TDC-I

BOTANY SUBSIDIARY

Microbiology

1. Who is known as the father of microbiology

   a. Ivanoski b. Nageli c. Koch d. Leeuwenhoek

2. Which of the following is a rod shaped bacteria

   a. bacillus b. coccus c. vibrio d. spirillum

3. Spherical bacterium is called

   a. bacillus b. coccus c. vibrio d. spirillum

4. Vibrio are ---------- shaped bacteria

   a. rod b. comma c. sphere d. spiral

5. Bacteria without flagella are called

   a. atrichous b. monotrichous c. amphitrichous d. peritrichous

6. Bacteria with a single flagellum present at one end of the cell are called

   a. atrichous b. monotrichous c. amphitrichous d. peritrichous

7. Bacteria with one flagellum at both the ends are called

   a. lophotrichous b. monotrichous c. amphitrichous d. peritrichous

8. Bacteria with two or more flagella at one end or both the ends of the cell are called

   a. lophotrichous b. atrichous c. amphitrichous d. peritrichous

9. Which of the following is non-polar flagellation in bacteria

   a. cephalotrichous b. peritrichous c. lophotrichous d. amphitricho

10. Bacteria with flagella evenly distributed throughout the surface of the cell are called

    a. cephalotrichous b. lophotrichous c. amphitrichous d. peritrichous

11. Spherical bacteria occurring in irregular group are called

    a. staphylococci b. sarcinae c. streptococci d. monococci

12. Spherical bacteria occurring in cuboidal arrangement of cells are called

a. staphylococci b. sarcinae c. streptococci d. Monococci

13. Extra-chromosomal circular DNA molecules present in bacterial cells are called

a. introns b. exons c. plasmids d. nucleoid

14. Bacterial ribosomes are

a. 100 S b. 90 S c. 80 S d. 70 S

15. Which of the following two stains are used in Gram staining of bacteria

a. crystal violet and iodine b. crystal violet and bromine

c. crystal violet and safranin d. safranin and iodine

16. During the nitrification process, conversion of ammonia to nitrite is carried out by

a. *Nitrosomonas* b. *Nitrobacter* c. *Pseudomonas* d. *Beggiatoa*

17. During the nitrification process, conversion of nitrite to nitrate is carried out by

a. *Nitrosomonas* b. *Nitrobacter* c. *Pseudomonas* d. *Beggiatoa*

18. Which of the following is responsible for the production of biogas from the dung ruminant animals

a. archaebacteria b. cyanobacteria c. eubacteria d. mycoplasmas

19. The survival of archaebacteria in extreme conditions is due to different structure of

a. cell wall b. cell membrane c. ribosome d. none

20. Genetic recombination in bacteria involves

a. transformation b. transduction c. conjugation d. all

21. Some cyanobacteria can fix atmospheric nitrogen in specialized cells called

a. horomongia b. oogonia c. akinetes d. heterocysts

22. Which of the following can fix atmospheric nitrogen

a. *Nostoc* b. *Anabaena* c. *Rhizobium* d. all

23. Which of the genetic recombination mechanism in bacteria requires physical contact between two bacterial cells

a. transformation b. transduction c. conjugation d. transfection

24. Which of the genetic recombination mechanism does not require physical contact between two bacterial cells

i. transformation ii. transduction iii. Conjugation

a. i b. ii c. i, ii d. ii, iii

25. Which genetic recombination mechanism in bacteria is mediated by virus

a. transformation b. transduction c. conjugation d. transfection

26. The arrangement in which flagella are distributed all around the bacterial cell is known as:

a. amphitrichous b. peritrichous c. monotrichous d. lophotrichous

27. Protein subunits making the coat of a virus are called

a. monomers b. capsomeres c. viroids d. spikes

28. The conversion of nitrogen to ammonia or nitrogenous compounds is called

a. nitrogen assimilation b. nitrogen fixation
c. nitrification d. denitrification

