



## Ravi Maths Tuition Centre

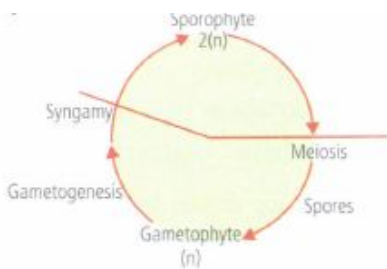
Time : 1 Mins

PLANT KINGDOM 1

Marks : 1797

1. Which among the following was not the criteria for classification of organisms into 5 kingdoms proposed by Whittaker?  
a) Reproduction   b) Phylogenetic relationship   c) Mode of nutrition  
d) Metabolism
2. Coralloid roots of \_\_\_\_\_ have symbiotic association with  $N_2$  - fixing cyanobacteria.  
a) Pinus   b) Cedrus   c) Cycas   d) Ginkgo
3. Natural system of classification differs from artificial system in  
a) employing only one floral trait   b) employing only one vegetative trait  
c) bringing out similarities and dissimilarities  
d) developing evolutionary trends.
4. Gemmae are the specialised structures produced in liverworts. These are  
a) non-green, multicellular, asexual buds which develop in gemma cups  
b) green, multicellular, asexual buds which develop in gemma cups  
c) non-green, multicellular, diploid, sexual spores  
d) green, unicellular, diploid, sexual spores
5. \_\_\_\_\_ and \_\_\_\_\_ are unicellular algae, rich in proteins, that are used as food supplements even by space travellers.  
a) Chlorella, Spirulina   b) Gelidium, Gracilaria   c) Porphyra, Spirogyra  
d) Laminaria, Spirogyra
6. Identify the Incorrect Pair  
a) Haplontic Life Cycle - Spirogyra   b) Haplo - diplontic life Cycle - Bryophytes  
c) Diplontic life Cycle - Pinus   d) Diplo - haplontic life Cycle - Fucus
7. Photosynthetic pigments of Rhodophyceae (red algae) are  
a) chl a and b   b) chl a and c, fucoxanthin   c) chl a and d  
d) chl a, chl d and phycoerythrin.
8. Which one of the following does not differ in E. coli and Chlamydomonas?  
a) Cell wall   b) Cell membrane   c) Ribosomes  
d) Chromosomal Organization

9. Gymnosperms do not include  
 a) herbs b) shrubs c) trees d) both (a) and (b).
10. Incorrect Statement in relation to pterdophytes is:  
 a) Main plant body is a differentiated Sporophyte  
 b) Root, stem and leaves posses well Differentiated vascular tissues  
 c)  
 Sporophytes bear sporangia which are subtented by leaf like appendages called sporphylls  
 d)  
 Spores germinate to give rise to conspicuous multicellular, free living always photosynthetic thalloid gametophyte called prothallus
11. The bacterium (*Clostridium botulinum*) that causes botulism is  
 a) a facultative aerobe b) an obligate aerobe c) a facultative anaerobe  
 d) an obligate anaerobe
12. Select the incorrect statement with respect to given type of life cycle.



- a) Meiosis occurs at the time of spore formation in sporophytic plant.  
 b) Gametophytic plant is produced by germination of spores.  
 c) This life cycle is exhibited by most algae and some seed bearing plants  
 d) This life cycle is exhibited by many bryophytes and pteridophytes.
13. In **Funaria**, the haploid structure is  
 a) protonema b) capsule c) columella d) seta.
14. Green algae are considered as ancestors of higher plants due to their resemblance with higher plants in:-  
 a) Pigments b) Cell wall c) Stored food d) All the above
15. Match column I with column II and select the correct option from the codes given below.

