

**Choose the correct answers :**

1. The primary host of *Puccinia graminis*  
 (1) *Triticum* (2) *Triticale*  
 (3) *Berberis vulgaris* (4) Both (2) and (3)
2. Mutual association which is more in favour of one partner than other is called  
 (1) Symbiosis (2) Helotism  
 (3) Ammensalism (4) Commensalism
3. Match the two columns  

Column -A	Column-B
a. Green ear of Bajra	(i) <i>Pythium</i>
b. Early blight of potato	(ii) <i>Sclerospora</i>
c. Wilt of arhar	(iii) <i>Fusarium</i>
d. Damping off	(iv) <i>Ustilago</i>
e. Smut disease	(v) <i>Alternaria</i>

(1) a(i), b(ii), c(iii), d(iv), e(v)  
 (2) a(ii), b(v), c(iii), d(i), e(iv)  
 (3) a(iii), b(v), c(iv), d(ii), e(i)  
 (4) a(v), b(ii), c(iii), d(i), e(iv)
4. The fungal hypha shows  
 (1) Diffuse growth  
 (2) Growth at the basal region  
 (3) Tip growth  
 (4) Determinate growth
5. A sac containing 8 meiospores is  
 (1) Basidium (2) Ascocarp  
 (3) Ascus (4) Ascostroma
6. The enzyme complex responsible for producing leavened bread is  
 (1) Invertase (2) Diastase  
 (3) Zymase (4) Amylase
7. Which is not true regarding fungi ?  
 (1) Vegetative vulture  
 (2) Unicisternal golgi-bodies  
 (3) Karyochorisis  
 (4) Lamellasome
8. Hartig net & hyphal mantle are reported in \_\_\_\_\_ type of mycorrhiza  
 (1) Ectotrophic (2) Endotrophic  
 (3) Ectendotrophic (4) All of these
9. Germination of which seeds require infection by fungi  
 (1) Rice (2) *Cycas*  
 (3) Crucifers (4) *Pinus*
10. Which is true for fungi ?  
 (1) All parasitic fungi are pathogens  
 (2) All pathogenic fungi are parasites  
 (3) All fungi reproduce sexually  
 (4) All fungi are chlorophyllous
11. Lomasomes are border bodies found in fungus cell arising from plasma membrane. They act for  
 (1) Cell elaboration (2) Cell elongation  
 (3) Cell wall formation (4) Cell fusion
12. *Spirogyra* and *Rhizopus* resemble in.  
 (1) Stored food  
 (2) Cellulosic cell wall  
 (3) Uninucleated thallus  
 (4) Single celled gametangia
13. Number of spore stages in the life cycle of *Puccinia* is  
 (1) Five (2) Four  
 (3) Three (4) Two
14. A fungus which kills a tree and grows on the dead wood as a saprophyte is  
 (1) Biotropic (2) Necrotropic  
 (3) Balanced (4) Destructive
15. Fungi growing on nails, feathers, hoofs are  
 (1) Keratinophilic (2) Pyrophillic  
 (3) Coprophillic (4) Xylophillic
16. Root knot of tomato is caused by  
 (1) *Melidogyne* (a nematode)  
 (2) *Agrobacterium* (a bacterium)  
 (3) *Phytophthora* (a fungus)  
 (4) *Albugo* (a fungus)
17. Apple scab is caused by  
 (1) *Ustilago* (2) *Puccinia*  
 (3) *Erysiphe* (4) *Venturia*
18. An edible sac fungus is  
 (1) *Agaricus* (2) *Puccinia*  
 (3) *Penicillium* (4) *Morchella*
19. Which fungal disease spreads by seed and flowers ?  
 (1) Loose smut of wheat  
 (2) Red rust of tea  
 (3) Covered smut of barley  
 (4) Soft rot of potato
20. Which of the following secretes toxin during storage condition of crops ?  
 (1) *Aspergillus* (2) *Pencillium*  
 (3) *Fusarium* (4) *Colletotrichum*
21. Bunt disease of wheat is caused by  
 (1) *Ustilago tritici* (2) *Puccinia recondita*  
 (3) *Tilletia tritici* (4) *Uromyces pisi*
22. Phytoalexins are secreted in the cell of host plant due to

- (1) Infection caused by protozoans  
 (2) Infection caused by bacteria  
 (3) Infection caused by mycoplasma  
 (4) Infection caused by fungi
23. Which is known as blue-green mould ?  
 (1) *Penicillium* (2) *Rhizopus*  
 (3) *Neurospora* (4) Yeast
24. Lichens growing on rocks is called  
 (1) Terricolous (2) Saxicolous  
 (3) Corticolous (4) Lignicolous
25. The organism which is responsible in forest fire is  
 (1) *Cladonia* (2) *Parmelia*  
 (3) *Usnea* (4) *Peltizera*
26. Majority of lichens are made of  
 (1) Green algae and ascomycetes  
 (2) Blue green algae and basidiomycetes  
 (3) Blue green algae and ascomycetes  
 (4) Brown algae and higher plants
27. Yeast, which is commonly known as sugar fungus is  
 (1) Purely aerobic  
 (2) Anaerobic only  
 (3) Facultative anaerobe  
 (4) Facultative aerobe
28. A hallucinogenic fungus is  
 (1) *Psilocybe* (2) *Claviceps*  
 (3) Both (1) and (2) (4) None of these
29. Outgrowth of lichen that has fungus and a foreign blue green alga different from host alga is called  
 (1) *Isidia* (2) *Soredia*  
 (3) *Cephalodia* (4) *Cyphellae*
30. Tikka disease of groundnut is due to  
 (1) *Alternaria* (2) *Colletotrichum*  
 (3) *Cercospora* (4) *Fusarium*
31. Clamp connections occur in  
 (1) Basidiomycetes (2) Zygomycetes  
 (3) Deuteromycetes (4) Ascomycetes
32. An excessive enlargement of diseased organ because of increase in number of cells is called  
 (1) Necrosis (2) Hypertrophy  
 (3) Hyperplasia (4) Atrophy
33. When the fungal hyphae are arranged compactly to form a tissue like structure it is termed  
 (1) Prosenchyma (2) Pseudoparenchyma  
 (3) Plectenchyma (4) Parenchyma
34. The spores which are produced exogenously are termed  
 (1) Sporangia (2) Conidia  
 (3) Gametes (4) Gametangia
35. The basidiomycetes include  
 (1) Mushrooms and toadstools  
 (2) Puffballs and bracket fungi  
 (3) Both of these  
 (4) None of these
36. In a mycorrhiza  
 (1) Most of the association between the root and the fungus is specific  
 (2) Most of the association between the root and the fungus is not specific  
 (3) The fungi absorb water, nitrogen, nutrients and produce growth promoting substances  
 (4) Both (2) & (3)
37. Which one of the following shows mycorrhiza ?  
 (1) *Pinus* (2) Orchids  
 (3) Birches (4) All of these
38. The antibiotic cephalosporin is obtained from  
 (1) Bacteria (2) Actinomyces  
 (3) Fungi (4) Blue green algae
39. Pseudomycelium is seen in  
 (1) Yeast (2) *Penicillium*  
 (3) *Aspergillus* (4) *Rhizopus*
40. Fusion between the mother cell and the daughter cell during budding in yeast is known as  
 (1) Syngamy (2) Plasmogamy  
 (3) Pedogamy (4) Karyogamy
41. Who is known as father of Indian mycology?  
 (1) Butler (2) Mundkur  
 (3) Mehta (4) Sadashivan
42. The zygosporangium of *Rhizopus* is characterised by  
 (1) Presence of sporangiospore  
 (2) Presence of columella  
 (3) Absence of columella  
 (4) Presence of diploid spores
43. In slime moulds when the entire thallus becomes the sporangium it is known as  
 (1) Eucarpic (2) Holocarpic  
 (3) Plasmodium (4) Pseudoplasmodium
44. Soredium is a propagule of  
 (1) Lichens (2) Zygomycetes  
 (3) Phycomycetes (4) Both (2) and (3)
45. Parasexual cycle is commonly found in  
 (1) Deuteromycetes (2) Ascomycetes  
 (3) Phycomycetes (4) Basidiomycetes

46. Fruiting body of *Penicillium* is known as  
 (1) Pycnidium (2) Cleistothecium  
 (3) Apothecium (4) Perithecium
47. A fungus which shows haplontic, haplo-diplontic and diplontic life cycle is  
 (1) Yeast (2) Mushroom  
 (3) Morel (4) *Puccinia*
48. Structures present in the lower part of the thallus of a lichen for the purpose of breathing are known as  
 (1) Cyphellae (2) Breathing pores  
 (3) Soredia (4) Cephalodia
49. Which one of the following is a bud-like structure meant for vegetative propagation of lichens  
 (1) Soredia (2) Cephalodia  
 (3) Isidia (4) All of these
50. The pycnial and aecidial cups of *Puccinia graminis* occur on Barberry leaf on  
 (1) Abaxial and adaxial surfaces  
 (2) Adaxial and abaxial surfaces  
 (3) Abaxial surfaces only  
 (4) Adaxial surface only
51. Which of the following is the proper sequence of spore formation in *Puccinia graminis*?  
 (1) Uredospores, teleutospores, spermatium, basidiospore, aeciospore  
 (2) Aeciospores, uredospores, teleutospores, basidiospores, spermatium  
 (3) Teleutospores, uredospores, basidiospore, spermatium, aeciospore  
 (4) Basidiospore, spermatium, uredospore, teleutospore, aeciospore
52. Irish famine was caused by  
 (1) *Albugo candida*  
 (2) *Erysiphe graminis*  
 (3) *Puccinia graminis*  
 (4) *Phytophthora infestans*
53. Heterothallism was discovered by  
 (1) N. Bessey (2) Blakeslee  
 (3) Alexopolous (4) Walker
54. In what form the food is stored in mycelium of *Cystopus*  
 (1) Sugar and oil (2) Starch and protein  
 (3) Glycogen and oil (4) Protein and steroids
55. Which of the following is a wrong statement regarding *Puccinia graminis tritici*?  
 (1) Uredospores infect Barberry leaf  
 (2) Teleutospores are meant for perennation  
 (3) Aeciospores infect wheat leaf  
 (4) Pycniospores bring about dikaryotisation
56. Loose smut of oat is caused by  
 (1) *Ustilago tritici* (2) *Ustilago avenae*  
 (3) *Armillaria mellea* (4) *Ustilago jensenii*
57. Coenocytic fungi which lack motile spores and produce zygospores belong to  
 (1) Oomycetes (2) Zygomycetes  
 (3) Phycomycetes (4) Ascomycetes
58. Which statement is correct about fungi ?  
 (1) There is a progressive elaboration of sporophyte from lower to higher fungi  
 (2) There is a progressive complexity in sexuality from lower to higher fungi  
 (3) There is a progressive simplicity in sexuality from lower to higher fungi  
 (4) Sex organs are absent in lower fungi
59. In endomycorrhiza, the fungi mostly belong to  
 (1) Ascomycetes (2) Zygomycetes  
 (3) Basidiomycetes (4) Both (1) and (3)
60. The opening and closing of Dolipore septum is governed by  
 (1) Lomasomes (2) Parenthosomes  
 (3) Mesosomes (4) Chondriosomes
61. Gametangial copulation occurs in  
 (1) Ascomycetes (2) Zygomycetes  
 (3) Basidiomycetes (4) Deuteromycetes
62. If the thallus of an organism e.g. a fungus is entirely converted into one or more reproductive structures it is called as  
 (1) Eucarpic (2) Holocarpic  
 (3) Holozoic (4) Homothallic
63. Ascomycetes is known as  
 (1) Club fungi (2) Sac fungi  
 (3) Fungi imperfecti (4) Fission fungi
64. Reindeer moss is  
 (1) *Peltigera* (2) *Cetraria islandica*  
 (3) *Parmelia* (4) *Cladonia rangiferina*
65. White rust of crucifer is caused by  
 (1) *Albugo candida*  
 (2) *Sclerospora graminicola*  
 (3) *Phytophthora infestans*  
 (4) *Pythium debaryanum*
66. Late blight of potato is caused by  
 (1) *Alternaria solani*  
 (2) *Pythium debaryanum*  
 (3) *Phytophthora infestans*  
 (4) *Sclerospora graminicola*