29. All of the following are fee living nitrogen fixers except

a. *Rhizobium* b. *Azotobacter* c. *Rhodospirillum* d. *Clostridium*

30. The process of conversion of soil NO_3 to nitrogen is called

a. nitrification b. renitrification c. denitrification d. nitrogenation

31. The root nodule of legume has a pink pigment which is called

a. haemoglobin b. superglobin c. leghaemoglobin d. nitrohaemoglobin

32. Which of the following N2 fixer is involved in symbiotic association with legumes forming root nodules

a. *Rhizobium* b. *Azotobacter* c. *Phodospirillum* d. *Clostridium*

33. Which of the following blue green alga is associated with *Azolla*

a. *Nostoc* b. *Anabaena* c. *Spirulina* d. *Rivularia*

34. The protein coat surrounding the nucleic acid of a virus is

a. spike b. capsid c. proteinoid c. prion

35. Which virus was first observed?

a. hepatitis virus b. TMV c. cauliflower mossaic virus d. bcteriophage

36. Cyanophage is a virus that attacks

a. bacteria b. mycoplasma c. blue green algae d. plants

37. Which of the following is a biofertlizer

a. *Rhizobium* b. *Azotobacter* c. *Anabaena* d. all

38. Citrus canker is caused by

a. *Clostridium* b. *Bacillus* c. *Pseudomonas* d. *Xanthomonas*

39. The credit of discovery of virus goes to

a. Ivanovsky b. Tatum c. Beadle d. Luria

40. What is true about viruses

a. viruses may have double stranded or single stranded DNA

b. viruses may have double stranded or single stranded RNA

c. viruses have a protein coat called capsid

d. all

Algae

41. Which of the following is a wrong statement regarding algae

a. algae are chlorophyll bearing b. algae are autotrophic

c. algae are thalloid d. algae are aquatic only

42. Zoospores are ---------- and method of ---------- reproduction

a. flagellate, vegetative b. flagellate, asexual

c. flagellate, sexual d. Non-flagellate, asexual

43. Which of the following algae are used as food

a. *Laminaria* b. *Sargassum* c. *Porphyra* d. all

44. Agar is a commercial product obtained from

a. algae b. bryophyte c. pteridophyta d. gymnosperms

45. Rhodophyceae is also known as

a. green algae b. blue-green algae c. red algae d. brown algae

46. Phaeophyceae is also known as

a. green algae b. blue-green algae c. red algae d. brown algae

47. Which of the following chlorophyll is present in all the classes of algae

a. chl a b. chl b c. chl c d. chl d

48. Which of the following combination of chlorophylls is present in chlorophyceae

a. chl a & b b. chl a & c c. chl a & d d. chl b & c

49. Which of the following combination of chlorophylls is present in rhodophyceae

a. chl a & b b. chl a & c c. chl a & d d. chl b & c

50. Which of the following combination of chlorophylls is present in phaeophyceae

a. chl a & b b. chl a & c c. chl a & d d. chl b & c

51. Which of the following pigments will be found in *Volvox*

a. chl a & b b. chl a & c c. chl a, b & c d. chl b & c

52. Chlorophyll 'b' will be present in

a. *Ectocarpus* b. *Fucus* c. *Polysiphonia* d. *Oedogonium*

53. Chlorophyll 'c' will be present in

a. *Ectocarpus* b. *Fucus* c. both d. none

54. Which of the following will show the presence of chlorophyll d

a. *Chlamydomomas* b. *Volvox* c. *Fucus* d. *Batrachospermum*

55. Which of the following green algae has a plant body with axis and branches

a. *Chara* b. *Volvox* c. *Oedogonium* d. *Nostoc*

56. Main photosynthetic part in *Fucus* is

a. holdfast b. stipe c. frond d. all

57. Asexual reproduction in red algae takes place by

a. uniflagellate zoospore b. biflagellae zoospore

c. quadriflagellate zoospore d. non-flagelate spore

58. Which of the following algae shows diplontic life cycle

a. *Volvox* b. *Oedogonium* c. *Chara* d. *Fucus*

59. Which of the following algae shows haplontic life cycle

a. *Volvox* b. *Oedogonium* c. *Chlamydomonas* d. all

60. Who is known as a father of Indian phycology?

a. M.O.P. Iyenger b. J.C.Bose c. R. Misra d. E.J.Butler

61. Which of the following algal group does not produce motile, flagellated cells?

a. chlorophyta b. chrysophyta c. phaeophyta d. rhodophyta

62. Agar is extracted from the cell wall of

a. rhodophyta b. chlorophyta c. chrysophyta d. pyrrophyta

63. Carposporophyte is found in

a. *Vovox* b. *Chara* c. *Vaucheria* d. *Batrachospermum*

64. Globule and nucule are the sex organs found in

a. *Chara* b. *Oedogonium* c. *Volvox* d. *Fucus*