Column I	Column II
A. Spirogyra	(i) Unicellular
B Chlamydomonas	(ii) Filamentous
C. Volvox	(iii) Colonial form
D. Some giant marine forms	(iv) Kelps

- a) A-(ii), B-(i), C-(iii), D-(iv)    b) A-(ii), B-(iii), C-(iv), D-(i)  
 c) A-(iii), B-(ii), C-(iv), D-(i)    d) A-(iii), B-(ii), C-(iv), D-(i)

16. A member of Class Chlorophyceae is  
 a) Chlamydomonas    b) Volvox    c) Ulothrix    d) all of these.
17. Which one of the following living organisms completely lacks a cell wall?  
 a) Cyanobacteria    b) Sea-fan(Gorgonia)    c) Saccharomyces  
 d) Blue-green algae
18. Ulothrix can be described as a \_\_\_\_\_ .  
 a) non-motile colonial alga lacking zoospores  
 b) filamentous alga lacking flagellated reproductive stages  
 c) membranous alga producing zoospores  
 d) filamentous alga with flagellated reproductive stages
19. Artificial systems gave equal weightage to vegetative and sexual characteristics; this is not acceptable because often \_\_\_\_\_ characters are more easily affected by environment.  
 a) vegetative    b) sexual    c) anatomical    d) physiological
20. The most efficient locomotion in protists is through:-  
 a) Pseudopodia    b) Flagella    c) Cilia    d) Tentacles
21. The giant Redwood tree (*Sequoia sempervirens*) is a an  
 a) angiosperm    b) free fern    c) pteridophyte    d) gymnosperm.
22. One of the important consequences of geographical isolation is:-  
 a) Random creation of new species    b) No change in the isolated fauna  
 c) Preventing Speciation    d) Speciation through reproductive isolation
23. Some hyperthermophilic organisms that grow in highly acidic (pH2) habitats belong to the two groups:-  
 a) Liverworts and yeasts    b) Eubacteria and archaea  
 c) Cyanobacteria and diatoms    d) Protists and mosses
24. The bryophytes are usually found in  
 a) damp and shaded areas    b) marine habitat    c) sandy soils  
 d) xeric habitat.
25. Yeast is used in the production of:-  
 a) Bread and beer    b) Cheese and butter    c) Citric acid and lactic acid  
 d) Lipase and pectinase
26. Match the following list of microbes and the importance:

(a) <i>Saccharomyces cerevisiae</i>	(i)	Production of immunosuppressive agents
(b) <i>Monascus purpureus</i>	(ii)	Ripening of swiss cheese

(c) Trichoderma polysporum	(iii) Commercial production of ethanal
(d) Propionibacterium sharmanii	(iv) Production of blood cholesterol lowering agents

a)	b)	c)	d)
a b c d	a b c d	a b c d	a b c d
iii i iv ii	iii iv i ii	iv iii iii i	iv ii i iii

27. Which one of the following statement is true about bacteriophages?

- a) They are generally single standard RNA viruses
- b) They are generally double standard DNA viruses
- c) They are generally single standard DNA viruses
- d) They are generally double standard RNA viruses

28. **Assertion:** Selaginella and Salvinia are homosporus.

**Reason:** Similar kind of spores are produced in Selaginella and Salvinia.

a)

If both assertion and reason are true and reason is the correct explanation of assertion.

b)

If both assertion and reason are true but reason is not the correct explanation of assertion.

c) If assertion is true but reason is false

d) If both assertion and reason are false.

29. No zoospore formation has been observed in the algal members belonging to:-

- a) Chlorophyceae
- b) Brown algae
- c) Phaeophyceae
- d) Cyanophyceae

30. **Assertion:** Mosses are of great ecological importance.

**Reason:** Mosses prevent soil erosion by forming dense mat on the soil.

a)

If both assertion and reason are true and reason is the correct explanation of assertion.

b)

If both assertion and reason are true but reason is not the correct explanation of assertion.

c) If assertion is true but reason is false.

d) If both assertion and reason are false.