67. Morels belong to  
(1) Zygomycetes (2) Phycomycetes  
(3) Basidiomycetes (4) Ascomycetes
68. Powdery mildew of cereals is caused  
(1) *Phytophthora infestans*  
(2) *Claviceps purpurea*  
(3) *Albugo candida*  
(4) *Erysiphe graminicola*
69. A facultative parasite is the organism which  
(1) Always requires dead organic matter  
(2) Always requires a living host  
(3) Is normally a saprophyte but can also become a parasite  
(4) Is normally a parasite but can also become a saprophyte
70. The phenomenon of parasexuality was discovered by  
(1) Robert Koch (2) Blakeslee  
(3) K.C. Mehta (4) Pontecorvo & Roper
71. The condition, where plasmogamy, karyogamy and haploidization do not occur at specific stages in the life cycle is known as  
(1) Heterozygosity (2) Heterothallism  
(3) Homozygosity (4) Parasexuality
72. The spores produced in *Agaricus* are known as  
(1) Basidiospores (2) Conidia  
(3) Oidia (4) Sporangiospores
73. Mycorrhiza is  
(1) The symbiotic association of fungus and lichens  
(2) The symbiotic association of algae and roots of plants  
(3) The symbiotic association of a fungus with the roots of plants  
(4) The symbiotic association of bacteria and root of plants
74. *Ustilago* caused plant diseases are called smuts because  
(1) They parasitise cereals  
(2) Mycelium is black  
(3) They develop sooty masses of spores  
(4) Affected parts become completely black
75. *Claviceps purpurea* is causal organism of  
(1) Smut of barley (2) Rust of wheat  
(3) Ergot of rye (4) Powdery mildew of pea
76. The binucleated spores of *Puccinia graminis* released from Barberis leaf and which are responsible for initial infection in a wheat plant are called  
(1) Pycniospores  
(2) Uredospores  
(3) Teleutospores  
(4) Aeciospores
77. Which one of the following is known as pink mould ?  
(1) *Neurospora* (2) *Claviceps*  
(3) *Aspergillus* (4) *Penicillium*
78. In lichens, sexual reproduction is usually performed by  
(1) Algal partner only  
(2) Fungal partner only  
(3) Both algal and fungal partners  
(4) Either of the two partners
79. Wart disease of potato is due to  
(1) *Alternaria solani*  
(2) *Synchytrium endobioticum*  
(3) *Fusarium moniliforme*  
(4) *Phytophthora infestans*
80. The citric acid is produced by  
(1) *Aspergillus niger*  
(2) *Acetobacter aceti*  
(3) *Candida utilis*  
(4) *Streptococcus lactis*
81. Which one of the following statements about lichens is wrong?  
(1) They show fungal and algal symbiotic relationships  
(2) Some of its species are eaten by reindeers  
(3) These grow very rapidly (2 cm per day)  
(4) These are pollution indicators.
82. In yeast which process occurs during budding  
(1) Synapsis  
(2) Unequal division of cytoplasm  
(3) Doubling of chromosomes  
(4) Spindle formation

**Choose the correct answers :**

1. Girdle leaf traces are found in the stem of  
 (1) *Cycas* (2) *Pinus*  
 (3) *Ephedra* (4) *Gnetum*
2. Meroblastic development of embryo is found in  
 (1) *Selaginella* (2) *Adiantum*  
 (3) *Pteris* (4) *Funaria*
3. The stele in which xylem core is star shaped  
 (1) Plectostele (2) Actinostele  
 (3) Haplostele (4) Siphonostele
4. Evolutionarily advanced character of Gnetales is  
 (1) Presence of vessels  
 (2) Ovules with two integuments  
 (3) Absence of archaegonia in *Gnetum*  
 (4) All of these
5. A plant organ having no parallel in the Plant kingdom is  
 (1) Rhizoplast (2) Rhizophore  
 (3) Rhizomorph (4) Rhizine
6. Archegonia is absent in  
 (1) *Chara* (2) *Polygonum*  
 (3) *Ephedra* (4) Both (1) and (2)
7. Chlorophyll-c is absent in  
 (1) Brown algae (2) Dinoflagellates  
 (3) Diatoms (4) Euglenoids
8. Which is false regarding *Cycas* ?  
 (1) Endoscopic embryogeny  
 (2) Haustorial nature of pollen tube  
 (3) No antheridia  
 (4) Non motile sperm
9. Which is not a characteristic feature of brown algae ?  
 (1) No unicellular forms  
 (2) Presence of air vesicles  
 (3) Presence of trumpet hyphae  
 (4) Presence of sulphurated phycocolloids
10. Site of karyogamy and meiosis in *Puccinia* is  
 (1) Ascus (2) Basidium  
 (3) Teliospore (4) Sporangia
11. External fertilization is reported in  
 (1) *Selaginella* (2) *Spirogyra*  
 (3) *Pinus* (4) *Ulothrix*
12. Mosses are characterised by having rhizoids which are  
 (1) Multicellular and unbranched  
 (2) Unicellular and tuberculate type  
 (3) Multicellular, branched and having oblique septa  
 (4) Multicellular, branched and having transverse septa
13. Match the following  
 a. Elaters (i) *Equisetum*  
 b. Pseudoelaters (ii) *Anthoceros*  
 c. Epispore appandage (iii) *Marchantia*  
 elaters  
 d. Elaters absent (iv) *Riccia*  
 (1) a – iii, b – iv, c – ii, d – i  
 (2) a – iv, b – ii, c – i, d – iii  
 (3) a – iii, b – i, c – ii, d – iv  
 (4) a – iii, b – ii, c – i, d – iv
14. The main difference between algae and bryophytes is that the  
 (1) Plant body of algae is a thallus  
 (2) Plant body of bryophytes is divided into upper photosynthetic and lower storage zone  
 (3) Sex organs of bryophytes are jacketed and unicellular  
 (4) Bryophytes form embryo
15. Which of the following statement is correct regarding zoospores of *Ulothrix* ?  
 (1) All microzoospores are biflagellate  
 (2) All macrozoospores are tetraflagellate  
 (3) Microzoospores are biflagellate while macrozoospores are tetraflagellate  
 (4) Microzoospores are biflagellate while macrozoospores are either biflagellate or are tetraflagellate
16. If three filaments are conjugating where will you get the zygospores  
 (1) Middle filament (2) Outer filament  
 (3) Either of these (4) All of these
17. Which of the following is not a characteristics of akinetes ?  
 (1) They are produced singly or in chains  
 (2) The wall of the parent cell forms the spore wall  
 (3) They develop during dry environmental conditions  
 (4) They are surrounded by a mucilaginous sheath
18. Elaters help in the dispersal of spores. Which of the following bryophytes is characterised by the presence of elaters ?  
 (1) *Riccia* (2) *Marchantia*  
 (3) *Funaria* (4) *Sphagnum*