65. Which of the following alga has a coenobial thallus

a. *Chara* b. *Volvox* c. *Oedogonium* d. *Vaucheria*

66. Female reproductive structure of *Batrachospermum* is called

a. antheridium b. nucule c. carpogonium d. trichogyne

67. Plakea stage during asexual reproduction is seen in

a. *Vovox* b. *Chara* c. *Ectocarpus* d. *Oedogonium*

68. Cap cell is a characteristic feature of

a. *Volvox* b. *Oedogonium* c. *Fucus* d. *Chara*

69. Species of *Oedogonium* developing antheridia on normal filaments are called

a. macrandrous b. nannandrous c. idioandrosporous d. gynandrosporous

70. Dwarf male formed in some species of *Oedogonium* is called

a. nannandrium b. trichogyne c. carpogonium d. nucule

71. Which of the following is called stonewort

a. *Fucus* b. *Volvox* c. *Chara* d. *Vaucheria*

72. Female reproductive structure of *Chara* is

a. carpogonium b. globule c. nucule d. trichogyne

73. Male reproductive structure of *Chara* is

a. carpogonium b. globule c. nucule d. trichogyne

74. Antheridial filaments are present in

a. *Chara* b. *Volvox* c. *Oedogonium* d. *Fucus*

75. Sex organs are produced in flask-shaped conceptacles in

a. *Chara* b. *Fucus* c. *Polysiphonia* d. *Volvox*

76. Cystocarp is formed in

a. *Fucus* b. *Chara* c. *Batrachospermum* d. *Volvox*

77. Sexual reproduction is not reported in

a. *Chara* b. *Fucus* c. *Nostoc* d. *Volvox*

78. Which is a blue green alga

a. *Chara* b. *Volvox* c. *Ectocarpus* d. *Nostoc*

79. Heterocyst can be observed in

a. *Nostoc* b. *Volvox* c. *Chara* d. *Oedogonium*

80. Which of the following is a unicellular green alga

a. *Chlamydomonas* b. *Volvox* c. *Oedogonium* d. *Vaucheria*

81. *Vaucheria* belongs to the class

a. xanthopyceae b. chlorophyceae c. rhodophyceae d. phaeophyceae

82. Which of the following has a coenocytic thallus

a. *Volvox* b. *Vaucheria* c. *Chara* d. *Oedogonium*

83. Compound zoospore is found in

a. *Volvox* b. *Vaucheria* c. *Chara* d. *Oedogonium*

84. Cup-shaped chloroplast is found in

a. *Fucus* b. *Oedogonium* c. *Chlamydomonas* d. *Vaucheria*

85. *Batrachospermum* is a

a. green alga b. blue-green alga c. red alga d. brown alga

86. In *Batrachospermum*, the whorl of branches of limited growth at the node is called

a. globule b. glomerule c. nucule d. cystocarp

87. The carpospore of *Batrachospermum* develops into a juvenile stage called

a. chantransia stage b. carpsporophyte c. tetrasporophyte d. cystocarp

88. Chantransia stage of *Batrchospermum* forms

a. carpospore b. tetraspore c. zoospore d. monospore

89. Gonimoblast filaments can be observed in

a. *Fucus* b. *Chara* c. *Oedogonium* d. *Batrachospermum*

90. Haplontic life cycle is seen in

a. *Chara* b. *Vovox* c. *Oedongonium* d. all

Fungi

91. Which of the following type of members are not found among fungi

a. autotrophs b. saprophytes c. parasites d. symbionts

92. Which of the following group of fungi has aseptate coenocytic mycelia

a. pyhcomycetes b. ascomycetes c. basidiomycetes d. deuteromycetes

93. Which of the following is known as fungi imperfectii

a. phycomycetes b. ascomycetes c. deuteromycetes d. basidiomycetes

94. We can not observe hyphae in

a. *Peziza* b. *Saprolegnia* c. *Puccinia* d. *Synchytrium*

95. Main component of cell wall of fungi is

a. cellulose b. hemicellulose c. chitin d. pectin

96. Coprophilous fungi grow on

a. bread b. leather c. wood d. dung

97. Which of the following fungal classes is known as “sac fungi”

a. phycomycetes b. ascomycetes c. basidiomycetes d. deuteromycetes

98. Fruiting bodies of ascomycetes are called

a. ascospores b. asci c. ascocarps d. ascogenous hyphae

99. Sex organs are absent but sexual reproduction takes place by plasmogamy in

a. phycomycetes b. ascomycetes c. basidiomycetes d. deuteromycetes

100. In basidiomycetes, karyogamy and meiosis take place in

a. basidiospore b. basidiocarp c. basidium d. ascus

101. Basidia in basidiomycetes are formed by

a. monokaryotic mycelium b. dikaryotic mycelium

c. haploid mycelium d. diploid mycelium

102. Which among the following shows asexual reproduction only

a. phycomycetes b. ascomycetes c. basidiomycetes d. deuteromycetes

103. Ascocarp with no special opening is called

a. cleisotothecium b. apothecium c. perithecium d. pseudothecium

104. Dolipore septum and clamp connections are characteristic features of

a. phycomycetes b. ascomycetes c. basidiomycetes d. deuteromycetes

