differences between Bacteria and Cyanobacteria.
18. Describe the structure of T_4 phage.
19. Explain transformation in bacteria as experimented by Griffith.
20. Write a note on Basidiomycetes.
21. Write a note on economic importance of bacteria.
22. Describe the Respiration life processes in Bacteria.
23. Discuss in detail about mode of nutrition in bacteria.
24. List out some Human & plant diseases caused by Bacteria.
25. What is Cyanobacteria? Explain its different Habitats.
26. Explain the characteristic features of Mycoplasma or Mollicutes.
27. Explain the general characteristic features of Actinomycetes.
28. Write about Sexual Reproduction in Fungi.
29. Give the salient features of the class Zygomycetes.
30. Give the salient features of the class Deuteromycetes.
31. Discuss the economic importance of Fungi.

11Th Biology

Lesson -2

And all lesson

Complete Notes will

Upload Soon....

For Complete notes Contact

Mr.D.Purushothaman M.Sc.,M.Sc.,M.Ed.,M.Phil.,

Mr.V.Selvam M.Sc.,M.Ed.,M.Phil.,

SSC Study Centre

98420 44373, 87600 3596