19. Protonema is juvenile stage of  
 (1) *Anthoceros* (2) *Funaria*  
 (3) *Riccia* (4) All bryophytes
20. *Sphagnum* is commonly known as  
 (1) Iceland moss (2) Bog moss (peat moss)  
 (3) Cord moss (4) Reindeer moss
21. Zygospores are characteristic feature of  
 (1) Thallophyta (2) Bryophyta  
 (3) Pteridophyta (4) All of these
22. The mature male gametophyte of *Pinus* consists of  
 (1) 2 prothallial cells + one tube cell (Pollentube) + one stalk cell + 2 unequal male gametes  
 (2) 2 prothallial cells + 1 tube cell + 1 stalk cell + 2 equal gametes  
 (3) 1 prothallial cell + 2 tube cell + 2 unequal gametes  
 (4) 2 prothallial cell + 1 stalk cell + 2 equal gametes
23. How many prothallial cells are found in the male gametophyte of *Selaginella*, *Cycas* and *Pinus* respectively  
 (1) 1, 1, 2 (2) 1, 2, 2  
 (3) 2, 2, 2 (4) 1, 1, 1
24. Seeds of *Pinus* are  
 (1) Adaxial, endospermic and polycotyledonous  
 (2) Abaxial, monocotyledonous and endospermic  
 (3) Hypogeal and endospermic  
 (4) Monocotyledonous, epigeal
25. Which one is correct for *Pinus* ?  
 (1) Branching is monopodial and branches are dimorphic with long shoot and dwarf shoot  
 (2) Dwarf shoots are called spurs or brachyblasts and bear cataphylls (scale leaves) and needles  
 (3) Long shoots have unlimited growth and bear cataphylls only  
 (4) All the above
26. The male gametophyte of *Cycas* consists of  
 (1) 1 prothallial cell + 1 tube cell + 2 motile male gametes  
 (2) 1 prothallial cell + 1 tube cell + 1 stalk cell + 2 motile sperms  
 (3) 1 tube cell + 2 motile top like male gametes  
 (4) 2 prothallial cell and 2 motile sperms
27. Heterospory and ligulate leaves occur in  
 (1) Ferns (2) Mosses  
 (3) Liverworts (4) *Selaginella*
28. The number of neck canal cells in *Dryopteris* archegonium are  
 (1) One with one nucleus  
 (2) One with two nuclei  
 (3) Two with two nuclei each  
 (4) Four with two nuclei each
29. Chilgoza is obtained from which of the following gymnosperms ?  
 (1) *Pinus excelsa* (2) *Pinus geradiana*  
 (3) *Pinus longifolia* (4) *Pinus merkusii*
30. The seeds of *Pinus* have wings, which are derived from  
 (1) Testa (2) Testa and tegmen  
 (3) Tegmen (4) Ovuliferous scale
31. The ovule in *Pinus* is unitegmic. It consists of  
 (1) Outer fleshy and inner stony layer  
 (2) Outer stony and inner fleshy layer  
 (3) Outer and inner fleshy and middle stony layer  
 (4) Outer and middle stony and inner fleshy layer
32. Which one of the following shows direct germinations  
 (1) *Ulothrix* (2) *Chlamydomonas*  
 (3) *Spirogyra* (4) *Oedogonium*
33. The phenomenon of 'red snow' is exhibited in polar regions by a *Chlamydomonas* species  
 (1) *C. nivalis* (2) *C. coccifera*  
 (3) *C. media* (4) *C. reticulata*
34. Anisogamy is seen in which species of *Chlamydomonas* ?  
 (1) *C. braunii* (2) *C. coccifera*  
 (3) *C. debaryana* (4) All of these
35. Which species of *Ulothrix* produces dimorphic zoospores ?  
 (1) *Ulothrix maxima* (2) *Ulothrix eugametos*  
 (3) *Ulothrix zonata* (4) All of these
36. 'Red rust of tea' is caused by parasitic  
 (1) *Cephaleuros* (2) *Puccinia*  
 (3) *Mucor* (4) *Fusarium*
37. Phycobilins is present in  
 (1) Cyanophyceae (2) Rhodophyceae  
 (3) Both of these (4) All marine algae
38. 'Amanori' bread is prepared from the alga  
 (1) *Codium* (2) *Porphyra*  
 (3) *Chondrus* (4) *Alaria*
39. The pigments that are common on all algae are  
 (1) Phycocyanin and phycoerythrin  
 (2) Chlorophyll 'a'  
 (3) Phycoerythrin and chlorophyll 'a'  
 (4) Phycocyanin and chlorophyll 'a'

40. The stellar system of gymnosperms is  
 (1) Atactostele (2) Eustele  
 (3) Solanostele (4) Siphonostele
41. Cleavage polyembryony occurs in  
 (1) *Cycas* (2) *Pinus*  
 (3) Pteridophytes (4) Angiosperms
42. The formation of gametophytes directly from sporophyte without the formation of spore is known as  
 (1) Apospory (2) Apogamy  
 (3) Parthenogenesis (4) Apocarp
43. Which one controls the dehiscence of sporangium in male shield's fern (*Dryopteris*)  
 (1) Sorus (2) Annulus  
 (3) Stomium (4) Peristome
44. Pseudoelaters are found in  
 (1) *Funaria* (2) *Sphagnum*  
 (3) *Marchantia* (4) *Anthoceros*
45. In which of the following fertilization takes place by zooidiogamy is  
 (1) *Pinus* (2) *Cycas*  
 (3) *Dryopteris* (4) *Selaginella*
46. Canada balsam is extracted from  
 (1) *Abies* (2) *Cedrus*  
 (3) *Pinus* (4) *Cycas*
47. The plant nearest to angiosperm is  
 (1) *Gnetum* (2) *Taxus*  
 (3) *Cycas* (4) *Pinus*
48. In *Pinus* albuminous cells are associated with  
 (1) Pith (2) Xylem  
 (3) Phloem (4) Cortex
49. Iodine and bromine are extracted from  
 (1) *Nostoc* and *Anabaena*  
 (2) *Polysiphonia* and *Sargassum*  
 (3) *Laminaria* and *Rhodymenia*  
 (4) *Diatoms* and *Fucus*
50. What is true of the archegonium of a moss plant ?  
 (1) 6 neck canal cells and 4 vertical rows of neck cells  
 (2) 6 neck canal cells and 6 vertical rows of neck cells  
 (3) 6-10 neck canal cells and 6 vertical rows of neck cells  
 (4) 6-10 neck canal cells and 4 vertical rows of neck cells
51. The most advanced form of algae are  
 (1) Yellow algae (2) Red algae  
 (3) Brown algae (4) Green algae
52. Pollen grain of *Cycas* are shed at which stage ?  
 (1) One celled (2) Two celled  
 (3) Three celled (4) Four celled
53. Zygotic Meiosis occurs in  
 (1) Haplontic life cycle  
 (2) Diplo-haplontic life cycle  
 (3) Haplo-diplontic life cycle  
 (4) Diplontic life cycle
54. When two cells of *Chlamydomonas* fuse together it is known  
 (1) Autogamy (2) Homogamy  
 (3) Hologamy (4) Syngamy
55. The gametes in *Spirogyra* (lateral conjugation) are  
 (1) Morphologically and physiologically similar  
 (2) Morphologically dissimilar physiologically similar  
 (3) Morphologically as well as physiologically dissimilar  
 (4) Morphologically similar but physiologically dissimilar
56. When three *Spirogyra* filaments are participating in conjugation the possibilities are that  
 (1) The middle one may be a female and the outer ones are male  
 (2) The middle one may be a male and the two outer ones are female  
 (3) Both of these  
 (4) All of these
57. In neuromotor apparatus of *Chlamydomonas*, paradesmose is  
 (1) Fibre connecting centrosome to nucleolus  
 (2) Fibre connecting basal body to centrosome  
 (3) Protein fibre connecting two blepharoplasts  
 (4) Fibre connecting eye spot to nucleolus
58. Carageenin is a gel like product used in confectionary, jams and jellies. It is obtained from  
 (1) Sea lettuce (2) Irish moss  
 (3) Peat moss (4) Green moss
59. Secondary protonema are developed from  
 (1) Spores of mosses  
 (2) Protonema of mosses  
 (3) Any part of the moss plant  
 (4) Gemae of *Marchantia*

60. Calyptra in moss is
- (1) A protective outgrowth from the female branch
  - (2) The venter and part of the neck of the archegonium
  - (3) The remnant of the antheridium
  - (4) None of these
61. The unique feature of bryophytes compared to other plant groups is that
- (1) They produce spores
  - (2) They lack vascular tissues
  - (3) They lack roots
  - (4) Their sporophyte is dependent on the gametophyte
62. Which of the following is not a leptosporangiate pteridophytes ?
- (1) *Salvinia*                      (2) *Azolla*
  - (3) *Marsilea*                      (4) *Lycopodium*
63. Transfusion tissue replace the veins in
- (1) *Selaginella*                      (2) *Cycas*
  - (3) *Pinus*                              (4) Both (2) and (3)
64. Which one of the following pair is correct ?
- (1) *Batrachospermum* – Kelps
  - (2) *Spirogyra* – Amoeboid gametes
  - (3) *Gracilaria* – Red tide
  - (4) *Chlamydomonas* – Heterokont
65. Chloroplast exhibits a wide range of forms in different algae. Which of the following is correct ?
- (1) Girdle shaped – *Chlamydomonas*
  - (2) Cup shaped – *Ulothrix*
  - (3) H-shaped – *Spirogyra*
  - (4) Reticulate – *Oedogonium*
66. Pyrenoids are characteristically found in algae. It consists of
- (1) Core of protein surrounded by fatty sheath
  - (2) Proteinaceous core surrounded by starch sheath
  - (3) Core of nucleic acid surrounded by protein sheath
  - (4) Core of starch surrounded by sheath of protein
67. The Tracheophyta includes
- (1) Thallophyta
  - (2) Thallophyta and bryophyta
  - (3) Bryophyta, pteridophyta and spermatophyta
  - (4) Pteridophyta and spermatophyta
68. The prothallus of fern bears
- (1) Antheridia on the upper surface and archegonia on the lower surface
  - (2) Antheridia on the lower surface and archegonia on the upper surface
  - (3) Both of them on the upper surface
  - (4) Both of them on the lower surface
69. The wing of the seed of *Pinus* is
- (1) An outgrowth of the integument
  - (2) An outgrowth of the ovuliferous scale
  - (3) An outgrowth of the fruit
  - (4) Both (1) and (2)
70. Fertilization takes place in *Pinus*
- (1) Soon after pollination
  - (2) A few hours after pollination
  - (3) One year after pollination
  - (4) Two years after pollination
71. *Ulothrix* occurs in
- (1) Running fresh water
  - (2) Running salt water
  - (3) Stagnant fresh water
  - (4) Stagnant salt water
72. Palmella stage is found in
- (1) *Ulothrix*                      (2) *Chlamydomonas*
  - (3) Both of these                      (4) None of these
73. Young sporophyte of fern draws its nourishment from prothallus through
- (1) Haustorium                      (2) Root
  - (3) Foot                              (4) Rhizoids
74. A fern differs from a moss in having
- (1) Swimming sperms
  - (2) Vascular tissues
  - (3) Alternation of generations
  - (4) Independent gametophyte
75. Which of the following venation is the characteristic of fern ?
- (1) Parallel                              (2) Reticulate
  - (3) Dichotomous                      (4) Open furcate
76. If the number of chromosome in the foot of fern embryo is 8, what would be the number in its spore
- (1) 4                                      (2) 8
  - (3) 16                                      (4) 28
77. In *Funaria* stomata are found on
- (1) Leaf                                      (2) Stem
  - (3) Theca                                      (4) Apophysis