105. The fertile layer in the ascocarp or basidiocarp is called

a. trama b. hymenium c. subhymenium d. paremchyma

106. Black wart disease of potato is caused by

a. *Synchytrium fulgens* b. *Synchytrium aureum*

c. *Synchytrium austral* d. *Synchytrium endobioticum*

107. The body of *Synchytrium* is

a. unicellular b. septate mycelium c. coenocytic mycelium d. multicellular

108. Zoospore of *Synchytrium* is

a. uniflagellate b. biflagellate c. quadriflagellate d. none

109. In the life cycle of *Synchytrium*, the zoospore after infecting the host develops into

a. summer spore b. winter spore c. late spore d. early spore

110. In the life cycle of *Synchytrium*, the zygote develops into

a. summer spore b. winter spore c. late spore d. early spore

111. Which of the following parasitizes fish

a. *Synchytrium* b. *Saprolegnia* c. *Phytophthora* d. *Erysiphe*

112. Diplanetism is observed in

a. *Saprolegnia* b. *Phytophthora* c. *Synchytrium* d. *Puccinia*

113. Which of the following shows sporangial proliferation

a. *Phytophthora* b. *Synchytrium* c. *Peziza* d. *Puccinia*

114. Late blight of potato is caused by

a. *Phytophthora infestans* b. *Phytophthora palmivora*

c. *Phytophthora parasitica* d. *Phytophthora arecae*

115. Paragynous and amphigynous species are found in

a. *Phytophthora* b. *Saprolegnia* c. *Synchytrium* d. *Puccinia*

116. The species of *Phytophthora* in which oogonium pierces through young antheridium is called

a. paragynous b. perigynous c. amphigynous d. semigynous

117. Which of the following is sac fungus

a. *Erysiphe* b. *Peziza* c. both d. none

118. Powdery mildew disease is caused by

a. *Erysiphe* b. *Peziza* c. *Saprolegnia* d. *Synchytrium*

119. Fruiting body of Erysiphe is

a. stroma b. perithecium c. apothecium d. cleistothecium

120. Which is known as cup fungus

a. *Erysiphe* b. *Saprolegnia* c. *Synchytrium* d. *Peziza*

121. Fruiting body of *Peziza* is

a. stroma b. perithecium c. apothecium d. cleistothecium

122. Crozier can be observed in

a. *Puccinia* b. *Saprolegnia* c. *Synchytrium* d. *Peziza*

123. Species of *Puccinia* are

a. obligate parasites b. facultative parasites

c. obligate saprophytes d. facultative saprophytes

124. Which species of *Puccinia* causes black stem rust of wheat

a. *P. graminis tritici* b. *P. recondita* c. *P. striiformis* d. *P. asparagi*

125. *Puccinia graminis tritici* is

a. autoecious & macrocyclic b. heteroecious & macrocyclic

c. autoecious & microcyclic d. heterooecious & microcyclic

126. Primary host of *Puccinia graminis tritici* is

a. rice b. maize c. barberry d. wheat

127. Secondary host of *Puccinia graminis tritici* is

a. wheat b. barberry c. grass d. parthenium

128. Which of the following stages of *Puccinia graminis tritici* are found on wheat

i. uredineal ii. telial iii. basidial iv. pycnidial v. aecial

a. i & ii b. i, ii, & iii c. i, ii, iii & iv d. i, ii, iii,iv & v

129. Which of the following stages of *Puccinia graminis tritici* are found on barberry

i. uredineal ii. telial iii. basidial iv. pycnidial v. aecial

a. i & ii b. i, ii, & iii c. i, ii, iii & iv d. iv & v

130. Binucleate spores in the life cycle of *Puccinia graminis tritici* are

a. uredospore, teleutospore, aeciospores

b. uredospore, basidiospore, pycniospore

c. uredospore, basidiospore, pycniospore

d. basidiospore, pycniospore

131. Uninucleate spores in the life cycle of *Puccinia graminis tritici* are

a. uredospore, teleutospore, aeciospores

b. uredospore, basidiospore, pycniospore

c. uredospore, basidiospore, pycniospore

d. basidiospore, pycniospore

132. Two-celled spore in *Puccinia graminis tritici* is

a. uredospore b. aeciospores c. teleutospore d. basidiospore

133. Spore of *Puccinia graminis tritici* that germinates on barberry

a. pycniospore b. basidiospore c. uredospore d. teleutospore

134. Karyogamy in *Puccinia graminis tritici* takes place in

a. teleutospore b. uredospore c. aeciospores d. basidiospore

135. Basidial stage in *Puccinia graminis tritici* develops from

a. pycniospore b. basidiospore c. uredospore d. teleutospore

Lichens

136. Source of litmus is the lichen

a. *Cetraria* b. *Rocella* c. *Parmelia* d. *Cladonia*

137. Which of the following is known as Reindeer moss

a. *Cetraria* b. *Rocella* c. *Parmelia* d. *Cladonia*

138. Which of the following structures are associated with the lichen thallus