31. Match the following

(a) D.J Ivanowsky	(i)	Discovery of viroids
(b) Beijerinck	(ii)	Crystallisation of virus
(c) W.M. Stanley	(iii)	Contagium vivum fluidum

(d) T.O. Diener	(iv) Discovery of TMV
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- a) a(iv), b(iii), c(ii), d(i)    b) a(iv), b(iii), c(i), d(ii)    c) a(iii), b(iv), c(ii), d(i)  
d) a(ii), b(iii), c(iv), d(i)

32. Algae have cell wall made up of:

- a) Cellulose, hemicellulose and pectins    b) Cellulose, galactans and mannans  
c) Hemicellulose, pectins and proteins    d) Pectins, cellulose and proteins

33. Trichodesmium erythrium which imparts red color to sea water of red sea is a:

- a) Cyanobacterium    b) Red Algae    c) Diatom    d) Red Coral

34. How many organisms in the list given below are autotrophs?

Lactobacillus, Nostoc, Chara, Nitrosomonas, Nitrobacter, Streptomyces, Sacharomyces, Trypanosoma, Porphyra, Wolfia

- a) Six    b) Three    c) Four    d) Five

35. Transformation was discovered by:-

- a) Meselson and Stahl    b) Hershey and Chase    c) Griffith  
d) Watson and Crick

36. Fungus prefers to grow in:-

- a) Warm and humid places    b) Cold and humid places  
c) Warm and cold both    d) Warm, cold and humid places

37. Chlorophylla, chlorophyll and phycoerythrin pigments are found in:

- a) Cyanophyceae    b) Bacillariophyceae    c) Rhodophyceae  
d) Chlorophyceae

38. The product of conjugation in Spirogyra or fertilisation of Chlamydomonas is

- \_\_\_\_\_ .  
a) zygospore    b) zoospore    c) oospore    d) carpospore

39. Which of the following is not monoecious plant?

- a) Cycas    b) Pinus    c) Wheat    d) Mustard

40. Rhizoids of hepaticopsida and anthocerotopsida are:-

- a) Multicellular and branched    b) Unicellular and unbranched  
c) Unicellular and branched    d) Multicellular and unbranched

41. Membrane-bound organelles are absent in:

- a) Plasmodium    b) Mustard    c) Castor    d) Chlamydomonas

42. The alga which can be employed as food for human beings is:

- a) Chlorella    b) Spirogyra    c) Polysiphonia    d) Ulothrix

43. In the prothallus of a vascular cryptogam, the antherozoids and eggs mature at different times. As a result:

- a) Self fertilization is prevented
- b) There is no change in success rate of fertilization
- c) There is high degree of sterility
- d) one can conclude that the plant is apomictic

44. Which one of the following is monoecious?

- a) Cycas    b) Pinus    c) Date palm    d) Marchantia

45. Life cycle of Ectocarpus and Fucus respectively are:

- a) Haplontic, Diplontic    b) Diplontic, Haplodiplontic
- c) Haplodiplontic, Diplontic    d) Haplodiplontic, Haplontic

46. Major photosynthetic pigments in green algae are

- a) Chl a and b    b) Chl a, c and fucoxanthin    c) Chl a, d and phycoerythrin
- d) Chl a and c.

47. Match the contents of column-I with those column-II

	Column-I		Column-II
(a)	Fungi	(i)	Chitinase
(b)	Bacteria	(ii)	Cellulase
(c)	Plant cell	(iii)	Lysozymes

- a)      b)      c)      d)

abc	abc	abc	abc
i ii iii	iii ii i	ii iii i	i iii ii

48. In angiosperms, microsporogenesis and megasporogenesis \_\_\_\_\_ .

- a) Form gametes without further divisions    b) Involve meiosis
- c) Occur in ovule    d) Occur in anther

49. Phycobilins are characteristic pigments of:-

- a) Rhodophyta and phaeophyta    b) Rhodophyta and prokaryota
- c) prokaryota and cyanophyta    d) Rhodophyta and cyanophyta

50. An example of colonial alga is:

- a) Chlorella    b) Volvox    c) Ulothrix    d) Spirogyra

51. Which pair of the following belong to Basidiomycetes?

- a) Morchella and Mushrooms    b) Birds' nest fungi and Puffballs
- c) Puffballs and Claviceps    d) Peziza and stink horns

52. Artificial systems of classification were based upon

- a) vegetative characters    b) androecium structure    c) habit and habitat
- d) all of these