78. *Funaria hygrometrica* gametophyte is  
 (1) Monoecious  
 (2) Monoecious or dioecious  
 (3) Dioecious  
 (4) Heterothallic
79. In the archegonium of *Pinus*  
 (1) There are no neck canal cells  
 (2) There are three neck canal cells  
 (3) There is one neck canal cell with one nucleus  
 (4) There is one neck canal cell with two nuclei
80. Fusing gametes in *Ulothrix* are generally  
 (1) Morphologically similar but physiologically different  
 (2) Morphologically different  
 (3) Physiologically similar  
 (4) Morphologically as well as physiologically similar
81. Non-flagellated thick walled spores of *Ulothrix* are called as  
 (1) Aplanospores (2) Hypnospores  
 (3) Palmella stage (4) Akinetes
82. In Thallophyta meiosis occurs  
 (1) During conjugations  
 (2) During vegetative reproduction  
 (3) During formation of gametes  
 (4) As the zygospore germinates
83. In scalariform conjugation two fusing gametes of *Spirogyra* are  
 (1) Morphologically dissimilar  
 (2) Morphologically similar but physiologically dissimilar  
 (3) Morphologically and physiologically dissimilar  
 (4) Morphologically similar
84. Fairly good yield of rice can be had over a number of years without adding any nitrogenous manure because  
 (1) They require very minute quantities of nitrogen  
 (2) There are nitrogen fixing blue-green algae in the rice fields  
 (3) Rice plants do not require any nitrogen  
 (4) Their roots have nitrogen fixing bacteria associated with them
85. In several thallophytes sometimes the gametes behave directly as zygospores without fusion. Such reproductive bodies are called  
 (1) Zygospores (2) Aplanospores  
 (3) Hypnospores (4) Azygospores
86. Male gametes of *Pinus* are  
 (1) Non-ciliated (2) Uniciliated  
 (3) Biciliated (4) Multiciliated
87. Gametes with cell walls are known as  
 (1) Gymnogametes (2) Calyptogametes  
 (3) Coenogametes (4) Mitogametes
88. The number of chloroplasts in a cell of *Spirogyra* is  
 (1) One (2) Two  
 (3) One to four (4) One to fourteen
89. *Spirogyra* is more advanced than *Chlamydomonas* in  
 (1) Lacking flagellate structures  
 (2) Being multicellular  
 (3) Having internal fertilization  
 (4) All of these
90. The paraphyses of male branch of *Funaria* are  
 (1) Many celled with terminal cells globose  
 (2) Many celled with all the cells alike  
 (3) Few celled with all the cell alike  
 (4) Few celled with terminal cells globose.
91. There is a gradual reduction of gametophytes in the plant kingdom. On the other hand there is a gradual elaboration of the sporophyte. Which group of plant shows both the origin as well as the evolution of the sporophyte ?  
 (1) Thallophytes (2) Bryophytes  
 (3) Pteridophytes (4) Gymnosperms
92. What happens to the spore of the fern plant ?  
 (1) It germinates to become another spore forming fern plant  
 (2) It germinates to form prothallus  
 (3) It encysts and is covered by snails  
 (4) It joins with another spore to form a seedling
93. Which of the following are associated with the production of gametes in the prothallus of fern?  
 (1) Antheridia and archegonia  
 (2) Anthers and archegonia  
 (3) Antheridia and oogonia  
 (4) Anthers and ascogonium
94. The antherozoids of *Dryopteris* are  
 (1) Biciliate and coiled  
 (2) Biciliate and sickle shaped  
 (3) Multiciliate and sickle shaped  
 (4) Multiciliate and coiled

95. In *Selaginella* reduction division occurs  
 (1) During the formation of microspores  
 (2) During the formation of both microspores and megaspores  
 (3) During the formation of sperms  
 (4) Immediately after fertilisation
96. The jacket layer of antheridium in fern is composed of  
 (1) 4 cells (2) 3 cells  
 (3) 3 or 4 cells (4) 8 cells
97. The most primitive pteridophyte among the following is  
 (1) *Psilotum* (2) *Dryopteris*  
 (3) *Selaginella* (4) *Lycopodium*
98. One of the main evolutionary features of alternation of generations from algae to flowering plants is  
 (1) Gradual elaboration of gametophyte  
 (2) Gradual elaboration of sporophyte  
 (3) Elimination of sporophyte  
 (4) Gradual elaboration of both gametophyte and sporophyte
99. In *Pinus* seeds there are  
 (1) Two cotyledons (2) Three cotyledons  
 (3) Many cotyledons (4) Fleshy cotyledons
100. The male gametophyte of *Pinus* is found to be  
 (1) 100 celled (2) 6 celled  
 (3) 4 celled (4) 2 celled
101. Which of the following is the best explanation for the excurrent habit of a *Pinus* tree ?  
 (1) The effect of auxin on growth of stem tip  
 (2) Competition between adjacent trees for sunlight  
 (3) Efficiency of water transport  
 (4) Adaptation for wind pollination
102. The common mode of sexual reproduction in *Chlamydomonas* is  
 (1) Isogamous (2) Anisogamous  
 (3) Oogamous (4) Hologamous
103. The plant group that produces spores and embryo but lacks vascular tissues and seeds is  
 (1) Pteridophyta (2) Rhodophyta  
 (3) Bryophyta (4) Phaeophyta
104. In *Riccia* and *Marchantia* the rhizoids are  
 (1) Branched unicellular  
 (2) Branched multicellular  
 (3) Unbranched multicellular  
 (4) Unbranched unicellular
105. Pteridophytes differ from mosses in possessing  
 (1) Independent gametophyte  
 (2) Well developed vascular system  
 (3) Archegonia  
 (4) Flagellate spermatozooids
106. The leaves of living fern when mature are called  
 (1) Sporophyll (2) Megasporophyll  
 (3) Fronds (4) Microsporophyll
107. The hair like structures covering young fern leaves and rhizome are called  
 (1) Scales (2) Elaters  
 (3) Glandular hairs (4) Ramenta
108. In Moss plants the spore on germination  
 (1) Forms a germ tube  
 (2) Forms the protonema  
 (3) Directly forms leafy gametophyte  
 (4) Produces antheridia and archegonia
109. Moss medulla is also called  
 (1) Piliferous layer (2) Hadrome  
 (3) Hypodermis (4) Endodermis
110. Sterile jacket around the sex organs is found in  
 (1) Bryophytes and Pteridophytes  
 (2) Fungi  
 (3) Algae  
 (4) Lichens
111. Which is wrong in respect to bryophytes ?  
 (1) Water is essential for fertilization  
 (2) Ciliated sperms  
 (3) Presence of archegonia  
 (4) Autotrophic independent sporophyte
112. Which one of the following is not common to *Funaria* and *Selaginella* ?  
 (1) Embryo (2) Roots  
 (3) Motile sperms (4) Archegonia
113. Primitive type of stomata are found in *Funaria*  
 (1) In the capsule (2) In operculum  
 (3) On leaves (4) On the axis
114. The only positive evidence of aquatic ancestry of bryophytes is  
 (1) Thread like protonema  
 (2) Ciliated sperms  
 (3) Green colour  
 (4) Some forms are still aquatic

115. A thin walled non motile spore is  
 (1) Macrozoospore (2) Microzoospore  
 (3) Aplanospore (4) Hynospore
116. Mature archegonium of fern attracts antherozoids chemotactically by means of  
 (1) Soluble proteins (2) Sugar  
 (3) Malic acid (4) Citric acid
117. Pteridophytes differ from bryophytes and thallophytes in having  
 (1) Root, stem and leaves  
 (2) Motile antherozoids  
 (3) Archegonia  
 (4) Alternation of generations
118. Two algae which produce agar-agar are  
 (1) *Nostoc* and *Anabaena*  
 (2) *Volvox* and *Vaucheria*  
 (3) *Gracilaria* and *Gelidium*  
 (4) *Harveyella* and *Porphyra*
119. A colourless parasitic red alga is  
 (1) *Porphyra*  
 (2) *Harveyella*  
 (3) *Batrachospermum*  
 (4) *Chondrus*
120. In *Funaria*  
 (1) Sporophyte is completely dependent upon gametophyte  
 (2) Sporophyte is partially dependent on gametophyte  
 (3) Both gametophyte and sporophyte are dependent on each other.  
 (4) Gametophyte and sporophyte are independent of each other
121. In chlorophyceae sexual reproduction occurs by  
 (1) Isogamy and anisogamy  
 (2) Isogamy, anisogamy and oogamy  
 (3) Oogamy only  
 (4) Anisogamy and oogamy
122. The most exclusive character of *Selaginella* is  
 (1) Rhizophore  
 (2) Dichotomous branching  
 (3) Ligule  
 (4) Heterospory
123. The neck canal cell of fern archegonium is  
 (1) One celled and uninucleate  
 (2) One celled and binucleate  
 (3) Two celled, each uninucleate  
 (4) Two celled, each binucleate
124. Pteridophytes differ from rest of the tracheophytes in  
 (1) Having seeds but not vessels  
 (2) Having tracheids but not seeds  
 (3) Lacking seeds  
 (4) Lacking phloem as well as tracheids
125. One of the following is a pre-fertilization structure in gymnosperms  
 (1) Seed coat (2) Embryo  
 (3) Cotyledons (4) Endosperm
126. The function of ligule in *Selaginella* is to  
 (1) Bear sporangia  
 (2) Prtect the young stem apex  
 (3) Protect the young leaf  
 (4) Protect the young root
127. Sporangia in ferns are borne on the sporophylls on the  
 (1) Abaxial surface (2) Adaxial surface  
 (3) Upper surface (4) None of these
128. Pteridophytes differ from bryophytes in having  
 (1) Motile sperm  
 (2) Alternation of generation  
 (3) Archegonia  
 (4) Diplo-haplontic life cycle
129. Proembryo of *Pinus* is  
 (1) 4 Celled (2) 8 Celled  
 (3) 12 Celled (4) 16 Celled
130. The needles per dwarf shoot of *Pinus* are  
 (1) 1 (2) 1-3  
 (3) 1-4 (5) 1-5
131. Trumpet hyphae in certain brown algae resemble  
 (1) Tracheids  
 (2) Trachea  
 (3) Sieve tubes  
 (4) Sclerenchymatous fibers
132. The sexual reproduction in *Spirogyra* can be described as  
 (1) Morphological anisogamy and physiological isogamy  
 (2) Morphological as well as physiological anisogamy  
 (3) Morphological isogamy and physiological anisogamy  
 (4) None of these