a. cyphellae b. cephalodia c. isidia d. all

139. The algal component of a lichen is called

a. mycobiont b. biont c. phycobiont d. co-biont

140. Fungal component of the lichens is called

a. mycobiont b. phycobiont c. mycoplasma d. mycosome

Bryophyta

141. In the life cycle of bryophyte the dominant generation is the

a. haploid gametophyte b. diploid gametophyte

c. haploid sporophyte d. diploid sporphyte

142. Bryophytes play important role in plant succession on

a. bare rocks b. bare sand c. newly dug pond d. bare field

143. The bryophytes are attached to the substratum with the help of

a. true roots b. unicellular rhizoids

c. multicellular rhizoids d. b & c

144. The main plant body of bryophyte is a

a. haploid sporophyte b. diploid sporophyte

c. diploid gametophyte d. haploid gametophyte

145. The sex organs in bryophytes are ---------- and produced on the ----------

a. unicellular, gametophyte b. multicellular, sporophyte

c. multicellular, gametophyte d. unicellular, sporophyte

146. The sporophyte of bryophytes is a

a. multicellular free-living structure

b. unicellular free-living structure

c. multicellular structure dependent on the gametophyte

d. unicellular structure dependent on the gametophyte

147. In bryophytes, the spores are ---------- and germinate to produce the ----------

a. haploid, gametophyte b. diploid, gametophyte

c. haploid, sporophyte d. diploid, sporophyte

148. Peat, which is used as fuel is derived from

a. *Funaria* b. *Polytrichum*

c. *Marchnatia* d. *Sphagnum*

149. *Sphagnum* is also known as

a. bog moss c. club moss d. reindeer moss d. soft moss

150. *Marchantia* is a

a. thalloid liverwort b. leafy liverwort c. thalloid moss d. leafy moss

151. In *Marchantia*, gemmae can be seen in the

a. gemma cups b. antheridiophore c. archegoniophore d. capsule

152. Gemmae are ---------- bodies used for ---------- reproduction

a. unicellular, asexual b. unicellular, sexual

c. multicellular, asexual d. multicellular, sexual

153. We can observe antheridiophore on the thallus of

a. male *Sphagnum* b. male *Marchantia*

c. female *Sphagnum* d. female *Marchantia*

154. We can observe archegoniophore on the ---------- thallus of ----------

a. male *Sphagnum* b. male *Marchantia*

c. female *Sphagnum* d. female *Marchantia*

155. In the sporophyte of bryophytes the spores are formed in the

a. foot b. seta c. capsule d. seta & capsule

156. Spore of mosses germinate to produce a filamentous structure called

a. foot b. seta c. gemma d. protonema

157. Which is the correct sequence of events in the life cycle of a bryophyte

a. spore ------ gametophyte ------ sporophyte

b. gametophyte ------ zygote ------- sporophyte

c. Sporophyte ------ spore ------- gametophyte

d. all

158. The main gametophyte of moss is a

a. branched protonema
b. unbranched protonema
c. prostrate thallus
d. gametophore

159. In moss, the leafy gametophyte is formed

a. directly by the germination of the spore
b. from a lateral bud developing on the protonema
c. from secondary spores formed by the division of spores
d. by the germination of spore mother cell

160. Retort cells are found in

a. *Porella* b. *Marchantia* c. *Sphagnum* d. *Anthoceros*

161. Which of the following does not belong to hepaticopsida

a. *Marchantia* b. *Pellia* c. *Anthoceros* d. *Riccia*

162. Which of the following has *Nostoc* in its thallus

a. *Marchantia* b. *Riccia* c. *Sphagnum* d. *Anthoceros*

163. *Sphagnum* is commonly known as

a. reindeer moss b. club moss c. peat moss d. Iceland moss

164. Which of the following is a means of vegetative reproduction in bryophytes

a. gemma b. peristome c. operculum d. elaters

165. Which of the following group is commonly known as liverworts

a. lycopsida b. anthocerotopsida c. hepaticopsida d. bryopsida

166. Which of the following group is commonly known as hornworts

a. lycopsida b. anthocerotopsida c. hepaticopsida d. bryopsida

167. Which of the following group is commonly known as mosses

a. pteropsida b. anthocerotopsida c. hepaticopsida d. bryopsida

168. Pseudoelaters occur in the capsule of

a. *Sphagnum* b. *Marchnatia* c. *Riccia* d. *Anthoceros*

169. *Nostoc* colonies are present in the thallus of

a. *Riccia* b. *Marchantia* c. *Anthoceros* d. *Sphagnum*

170. Elaterophore is present in the capsule of

a. *Riccia* b. *Marchantia* c. *Pellia* d. *Sphagnum*

Pteridophyta (35)

171. The main plant body of a pteridophyte is a

a. haploid gametophyte b. diploid gametophyte

c. haploid sporophyte d. diploid sporophyte

172. A strobilus or cone is compact structure formed by the

a. leaves b. sprophylls c. roots d. sopres

173. The gametophyte of pteridophyte is called a

a. thallus b. prothallus c. protonema d. sorus

174. Pteridophytes producing only one type of spore are called

a. isosporous b. heterosporous c. homosporous d. monosporous

175. Pteridophytes producing two types of spore are called

a. isosporous b. heterosporous c. homosporous d. monosporous

176. Which of the following genera of pteridophytes are heterosporous

a. *Selaginella* b. *Marsilea* c. both d. none

177. Which of the following character of pteridophytes might have given rise to seed habit in plant

a. homosporous condition b. heterosporous condition

c. development of strobilus d. development of sporophylls

178. Filicophyta is another name for

a. pterophyta b. lycophyta c. sphenophyta d. psilophyta

179. In pteridophytes, a sporangium arising from a group of initials is called

a. pseudosporangium b. eusporangium c. leptosporangium d. polysporngium

180. In pteridophytes, a sporangium arising from a single initial cell is called

a. pseudosporangium b. eusporangium c. leptosporangium d. unisporngium

181. In which of the following pteridophytes, the sporangia are formed in specialized bodies called sporocarps

a. *Marsilea* b. *Selaginella* c . *Lycopodium* d. *Equisetum*

182. In many ferns sporangia are present in the form of organized groups called

a. sorus b. sporocarp c. telome d. strobilus

183. Telome theory was proposed by

a. Zimmermann b. Bower c. Wilson d. Eames

184. Circinate vernation is a characteristic of

a. psilophyta b. lycophyta c. sphenophyta d. pterophyta

185. A flap like structure protecting the sorus is called

a. ligule b. indusium c. elater d. telome

186. Which of the following is not included in stele

a. endodermis b. pericycle c. vascular tissues d. pith

187. Which of the following steles has a pith

a. haplostele b. actinostele c. plectostele d. siphonostele

188. A stele without a pith is called

a. protostele b. monostele c. siphonostele d. unistele

189. The spore of the pteridophytes germinates to form

a. prothallus b. protonema c. protocorm d. embryo

190. Lycopodiums are commonly known as

a. club moss b. ground pine c. trailing evergreens d. all

191. *Lycopodium* is divided into two subgenera

a. Urostachya & Homoeophyllum b. Urostachya & Rhopalostachya

c. Homoeophyllum & Heterophyllum d. Rhopalostachya & Heterophyllum

192. Which of the following stele is not found *Lycopodium*

a. plectostele b. actinostele c. mixed protostele d. siphonostele

193. Which of the following types of gametophytes is found in *Lycopodium*

a. Cernuum type b. Clavatum type c. Phlegmaria type d. all

194. Protocorm is found in

a. *Psilotum* b. *Isoetes* c. *Pteris* d. *Lycopodium*

195. Homoeophyllum and Heterophyllum are subgenera of

a. *Psilotum* b. *Lycopodium* c. *Isoetes* d. *Selaginella*

196. *Selaginella* belongs to

a. psilophyta b. lycophyta c. sphenophyta d. filicophyta

197. Ligule is found in the leaf of

a. *Psilotum* b. *Lycopodium* c. *Equisetum* d. *Selaginella*

198. Trabeculae are observed in the stem of

a. *Selaginella* b. *Lycopodium* c. *Equisetum* d. *Psilotum*

199. Rhizophore is present in

a. *Pteris* b. *Selaginella* c. *Marsilea* d. *Osmunda*

200. What is not true about *Selaginella*

a. it is heterosporous b. it is homosporous

c. it has ligulate leaf d. it has rhizophore

201. Which of the following is commonly known as horsetail

a. *Equisetum* b. *Selaginella* c. *Lycopodium* d. *Pteris*

202. The spores of *Equisetum* have four spirally arranged ribbon-like bands called

a. trabeculae b. elaterophore c. elaters d. tapetum

203. Outer wall of the epidermis of *Equisetum* stem is impregnated with

a. magnesium b. calcium c. silica d. iron

204. Vallecular canals are present in the stem of

a. *Equisetum* b. *Selaginella* c. *Psilotum* d. *Pteris*

205. In *Equisetum* the sporangia are borne in

a. sporophyll b. sporocarp c. sporangiophore d. sorus

Gymnosperms (25)

206. The name gymnosperms is derived from the Greek word ‘gymnos’ which means

a. empty b. closed c. naked d. inverted

207. Plants with naked seeds are

a. gymnosperms b. angiosperms c. pteridophytes d. bryophytes

208. The endosperm of gymnosperms is

a. a part of the female gametophyte b. a part of the male gametophyte

c. a part of the nucellus d. a part of the integument

209. Endosperm of gymnosperms is

a. haploid b. diploid c. triploid d. tetraploid

210. Sago palm is

a. *Cycas revoluta* b. *Cycas circinalis* c. *Cycas pectinata* d. *Cycas rumphii*

211. Coralloid root is seen in

a. *Cycas* b. *Pinus* c. *Taxus* d. *Gnetum*

212. Vascular bundles of *Cycas* stem are

a. Conjoint, collateral & closed b. conjoint, collateral & open

c. amphicribral d. amphivasal

213. In *Cycas*

a. only one cambial ring is formed b. successive cambial rings are formed

c. wood is pynoxylic d. leaf is simple

214. Xerophytic character of *Cycas* leaf

a. cuticle b. thick epidermis c. sunken stomata d. all

215. *Cycas* reproduces asexually by

a. bulbil b. bulb c. tuber d. gemma

216. Pollination in *Cycas* takes place by

a. wind b. water c. insect d. bird

217. Sperms of *Cycas* are

a. large b. top shaped c. multiciliate d. all

218. Ovule of *Cycas* is

a. largest in the plant world b. smallest in the plant world

c. is surrounded by three layered wall d. a & c

219. What could be the best function of the transfusion tissue seen in *Cycas* leaflets

a. photosynthesis b. storage

c. lateral transport of food d. mechanical support

220. Chilghoza pine is

a. *Pinus insularis* b. *Pinus longifolia* c. *Pinus excels* d. *Pinus gerardiana*