133. *Vaucheria*, a siphonaceous alga belongs to  
 (1) Chlorophyceae (2) Xanthophyceae  
 (3) Charophyceae (4) Cyanophyceae
134. Simplest sporophyte among bryophytes is of  
 (1) *Marchantia* (2) *Riccia*  
 (3) *Anthoceros* (4) *Funaria*
135. In moss capsule dehiscence is achieved by  
 (1) Disintegration of columella  
 (2) Disintegration of calyptra  
 (3) Breaking down of annulus  
 (4) The hygroscopic nature of peristome teeth.
136. In *Funaria*  
 (1) Male and female reproductive organs are on the same plant and on the same branch  
 (2) Male and female reproductive organs are on different plants  
 (3) Male and female reproductive organs are on the same plant but on different branches  
 (4) None of these
137. *Funaria* is  
 (1) Dioecious and parocious  
 (2) Dioecious and synocious  
 (3) Monoecious and autocious  
 (4) Monoecious and paracious
138. Chloroplasts are present in the spores of  
 (1) Yeast (2) *Dryopteris*  
 (3) *Mucor* (4) *Rhizopus*
139. The central part of the capsule of *Funaria* is sterile and is known as  
 (1) Columella (2) Operculum  
 (3) Apophysis (4) Spore sac
140. Elaters are present in sporogonium of  
 (1) *Selaginella* (2) *Marchantia*  
 (3) *Riccia* (4) *Sphagnum*
141. Seed habit originated in  
 (1) Bryophytes (2) Pteridophytes  
 (3) Gymnosperms (4) Angiosperms
142. Pteridophytes are popularly known as  
 (1) Cryptogams  
 (2) Vascular cryptogams  
 (3) Amphibians of the plant kingdom  
 (4) Phanerogams
143. In Pteridophytes reduction division occurs when  
 (1) Prothallus is formed  
 (2) Sex organs are formed  
 (3) Spores are formed  
 (4) Gametes are formed
144. In fern circinate vernation is  
 (1) Arrangement of leaf gaps in the stems  
 (2) Coiling of young leaves  
 (3) Presence of adventitious roots  
 (4) Attachment of sori on leaf surface
145. In which of the following groups would you place a plant which produces spores, has vascular tissue and seeds but lack flowers ?  
 (1) Gymnosperms (2) Pteridophytes  
 (3) Algae (4) Bryophytes
146. Heterosporous pteridophyte among the following is  
 (1) *Dryopteris* (2) *Selaginella*  
 (3) *Lycopodium* (4) All of these
147. Pteridophytes may be differentiated from bryophytes in having  
 (1) Well developed independent gametophyte  
 (2) Independent and well developed sporophyte  
 (3) Underdeveloped dependent sporophyte  
 (4) None of these
148. In Pteridophytes the spores are  
 (1) Polyploid (2) Triploid  
 (3) Diploid (4) Haploid
149. In *Pteris* the petiole has a groove and its stele is  
 (1) Horse shoe shaped  
 (2) W shaped  
 (3) M shaped  
 (4) Without any definite shape
150. Fern plants normally bear  
 (1) Tuberos roots (2) Fasciculated roots  
 (3) Adventitious roots (4) Tap roots
151. In Gymnosperms pollination is exclusively by  
 (1) Water (2) Insects  
 (3) Animals (4) Wind
152. Neck in *Dryopteris* is  
 (1) Short and straight (2) Short and curved  
 (3) Long and straight (4) Long and curved
153. In *Selaginella*, the antherozoids are  
 (1) Biflagellate sickle-shaped  
 (2) Multiflagellate sickle-shaped  
 (3) Multiflagellate spirally coiled  
 (4) Biflagellate spirally coiled
154. In *Pinus*, the pollen grain has 6 chromosomes. What is the number of chromosomes in its endosperm ?  
 (1) 12 (2) 18  
 (3) 6 (4) 24

155. In eusporangiate ferns, the sporangia develop from
- (1) A group of initials
  - (2) Single initial
  - (3) 1-4 spores
  - (4) Few to large number of spores
156. Resin and turpentine are obtained from
- (1) *Cycas*                      (2) *Pinus*
  - (3) *Cedrus*                    (4) *Abies*
157. Spores of *Riccia* are liberated by
- (1) Peristome teeth and seta
  - (2) Shrinkage of annulus and explosion
  - (3) Death and decay of thallus
  - (4) Xerochasy of elaters
158. *Funaria* is fixed to substratum by
- (1) Unicellular simple rhizoids
  - (2) Multicellular, branched, oblique septate rhizoids
  - (3) Branched coenocytic rhizoids
  - (4) Tuberculate rhizoids
159. The number of generations seen in a mature seed of *Pinus* is/are
- (1) 1                                      (2) 2
  - (3) 3                                      (4) 4
160. One of the following has isogamy, anisogamy as well as oogamy
- (1) *Chlamydomonas*    (2) *Ulothrix*
  - (3) *Spirogyra*            (4) *Oedogonium*
161. Thick walled perennating cells of algae are called
- (1) Aplanospores            (2) Hypnospores
  - (3) Akinetes                    (4) Endospores
162. Azygospores are
- (1) Haploid                      (2) Diploid
  - (3) Triploid                      (4) Tetraploid
163. The trabeculae in *Funaria* capsule are
- (1) Unicellular and colourless
  - (2) Multicellular, branched or unbranched and colourless
  - (3) Multicellulars branched or unbranched and green
  - (4) Multicellular, branched and colourless .
164. Gametophyte is most developed in
- (1) Bryophytes                  (2) Pteridophytes
  - (3) Gymnosperms            (4) Angiosperms
165. Archegoniatae include
- (1) Bryophytes, Pteridophytes and Gymnosperms
  - (2) Pteridophytes, Gymnosperms and Angiosperms
  - (3) Algae, Fungi and Bryophytes
  - (4) Algae, Fungi and Bacteria.
166. A well developed archegonium with neck consisting of 4-6 rows of neck cells characterises
- (1) Pteridophytes and Gymnosperms
  - (2) Bryophytes and Pteridophytes
  - (3) Gymnosperms only
  - (4) Gymnosperms and flowering plants.
167. Red algae differ from the green algae and brown algae in having
- (1) Haemoglobin within their cells
  - (2) No chlorophyll 'a'
  - (3) No differentiated cells
  - (4) No flagellated stages in their life cycle.
168. Prothallial cells present in the male gametophyte of *Pinus* are
- (1) One                                      (2) Two
  - (3) Three                                    (4) Four
169. Retort cells occur in
- (1) *Funaria*                      (2) *Pogonatum*
  - (3) *Porella*                      (4) *Sphagnum*
170. Classification of algae into major groups is mainly based on the comparative analysis of the
- (1) Chemical composition of cell wall
  - (2) Type of pigment present
  - (3) Nature of the organic storage products
  - (4) None of these.
171. Of the following, the false character with respect to *Pinus* is
- (1) Resin canals in needles
  - (2) Tracheids with bordered pits
  - (3) Bracts and ovuliferous scales
  - (4) Embryo with two cotyledons.
172. Annulus of moss capsule separates
- (1) Operculum from columella
  - (2) Theca from columella
  - (3) Theca from operculum
  - (4) Columella from apophysis.
173. Which character has enabled the mosses to assume upright habit ?
- (1) Presence of rhizoids
  - (2) presence of branches
  - (3) Presence of central conducting strand
  - (4) Presence of leaves
174. The minimum number of meiotic divisions required to form 50 grains of wheat is
- (1) 13                                      (2) 25
  - (3) 50                                        (4) 63

175. An archegonium of *Riccia* has  
 (1) 4 neck canal cells, 1 venter canal cell and one oosphere  
 (2) 4 neck canal cells, 2 venter canal cells and one oosphere  
 (3) 4 neck canal cells, one venter canal cell and two oospheres  
 (4) 6 neck canal cells, 2 venter canal cells and one oosphere
176. The 'walking' fern is so named because  
 (1) It knows how to walk by itself  
 (2) Its spores are able to walk  
 (3) It propagates vegetatively by its leaf tips  
 (4) It is dispersed through the agency of walking animals.
177. Biflagellated microzoospores occur in  
 (1) *Chlamydomonas braunii*  
 (2) *Chlamydomonas coccifera*  
 (3) *Ulothrix zonata*  
 (4) None of these
178. The sclerenchyma of the hypodermis in *Pinus* needle helps in  
 (1) Photosynthesis  
 (2) Increasing the absorptive surface of the cell  
 (3) Mechanical support  
 (4) Checking transpiration.
179. In *Chlamydomonas* the term hologamy is applied to a mode of sexual reproduction in which  
 (1) Gametes are motile  
 (2) Gametes are holozoic  
 (3) The young unicellular thalli directly behave as gametes  
 (4) The gametes are differentiated into male and female
180. The common name of *Spirogyra* is pond scum or pond silk or water silk, because  
 (1) The filament is made up of silk  
 (2) The filament secretes silk  
 (3) The cellulose layer is mucilaginous  
 (4) The pectose layer is mucilaginous.
181. The evolutionary advanced features of *Selaginella* are  
 (1) Heterospory (2) Endosporic gametophyte  
 (3) Origin of 'seed' (4) All of these.
182. *Funaria hygrometrica* is  
 (1) Monoecious (2) Dioecious  
 (3) Either of these (4) None of these
183. Which group of plants were the first to become seeded plants ?  
 (1) Pteridophytes (2) Gymnosperms  
 (3) Angiosperms (4) None of these.
184. Which of the following is called 'amphibians' of the plant kingdom ?  
 (1) Thallophyta (2) Bryophyta  
 (3) Tracheophyta (4) Pteridophyta.
185. In *Funaria*, the theca is part of  
 (1) Archegonia (2) Stem  
 (3) Capsule (4) Leaves
186. *Spirogyra* occurs in  
 (1) Running salt water  
 (2) Running fresh water  
 (3) Stagnant salt water  
 (4) Stagnant fresh water.
187. Chilgoza seeds belong to  
 (1) *P. roxburghii* (2) *P. gerardiana*  
 (3) *P. monophylla* (4) *P. sylvestris*
188. In *Ulothrix*, sexual reproduction is by  
 (1) Isogamy (2) Anisogamy  
 (3) Oogamy (4) Conjugation.
189. Algae differ from bryophytes in having  
 (1) Chlorophyll a and b  
 (2) Naked sex organs  
 (3) Jacketed sex organs  
 (4) Aerobic respiration
190. Who among the following was a famous palaeobotanist ?  
 (1) Birbal Sahni (2) R.N. Singh  
 (3) K.C. Mehta (4) Hargovind Khorana
191. Which amongst the following are not seed producers  
 (1) Fern and *Funaria*  
 (2) *Funaria* and *Ficus*  
 (3) *Pinus* and *Cycas*  
 (4) *Ficus* and *Chlamydomonas*
192. Chlorenchyma is known to develop from in  
 (1) Cytoplasm of *Chlorella*  
 (2) Spore of the capsule of a moss  
 (3) Pollen tube of *Pinus*  
 (4) *Mycellium* of a green mould like *Aspergillus*

# Assertion-Reason Type Questions (For AIIMS)

Each of the questions given below consists of two statements, an assertion (A) and reason (R). Select the number corresponding to the appropriate alternative as follows

- (1) If both A and R are true and R is the correct explanation of A, then mark 1
  - (2) If both A and R are true but R is not the correct explanation of A, then mark 2
  - (3) If A is true but R is false, then mark 3
  - (4) If both A and R are false, then mark 4
1. A. Mycorrhizal associations have been found to be of great value in cultivation of crops.  
R. The fungal mycelia absorb and store nitrogen, phosphorus, potassium and calcium, and convert complex organic molecules into simpler easily available forms.
  2. A. Deuteromycetes are the most advanced fungi.  
R. They lack sexual reproduction.
  3. A. Phycomycetes have coenocytic mycelium.  
R. The mycelium of phycomycetes are multinucleate and septate.
  4. A. Lichens are known as pioneers of vegetation.  
R. Lichens exhibit symbiosis.
  5. A. Yeast forms a pseudomycelium.  
R. Yeast are multicellular.
  6. A. Foliose lichens show similarity with dicot leaf.  
R. They contain rhizines.
  7. A. Bordeaux mixture is a fungicide.  
R. Bordeaux mixture contains copper lime dust.
  8. A. Endomycorrhiza of forest trees contribute to the efficient nutrient cycling in tropical ecosystems.  
R. The fungi that form endomycorrhizal association with plants store nutrient ions and make them available to the host plants.
  9. A. Lichens are good bioindicators.  
R. Lichens are sensitive to high level of CO<sub>2</sub>.
  10. A. The fungi are widespread in distribution and they even live on or inside other plants and animals.  
R. Fungi are able to grow anywhere on land, water or on other organisms because they have a variety of pigments, including chlorophyll, carotenoids, fucoxanthin and phycoerythrin.
  11. A. Lomasomes occur within the cell wall and the plasma membrane.  
R. It plays important roles in chitinous wall formation.
  12. A. Lichens are formed by the symbiotic association between algae and fungi.  
R. In this association, fungus has parasitic relationship with algae.
  13. A. In higher fungi sexual reproduction is mostly occur through somatogamy.  
R. Fungus shows reduction in sexuality from lower to higher forms.
  14. A. Lichens are indicators of atmospheric purity.  
R. They are sensitive to common pollutants such as SO<sub>2</sub>.
  15. A. *Rhizopus* does not form zygospores.  
R. *Rhizopus* is always heterothallic.
  16. A. Phycomycetes are generally called algal fungi.  
R. It is believed that they have evolved from algae.
  17. A. Phytoalexins are phenolic compounds.  
R. They are produced by higher plants against fungal infections.
  18. A. *Amanita phalloids* produces poisonous toxins like  $\alpha$ -aminitin and phalloidin.  
R. *Amanita* acts by stopping the synthesis of mRNA.
  19. A. Most of the tropical plants form mycorrhizae as natural components of the root system.  
R. Mycorrhiza helps in mineral absorption.
  20. A. In lichens, isidia and soredia are common asexual reproductive bodies.  
R. Sexual reproduction is absent in lichens.
  21. A. Lichens are ecologically important.  
R. They are the pioneer of xerosere.
  22. A. In certain fungi, like black bread mold and also some algae, meiosis occurs directly after zygote formation.  
R. Algae and fungi show haplontic life cycle.
  23. A. Rusts and smuts are club fungi that parasitize cereal crops.  
R. Smuts are seed-borne and air borne diseases.
  24. A. Ascospores are always eight in number and produced endogenously.  
R. They are formed inside ascus.
  25. A. Fungi is involved in nutrient cycling.  
R. The parasitic fungi cause a number of diseases in plants.
  26. A. Mushrooms are called fairy rings.  
R. Mushroom consists of two parts lower pileus and upper stipe.
  27. A. *Candida* is a false yeast.  
R. It lacks ascus formation.
  28. A. Algae are the most primitive eukaryotic plants.  
R. Algae are largely aquatic.
  29. A. *Spirogyra* shows physiological oogamy.  
R. Gametes of *Spirogyra* are morphologically similar.
  30. A. *Ulothrix* produces zoospores and gametes which resemble a cell of *Chlamydomonas*.  
R. *Ulothrix* has arisen from *Chlamydomonas*.

- |   |   |
|---|---|
| <p>31. <b>A.</b> Pteridophytes have succeeded in colonising dry earth.<br/> <b>R.</b> Pteridophytes are vascular plants.</p> <p>32. <b>A.</b> Bryophytes grow in moist places.<br/> <b>R.</b> Bryophytes bear unicellular as well as multicellular rhizoids.</p> <p>33. <b>A.</b> Gymnosperms are always mesophytic in nature.<br/> <b>R.</b> Gymnosperms always grow in cool habitats of the hills.</p> <p>34. <b>A.</b> <i>Pinus</i> is a very tall tree.<br/> <b>R.</b> <i>Pinus</i> has basipetal pattern of branching.</p> <p>35. <b>A.</b> <i>Riccia</i> is one of the most primitive bryophytes.<br/> <b>R.</b> <i>Riccia</i> sporogonium has a small foot, small seta and a small capsule.</p> <p>36. <b>A.</b> <i>Funaria</i> has the longest sporogonium in bryophytes.<br/> <b>R.</b> The sporogonium has seta and capsule but the foot is absent.</p> <p>37. <b>A.</b> Pteridophytes exhibit origin and evolution of steles.<br/> <b>R.</b> Pteridophytes also exhibit origin of seed habit.</p> <p>38. <b>A.</b> The seeds of <i>Ginkgo biloba</i> shows dormancy.<br/> <b>R.</b> The seeds of <i>Ginkgo biloba</i> has immature embryo.</p> <p>39. <b>A.</b> Plectostele is a type of protostele.<br/> <b>R.</b> It has no pith in the centre.</p> <p>40. <b>A.</b> Gymnosperms are the most advanced group of plants.<br/> <b>R.</b> Gymnosperms are without seeds.</p> <p>41. <b>A.</b> Endosperm of gymnosperms is haploid.<br/> <b>R.</b> In gymnosperm, endosperm is the nutritive tissue.</p> | <p>42. <b>A.</b> Pteridophytes are seedless plants.<br/> <b>R.</b> Pteridophytes are characterised by the origin and evolution of stele.</p> <p>43. <b>A.</b> <i>Azolla pinnata</i> is used as a biofertilizer in rice cultivation.<br/> <b>R.</b> <i>Azolla</i> performs dinitrogen fixation with the help of symbiotic bacterium <i>Bacillus</i> sp.</p> <p>44. <b>A.</b> The mosses, like liverworts, do not exhibit alternation of generation.<br/> <b>R.</b> The adult gametophyte is inconspicuous.</p> <p>45. <b>A.</b> <i>Dryopteris</i> is unique pteridophyte.<br/> <b>R.</b> It has no neck canal cells in its archegonium.</p> <p>46. <b>A.</b> The main plant body of bryophytes is gametophyte.<br/> <b>R.</b> Alternation of generation is absent in bryophytes.</p> <p>47. <b>A.</b> Unlike in angiosperms, the endosperm in <i>Pinus</i> is haploid.<br/> <b>R.</b> The act of double fertilization and triple fusion is lacking in <i>Pinus</i>.</p> <p>48. <b>A.</b> <i>Pinus</i> tree has acicular leaves.<br/> <b>R.</b> Its leaves are xerophytic in nature.</p> <p>49. <b>A.</b> Some of the Sea kelps are used as fertilizers.<br/> <b>R.</b> They are important source of mineral.</p> <p>50. <b>A.</b> Angiosperms and gymnosperms both are flowering plants.<br/> <b>R.</b> They both form covered seeds.</p> <p>51. <b>A.</b> Endosperm is triploid in angiosperms.<br/> <b>R.</b> Endosperm is haploid in gymnosperms.</p> <p>52. <b>A.</b> Unlike thallophytes, bryophytes show formation of embryo.<br/> <b>R.</b> The embryo gives rise to gametophyte of bryophytes.</p> <p>53. <b>A.</b> Paraphyses are also called perigonial leaves.<br/> <b>R.</b> They are fertile and with the antheridia.</p> |
|---|---|



# ANSWERS TO ASSIGNMENT

## KINGDOM FUNGI

1	(1)	2	(2)	3	(2)	4	(3)	5	(3)
6	(3)	7	(4)	8	(1)	9	(4)	10	(2)
11	(3)	12	(4)	13	(1)	14	(2)	15	(1)
16	(1)	17	(4)	18	(4)	19	(1)	20	(1)
21	(3)	22	(4)	23	(1)	24	(2)	25	(3)
26	(1)	27	(4)	28	(3)	29	(3)	30	(3)
31	(1)	32	(3)	33	(2)	34	(2)	35	(3)
36	(4)	37	(4)	38	(3)	39	(1)	40	(3)
41	(1)	42	(3)	43	(2)	44	(1)	45	(1)
46	(2)	47	(1)	48	(1)	49	(4)	50	(2)
51	(2)	52	(4)	53	(2)	54	(3)	55	(1)
56	(2)	57	(2)	58	(3)	59	(2)	60	(2)
61	(2)	62	(2)	63	(2)	64	(4)	65	(1)
66	(3)	67	(4)	68	(4)	69	(3)	70	(4)
71	(4)	72	(1)	73	(3)	74	(3)	75	(3)
76	(4)	77	(1)	78	(2)	79	(2)	80	(1)
81	(3)	82	(2)						

## KINGDOM PLANTAE

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

101	(1)	102	(1)	103	(3)	104	(4)	105	(2)
106	(3)	107	(4)	108	(2)	109	(2)	110	(1)
111	(4)	112	(2)	113	(1)	114	(2)	115	(3)
116	(3)	117	(1)	118	(3)	119	(2)	120	(2)
121	(2)	122	(3)	123	(2)	124	(3)	125	(4)
126	(2)	127	(1)	128	(4)	129	(4)	130	(4)
131	(3)	132	(3)	133	(2)	134	(2)	135	(3)
136	(3)	137	(3)	138	(2)	139	(1)	140	(2)
141	(2)	142	(2)	143	(3)	144	(2)	145	(1)
146	(2)	147	(2)	148	(4)	149	(1)	150	(3)
151	(4)	152	(2)	153	(1)	154	(3)	155	(1)
156	(2)	157	(3)	158	(2)	159	(3)	160	(1)
161	(3)	162	(1)	163	(3)	164	(1)	165	(1)
166	(2)	167	(4)	168	(2)	169	(4)	170	(2)
171	(4)	172	(3)	173	(3)	174	(4)	175	(1)
176	(3)	177	(3)	178	(4)	179	(3)	180	(4)
181	(1)	182	(1)	183	(2)	184	(2)	185	(3)
186	(4)	187	(2)	188	(1)	189	(2)	190	(1)
191	(1)	192	(2)						