221. Foliage leaf of *Pinus* is

a. scale like b. needle like c. blade like c. lanceolate

222. The dwarf shoot of *Pinus* bearing foliage leaves is called

a. spur b. cone c. strobilus d. cataphyll

223. Vascular bundles of *Pinus* stem are

a. conjoint, collateral, open & endarch b. conjoint, collateral, closed & endarch

c. conjoint, collateral, open & exarch d. conjoint, collateral, closed & exarch

224. What is true about *Pinus*

a. resin canals are present in the cortex of stem

b. wood is pycnoxylic

c. wood has bars of Sanio

d. all

225. The terminal expanded sterile part of the microsporophyll of *Pinus* is called

a. apophysis b. paraphysis c. epiphysis d. telome

226. Microspores released in huge quantities in *Pinus* is called

a. shower of phosphorous b. shower of sulphur

c. phosphorous cloud d. sulphur cloud

227. Microspore of *Pinus* is

a. smooth b. spinous c. winged d. porous

228. Two types of scales, bract scales and ovuliferous scales are found in

a. microsporophyll of *Cycas* b. megsporophyll of *Cycas*

c. microsporophyll of *Pinus* d. megsporophyll of *Pinus*

229 Pollination in *Pinus* takes place by

a. wind b. water c. insect d. bird

230. In *Pinus*

a. branches are dimorphic

b. polyembryony is seen

c. perisperm is present

d. all

Cytology and Genetics

231. Who discovered cell

a. Robert Hooke b. Robert Brown c. Leeuwnhoek d. Virchow

232. Cell theory was formulated by

a. Hooke & Schwann b. Virchow & Schleiden

c. Schleiden & Scwann d. Leeuwenhoek & Brown

233. The idea that new cells arise from division of pre-existing cells was given by

a. Leeuwnhoek b. Virchow c. Purkinje d. Schleiden

234. "Omnis cellula-e- cellula" means that

a. plants and animals are composed of cells

b. cell is the basic unit of life

c. new cells arise from division of pre-existing cells

d. new cells are not formed by division

235. Which of the following organelle is not surrounded by a membrane

a. ribosome b. peroxisome c. lysosome d. Golgi body

236. Which of the following is responsible for the fluid nature of the cell membrane

a. lipid b. carobohydrate c. protein d. all

237. Cytoplasm of neighbouring plant cells are interconnected through

a. stomata b. plasmodesmata c. desmosome d. nexus

238. Which of the following cell structure is named after its discoverer

a. lysosome b. mitochondria c. golgi body d. cilium

239. Disc shaped flattened sac like structures present in Gogi body are called

a. cristae b. thyllakoid

c. lamellae d. cisternae

240. Which of the following organelles is rich in hydrolytic enzymes

a. peroxisome b. glyoxysome c. centrosome d. lysosome

241. The term tonoplast is used for the membrane surrounding the

a. peroxisome b. peroxisome

c. vacuole d. vacuole

242. Electron transport system is located in

a. the outer membrane of the mitochondria

b. inner membrane of mitochondria

c. outer chamber of mitochondria

d. inner chamber of mitochondria

243. Which of the following structure is associated with the power house of the cell

a. grana b. cisternae c. cristae d. thylakoid

244 Which of the following is the site of aerobic respiration in a cell

a. mitochondria b. plastids c. peroxisome d. ER

245. Which of the following is a colourless plastid

a. chloroplast b. chromoplast c. leucoplast d. bioplast

246. Which of the following is surrounded by double membrane

a. mitochondria b. chloroplast c. nucleus d. all

247. In the chloroplast, the chlorophyll pigments are present in the

a. outer membrane b. thylakoids c. stroma d. inner membrane

248. In a chloroplast, several thylakoids arrange in stacks called

a. grana b. cisternae c. stroma d. cristae

249. Nucleus was discovered by

a. Virchow b. Robert Brown

c. Fontana d. Robert Hooke

250. Chromatin contains DNA and protein called

a. tubulin b. actin c. histone d. myosin

251. Which of the following chromosomes will have two equal arms

a. metacentric b. sub-metacentric c. acrocentric d. telocentric

252. Which chromosome has terminal centromere

a. metacentric b. sub-metacentric c. acrocentric d. telocentric

253. The small fragment of chromosome present after the secondary constriction is called

a. satellite b. telomere

c. kinetochore d. nucleolar organizer

254. In a chlororplast, light reactions take place in

a. stroma b. grana c. outer membrane d. inner membrane

255. In a chlororplast, dark reactions take place in

a. stroma b. grana c. outer membrane d. inner membrane

Cell cycle, mitosis and meiosis

256. The cells that do not divide further, exit ---------- to enter an inactive phase called ----------

a. G2, G0 b. G1, G3 c. G2, G3 d. G1, G0

257. The phase corresponding to the interval between mitosis and initiation of DNA replication is

a. G0 b. G1 c. G2 d. S

258. The phase after the S phase in interphase is called

a. G0 b. G1 c. G2 d. G3

259. Condensation of chromosomes is completed by the ---------- stage of mitosis

a. prophase b. metaphase c. anaphase d. telophase