### ASSERTION-REASON TYPE QUESTIONS (FOR AIIMS)

1	(1)	2	(1)	3	(3)	4	(2)	5	(3)
6	(2)	7	(2)	8	(1)	9	(3)	10	(3)
11	(1)	12	(3)	13	(1)	14	(1)	15	(4)
16	(1)	17	(2)	18	(1)	19	(1)	20	(3)
21	(1)	22	(1)	23	(2)	24	(1)	25	(2)
26	(2)	27	(4)	28	(1)	29	(1)	30	(1)
31	(1)	32	(2)	33	(4)	34	(3)	35	(3)
36	(3)	37	(2)	38	(1)	39	(1)	40	(4)
41	(2)	42	(2)	43	(3)	44	(4)	45	(4)
46	(3)	47	(1)	48	(1)	49	(1)	50	(4)
51.	(2)	52.	(3)	53.	(4)				

**CBSE - PMT**

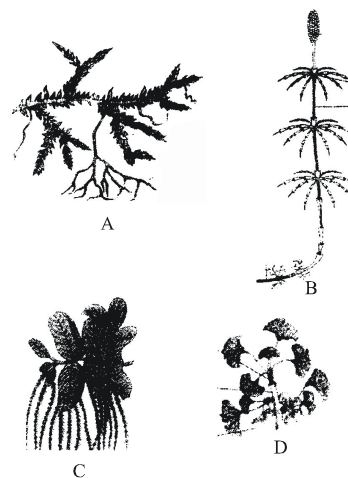
1. Mannitol is the stored food in  
(1) *Gracillaria*           (2) *Chara*  
(3) *Porphyra*           (4) *Fucus*
2. Which one of the following is a vascular cryptogam?  
  
(1) *Cedrus*           (2) *Equisetum*  
(3) *Ginkgo*           (4) *Marchantia*
3. Which one of the following is considered important in the development of seed habit ? ]  
(1) Free-living gametophyte  
(2) Dependent sporophyte  
(3) Heterospory  
(4) Haplontic life cycle
4. Which one of the following plants is monoecious ?  
  
(1) Papaya           (2) *Marchantia*  
(3) *Pinus*           (4) *Cycas*
5. Which one is the wrong pairing for the disease and its causal organism ?  
(1) Root-knot of vegetables - *Meloidogyne sp*  
(2) Late blight of potato - *Alternaria solani*  
(3) Black rust of wheat - *Puccinia graminis*  
(4) Loose smut of wheat - *Ustilago nuda*
6. Which one of the following is heterosporous ?  
  
(1) *Dryopteris*           (2) *Salvinia*  
(3) *Adiantum*           (4) *Equisetum*
7. Which one of the following is linked to the discovery of Bordeaux mixture as a popular fungicide ? [  
(1) Bacterial leaf blight of rice  
(2) Downy mildew of grapes  
(3) Loose smut of what  
(4) Black rust of what
8. Cellulose is the major component of cell walls of  
  
(1) *Pythium*           (2) *Xanthomonas*  
(3) *Pseudomonas*   (4) *Saccharomyces*
9. In which one of the following male and female gametophytes *do not* have free living independent existence ?  
(1) *Pteris*           (2) *Funaria*  
(3) *Polytrichum*   (4) *Cedrus*
10. Which one of the following proved effective for biological control of nematodal diseases in plants ?  
  
(1) *Pisolithus tinctorious*  
(2) *Pseudomonas cepacia*  
(3) *Gliocladium virens*  
(4) *Paecilomyces lilacinus*
11. Select one of the following pairs of important features distinguishing *Gnetum* from *Cycas* and *Pinus* and showing affinities with angiosperms  
  
(1) Absence of resin duct and leaf venation  
(2) Presence of vessel elements and absence of archegonia  
(3) Perianth and two integuments  
(4) Embryo development and apical meristem
12. Which pair of the following belongs to Basidiomycetes?  
(1) Puffballs and *Claviceps*  
(2) *Peziza* and Stink horns  
(3) *Morchella* and Mushrooms  
(4) Bird's nest fungi and Puffballs
13. In the prothallus of a vascular cryptogam, the antherozoids and eggs mature at different times. As a result :  
(1) There is high degree of sterility  
(2) One can conclude that the plant is apomictic  
(3) Self fertilization is prevented  
(4) There is no change in success rate of fertilization
14. Ergot of rye is caused by a species of :  
  
(1) *Uncinula*           (2) *Ustilago*  
(3) *Claviceps*           (4) *Phytophthora*
15. Which one of the following pairs is *wrongly* matched?  
(1) Yeast           -   Ethanol  
(2) Streptomycetes   -   Antibiotic  
(3) Coliforms       -   Vinegar  
(4) Methanogens   -   Gobar gas
16. Flagellated male gametes are present in all the three of which one of the following sets ?  
(1) *Zygenema*, *Saprolegnia* and *Hydrilla*  
(2) *Fucus*, *Marsilea* and *Calotropis*  
(3) *Riccia*, *Dryopteris* and *Cycas*  
(4) *Anthoceros*, *Funaria* and *Spirogyra*
17. Spore dissemination in some liverworts is aided by  
  
(1) Indusium           (2) Calyptra  
(3) Peristome teeth   (4) Elaters

18. In gymnosperms, the pollen chamber represents
- (1) A cavity in the ovule in which pollen grains are stored after pollination
  - (2) An opening in the megagametophyte through which the pollen tube approaches the egg
  - (3) The microsporangium in which pollen grains develop
  - (4) A cell in the pollen grain in which the sperms are formed
19. Conifers differ from grasses in the
- (1) absence of pollen tubes
  - (2) formation of endosperm before fertilization
  - (3) production of seeds from ovules
  - (4) lack of xylem tracheids
20. Moss peat is used as a packing material for sending flowers and live plants to distant places because
- (1) It reduces transpiration
  - (2) It serves as a disinfectant
  - (3) It is easily available
  - (4) It is hygroscopic
21. In a moss the sporophyte
- (1) Arises from a spore produced from the gametophyte
  - (2) Manufactures food for itself, as well as for the gametophyte
  - (3) Is partially parasitic on the gametophyte
  - (4) Produces gametes that give rise to the gametophyte
22. Which of the following environmental conditions are essential for optimum growth of *Mucor* on a piece of bread ?
- A. Temperature of about 25°C
  - B. Temperature of about 5°C
  - C. Relative humidity of about 5%
  - D. Relative humidity of about 95%
  - E. A shady place
  - F. A brightly illuminated place
- Choose the answer from the following options :
- (1) B, D and E only    (2) B, C and F only
  - (3) A, C and E only    (4) A, D and E only
23. Ectophloic siphonostele is found in
- (1) *Osmunda* and *Equisetum*
  - (2) *Adiantum* and *Cucurbitaceae*
  - (3) *Marsilea* and *Botrychium*
  - (4) *Dicksonia* and *Maidenhair fern*
24. In oogamy, fertilization involves
- (1) A large motile female gamete and a small non-motile male gamete
  - (2) A small non-motile female gamete and a large motile male gamete
  - (3) A large non-motile female gamete and a small motile male gamete
  - (4) A large non-motile female gamete and a small non-motile male gamete
25. Which one of the following is a living fossil ?
- (1) *Spirogyra*                      (2) *Cycas*
  - (3) Moss                              (4) *Saccharomyces*
26. Diversification in plant life appeared [
- (1) By seed dispersal
  - (2) Due to long periods of evolutionary changes
  - (3) Due to abrupt mutations
  - (4) Suddenly on earth
27. Lichens are well known combination of an alga and a fungus where fungus has
- (1) A symbiotic relationship with the alga
  - (2) A saprophytic relationship with the alga
  - (3) An epiphytic relationship with the alga
  - (4) A parasitic relationship with the alga
28. Male and female gametophytes are independent and free-living in :
- (1) *Sphagnum*                      (2) Mustard
  - (3) Castor                            (4) *Pinus*
29. Algae have cell wall made up of :
- (1) Cellulose, hemicellulose and pectins
  - (2) Cellulose, galactans and mannans
  - (3) Hemicellulose, pectins and proteins
  - (4) Pectins, cellulose and proteins
30. The chief water conducting elements of xylem in gymnosperms are
- (1) Tracheids                      (2) Vessels
  - (3) Fibres                            (4) Transfusion tissue
31. Ringworm in humans is caused by
- (1) Viruses                          (2) Bacteria
  - (3) Fungi                            (4) Nematodes
32. A common biocontrol agent for the control of plant diseases is [
- (1) *Trichoderma*
  - (2) Baculovirus
  - (3) *Bacillus thuringiensis*
  - (4) *Glomus*

33. The common nitrogen-fixer in paddy field is
- (1) *Frankia*                      (2) *Rhizobium*  
 (3) *Azospirillum*              (4) *Oscillatoria*
34. The most common substrate used in distilleries for the production of ethanol is
- (1) Corn meal                      (2) Soya meal  
 (3) Ground gram                  (4) Molasses
35. Ethanol is commercially produced through a particular species of
- (1) *Saccharomyces*              (2) *Clostridium*  
 (3) *Trichoderma*                (4) *Aspergillus*
36. Archegoniophore is present in
- (1) *Marchantia*                  (2) *Chara*  
 (3) *Adiantum*                    (4) *Funaria*
37. The gametophyte is **not** an independent, free-living generation in
- (1) *Polytrichum*                  (2) *Adiantum*  
 (3) *Marchantia*                  (4) *Pinus*
38. Which one of the following is **wrongly** matched ?
- (1) Root pressure - Guttation  
 (2) *Puccinia* - Smut  
 (3) Root - Exarch protoxylem  
 (4) *Cassia* - Imbricate aestivation
39. Yeast is used in the production of
- (1) Cheese and butter  
 (2) Citric acid and lactic acid  
 (3) Lipase and pectinase  
 (4) Bread and beer
40. Maximum nutritional diversity is found in the group
- (1) Plantae                          (2) Fungi  
 (3) Animalia                        (4) Monera
41. Which one of the following is common to multicellular fungi, filamentous algae and protonema of mosses ?
- (1) Multiplication by fragmentation  
 (2) Diplontic life cycle  
 (3) Members of kingdom Plantae  
 (4) Mode of Nutrition
42. Which one of the following is a correct statement ?
- (1) Origin of seed habit can be traced in pteridophytes  
 (2) Pteridophyte gametophyte has a protonemal and leafy stage  
 (3) In gymnosperms female gametophyte is free-living  
 (4) Antheridiophores and archegoniophores are present in pteridophytes
43. The highest number of species in the world is represented by
- (1) Lichens                              (2) Fungi  
 (3) Mosses                              (4) Algae
44. Which one single organisms or the pair of organisms is correctly assigned to its or their named taxonomic group ?
- (1) *Nostoc* and *Anabaena* are examples of protista  
 (2) *Paramecium* and *Plasmodium* belong to the same kingdom as that of *Penicillium*  
 (3) Lichen is a composite organism formed from the symbiotic association of an algae and a protozoan  
 (4) Yeast used in making bread and beer is a fungus
45. *Cycas* and *Adiantum* resemble each other in having
- (1) Vessels                              (2) Seeds  
 (3) Motile Sperms                      (4) Cambium
46. Which one of the following microbes forms symbiotic association with plants and helps them in their nutrition ?
- (1) *Trichoderma*                      (2) *Azotobacter*  
 (3) *Aspergillus*                        (4) *Glomus*

### CBSE - PMT MAINS

1. Examine the figures A, B, C and D. In which one of the four options all the items, A, B, C and D are correct ?

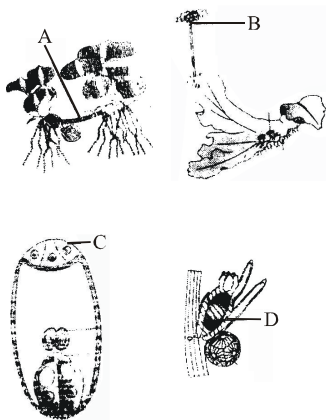


**Options :**

	A	B	C	D
(1)	<i>Chara</i>	<i>Marchantia</i>	<i>Fucus</i>	<i>Pinus</i>
(2)	<i>Equisetum</i>	<i>Ginkgo</i>	<i>Selaginella</i>	<i>Lycopodium</i>
(3)	<i>Selaginella</i>	<i>Equisetum</i>	<i>Salvinia</i>	<i>Ginkgo</i>
(4)	<i>Funaria</i>	<i>Adiantum</i>	<i>Salvinia</i>	<i>Riccia</i>

2. An example of endomycorrhiza is  
 (1) *Nostoc* (2) *Glomus*  
 (3) *Agaricus* (4) *Rhizobium*
3. Which one of the following is monoecious ?  
 (1) *Marchantia* (2) *Cycas*  
 (3) *Pinus* (4) *Date palm*
4. Black (stem) rust of wheat is caused by  
 (1) *Alternaria solani*  
 (2) *Ustilago nuda*  
 (3) *Puccinia graminis*  
 (4) *Xanthomonas oryzae*
5. Examine the figures (A–D) given below and select the right option out of 1–4, in which all the four structures A, B, C and D are identified correctly

**Structures :**

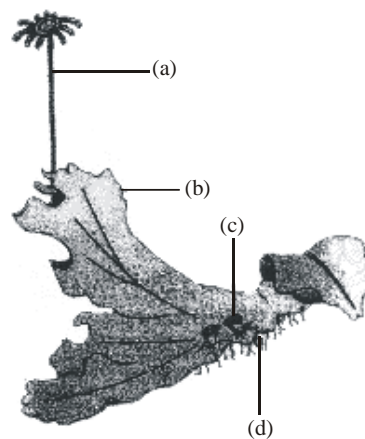


**Options :**

	A	B	C	D
(1)	Rhizome	Sporangiophore	Polar cell	Globule
(2)	Runner	Archegoniophore	Synergid	Antheridium
(3)	Offset	Antheridiophore	Antipodals	Oogonium
(4)	Sucker	Seta	Megaspore mother cell	Gemma cup

6. Vegetative propagation in *Pistia* occurs by  
 (1) Stolen (2) Offset  
 (3) Runner (4) Sucker

7. Examine the figure given below and select the right option giving all the four parts (a, b, c and d) correctly identified.



- (a)  
 (1) Antheridiophore (2) Archegoniophore  
 (3) Archegoniophore (4) Seta
- (b)  
 (1) Male thallus (2) Female thallus  
 (3) Female thallus (4) Sporophyte
- (c)  
 (1) Globule (2) Gemma-cup  
 (3) Bud (4) Protonema
- (d)  
 (1) Roots (2) Rhizoids  
 (3) Foot (4) Rhizoids

8. *Selaginella* and *Salvinia* are considered to represent a significant step toward evolution of seed habit because  
 (1) Embryo develops in female gametophyte which is retained on parent sporophyte  
 (2) Female gametophyte is free and gets dispersed like seeds  
 (3) Female gametophyte lacks archegonia  
 (4) Megaspores possess endosperm and embryo surrounded by seed coat
9. Consider the following four statements whether they are correct or wrong :  
 (A) The sporophyte in liverworts is more elaborate than that in mosses  
 (B) *Salvinia* is heterosporous  
 (C) The life-cycle in all seed-bearing plants is diplontic  
 (D) In *Pinus* male and female cones are borne on different trees

The two wrong statements together are :



- (3) Multilocular monocarpellary flower  
 (4) A cluster of compactly born flowers on an axis
2. Late blight of potato is caused by  
 (1) *Fusarium oxysporum*  
 (2) *Alternaria solani*  
 (3) *Phytophthora infestans*  
 (4) *Colletotrichum falcatum*
3. Which is not characteristic feature of brown algae  
 (1) Chl a and Chl b  
 (2) Chl a and Chl c  
 (3) Chl a, Chl c and Fucoxanthin  
 (4) They grow in intertidal zone
4. For *Mucor*, what is true  
 (1) Ascospores are present in Asci  
 (2) Zygosporangium is a thick wall resting spore  
 (3) Basidiospores are present on basidium  
 (4) Aplanospore is a thick walled resting
5. Penicillin was first used in  
 (1) World War - II (2) World War - I  
 (3) Gulf War (4) Anglo-French War
6. Citric acid is industrially best produced by  
 (1) *Escherichia Coli* (2) *Acetobacter aceti*  
 (3) *Aspergillus niger* (4) *Bacillus subtilis*
7. Actinomycetes which is a symbiotic nitrogen fixing organism in many plants  
 (1) *Streptomyces* (2) *Actinomycetes*  
 (3) *Frankia* (4) *Clostridium*
8. Claviceps is a member of  
 (1) Phycomycetes (2) Ascomycetes  
 (3) Basidiomycetes (4) Deuteromycetes
9. Phycomycetes is a class in kingdom  
 (1) Algae (2) Fungi  
 (3) Cyanobacteria (4) Monera
10. Hydroids and leptoids were first found in  
 (1) Algae (2) Fungi  
 (3) Gymnosperms (4) Mosses
11. Fungi can be distinguished from algae on the basis of  
 (1) Presence of starch as food reserve  
 (2) Presence of cell wall made of cellulose  
 (3) Chitinous cell wall and lacking chloroplast  
 (4) Absence of well defined nucleus

12. Comparable to angiosperms, which of the following algae exhibits diplontic life cycle ?  
 (1) *Spirogyra* (2) *Ectocarpus*  
 (3) *Polysiphonia* (4) *Fucus*
13. Biogas produced by fermentation of manure, sewage, cattle dung, etc. predominantly comprises  
 (1) Methane, nitrogen and hydrogen  
 (2) Methane and carbon dioxide  
 (3) Methane and carbon monoxide  
 (4) Methane and nitric oxide
14. *Trichoderma* species are potentially useful as  
 (1) Biopesticides  
 (2) Biofertilizers  
 (3) Methanogens  
 (4) Vectors for genetic engineering
15. Which of the following microbes is used for commercial production of ethanol Ch\_03Ch\_  
 (1) *Clostridium butylicum*  
 (2) *Streptococcus*  
 (3) *Trichoderma polysporum*  
 (4) *Saccharomyces cerevisiae*
16. When there are two haploid nuclei per cell in some fungi before the formation of diploid, this stage is called  
 (1) Diplotene (2) Diplophase  
 (3) Dikaryophase (4) Dikaryote

## AIIMS

1. Among rust, smut and mushroom all the three :  
 (1) Are pathogens (2) Are saprobes  
 (3) Bear ascocarps (4) Bear basidiocarps

## Biology Olympiad

1. Which is the characteristic feature of *Selaginella* ?  
 (1)  
 Heterospory (2) Ligule  
 (3) Rhizophore (4) Seed
2. Embryophyta includes  
 (1) Thallophyta, Bryophyta and Pteridophyta  
 (2) Thallophyta, Bryophyta and Spermatophyta  
 (3) Pteridophyta, Gymnosperms and Angiosperms  
 (4) Bryophyta, Pteridophyta and Spermatophyta
3. Which of the following is known as walking fern ?  
 (1) *Selaginella* (2) *Lycopodium*  
 (3) *Equisetum* (4) *Adiantum*



# **ANSWERS :**

## **QUESTIONS FROM COMPETITIVE EXAMS**

### **CBSE - PMT**

1. (4)	2. (2)	3. (3)	4. (3)	5. (2)
6. (2)	7. (2)	8. (1)	9. (4)	10. (4)
11. (3)	12. (4)	13. (3)	14. (3)	15. (3)
16. (3)	17. (4)	18. (1)	19. (2)	20. (4)
21. (3)	22. (4)	23. (1)	24. (3)	25. (2)
26. (2)	27. (4)	28. (1)	29. (1)	30. (1)
31. (3)	32. (1)	33. (4)	34. (4)	35. (1)
36. (1)	37. (4)	38. (2)	39. (4)	40. (4)
41. (1)	42. (1)	43. (2)	44. (4)	45. (3)
46. (4)				

### **CBSE - PMT MAINS**

1. (3)	2. (2)	3. (3)	4. (3)	5. (3)
6. (2)	7. (2)	8. (1)	9. (3)	10. (3)
11. (1)	12. (1)	13. (4)	14. (3)	

### **NEET**

1. (1)	2. (2)	3. (4)	4. (2)	5. (3)
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### **DPMT**

1. (4)	2. (3)	3. (1)	4. (2)	5. (1)
6. (3)	7. (3)	8. (2)	9. (2)	10. (4)
11. (3)	12. (4)	13. (2)	14. (1)	15. (4)
16. (3)				

### **AIIMS**

1. (4)
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### **BIOLOGY OLYMPIAD**

1. (2)	2. (4)	3. (4)
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