260. The complete disintegration of nuclear membrane during cell division marks the beginning of

a. prophase b. metaphase c. anaphase d. telophase

261. Chromosomes move to equator in

a. prophase b. metaphase c. anaphase d. telophase

262. Centromeres split and chromatids separate in ---------- stage of mitosis

a. prophase b. metaphase c. anaphase d. telophase

263. Spindle fibres attach to kinetochores of chromosomes in ---------- stage of mitosis

a. prophase b. metaphase c. anaphase d. telophase

264. In which stage of mitosis decondensation of chromosomes takes place

a. prophase b. metaphase c. anaphase d. telophase

265. Which of the following two stages of mitosis can be considered reverse of one another

a. anaphase, metaphase b. prophase, telophase

c. prophase, metaphase d. anaphase, telophase

266. Which is the first stage of meiosis-I

a. leptotene b. zygotene c. pachytene d. diplotene

267. Pairing of homologous chromosomes is called ---------- and takes place in ----------

a. synapsis, zygotene b. syanpsis, pachytene

c. syngamy, zygotene d. syngamy, pahcytene

268. Formation of bivalent in meiosis takes place in

a. leptotene b. zygotene c. pachytene d. diakinesis

269. In which stage of meiosis crossing over takes place

a. leptotene b. zygotene c. pachytene d. diakinesis

270. In which stage of meiosis, separation of homologous chromosomes takes place

a. pachytene b. diakinesis c. anaphase-I d. anaphase-II

271. In which stage of meiosis, separation of sister chromatids takes place

a. pachytene b. diakinesis c. anaphase-I d. anaphase-II

272. The site where crossing over has taken place is called

a. recombination nodule b. chiasma c. centromere d. telomere

273. Dihybrid phenotypic ratio is

a. 3:1 b. 1:2:1 c. 9:3:3:4 d. 9:3:3:1

274. Which of the following law of heredity is based on dihybrid cross

a. law of dominance b. law of segregation

c. law of independent assortment d. all

275. Double helix model of DNA was proposed by

a. Beadle & Tatum b. Watson & Crick c. Morgan & Muller d. Meselson & Stahl

276. Which of the following base is not present in DNA

a. adenine b. guanine c. cytosine d. uracil

277. DNA replication is

a. conservative b. semi-conservative c. dispersive d. All

278. The two polynucleotide chains of DNA are

a. complementary b. antiparallel

c. held together by hydrogen bonding d. all

279. In a DNA molecule adenine pairs with

a. adenine b. guanine c. cytosine d. thymine

280. Meselson & Stahl showed that

a. DNA is double stranded b. DNA replication is semi-conservative

c. DNA replication is conservative d.DNA replication is dispersive

281. During DNA replication

a. leading strand shows continuous synthesis

b. lagging strand shows discontinuous synthesis

c. RNA primer is required

d. all

282. A point mutation in which meaning of the codon is not changed called

a. nonsense mutation b. sense mutation c. silent mutation d. back mutation

283. Gene mutation in which a pyrimidine is replaced by a pyrimidine or a purine is replaced by a purine is called

a. transition b. transversion c. translation d. transcription

284. Gene mutation in which a pyrimidine is replaced by a purine or a purine is replaced by a pyrimidine is called

a. transition b. transversion c. translation d. transcription

285. A substance which can induce mutation is called

a. mutant b. mutagen c. mutator d. inducer

Economic botany

286. Botanical name of pigeon pea (arhar) is

a. *Pisum sativum* b. *Phaseolus vulgaris* c. *Cicer arietinum* d. *Cajanus cajan*

287. Chief source of sugar in world is

a. stevia b. beet roots c. sugarcane d. date palm

288. Quinine is obtained from

a. bark of cinchona b. root of cinchona c. leaf of cinchona d. flower of cinchona

289. Cotton fibres are made of

a. protein b. lignin c. starch d. cellulose

290. Botanical name of rice is

a. *Oryza sativa* b. *Avena sativa* c. *Triticum vulgare* d. *Hordeum vulgare*

291. Pulses belong to the family

a. poaceae b. cruciferae c. papilionaceae d. verbenaceae

292. Edible oil is obtained from

a. mustard b. groundnut c. both d. none

293. Which of the following is beverage plant

a. *Zea mays* b. *Arachis hypogea* c. *Thea sinensis* d. *Brassica campestris*

294. Which part of potato is used for food

a. root b. stem c. leaf d. all

295. Which of the following is out of group

a. coriander b. cardamom c. clove d. coffee

296. Anti-hypertensive medicine reserpine is obtained from

a. *Rauvofia* c. *Cinchona* c. *Stevia* d. *Aconitum*

297. Groundnut is botanically known as

a. *Zea mays* b. *Arachis hypogea* c. *Thea sinensis* d. *Brassica campestris*

298. *Syzygium aromaticum* is botanical name of

a. coriander b. cardamom c. clove d. coffee

299. Botanical name of maize is

a. *Triticum aestivum* b. *Oryza sativa* c. *Pisum sativum* d. *Zea mays*

300. Which of the following belongs to the family solancaecea

a. rice b. maize c. potato d. mustard