53. Which one single organism or the pair of organism is correctly assigned to its or their named taxonomic group?

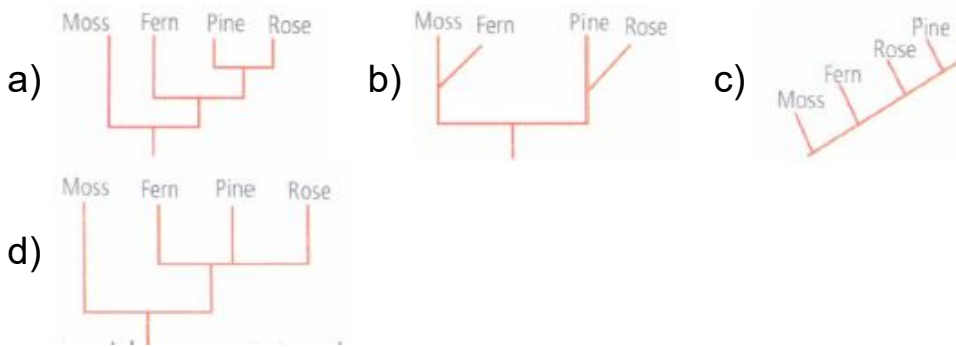
- a) Yeast used in making bread and beer is a fungus
- b) Nostoc and Anabaena are examples of protistes
- c) Paramecium and plasmodium belong to the same kingdom as that of Penicillium
- d) Lichen is a composite organism formed from the symbiotic association of an algae and protozoan

54. Bacterial leaf blight of rice is caused by a species of:-  
 a) Alternaria    b) Erwinia    c) Xanthomonas    d) Pseudomonas
55. Evolutionary history of an organism is known as:  
 a) Paleontology    b) Ontogeny    c) Phylogeny    d) Ancestry
56. Spore dissemination in some liverworts is aided by:  
 a) Peristome teeth    b) Elaters    c) Indusium    d) Calyptra
57. Edible part in mushrooms is:-  
 a) Basidiospores    b) Mycelium    c) Pseudomycelium    d) Complete basidiocarp
58. Pneumatophores occur in \_\_\_\_\_ .  
 a) Carnivorous plants    b) Free-floating hydrophytes    c) Halophytes  
 d) Submerged hydrophytes
59. Haplo-diplontic life cycle is found in  
 a) bryophytes    b) pteridophytes    c) fungi    d) both (a) and (b).
60. In which of the following characters, the angiosperms resemble gymnosperms?  
 a) Presence of ovule    b) Absence of endosperm    c) Presence of vessels  
 d) Mode of fertilisation by zoodiosiphonogamy
61. Evolutionary important character of Selaginella is \_\_\_\_\_ .  
 a) heterosporous nature    b) rhizophore    c) strobili    d) ligule
62. Blue-green algae belong to \_\_\_\_\_ .  
 a) eukaryotes    b) prokaryotes    c) Rhodophyceae    d) Chlorophyceae
63. Match column I with column II and select the correct option from the codes given below.

Column I	Column II
A. Non-vascular cryptogams	(i) Gymnosperms, angiosperms
B. Vascular cryptogams	(ii) Pteridophytes
C. Phanerogams	(iii) Algae, bryophytes

- a) A-(iii), B-(ii), C-(i)    b) A-(ii), B-(i), C-(iii)    c) A-(i), B-(ii), C-(iii)
- d) A-(ii), B-(iii), C-(i)

64. A phylogenetic tree or evolutionary tree is a branching diagram showing the inferred evolutionary relationships among various biological species. Which of the following phylogenies is correctly represented?



65. Zygotic meiosis is characteristic of:

- a) Marchantia    b) Fucus    c) Funaria    d) Chlamydomonas

66. In which one of these the elaters are present along with mature spores in the capsule (to help in spore dispersal)?

- a) Riccia    b) Marchantia    c) Funaria    d) Sphagnum

67. Which of the following is a flowering plant with nodules containing filamentous nitrogen-fixing microorganism?

- a) Cicer arietinum    b) Casuarina equisetifolia    c) Crotalaria juncea  
d) Cycas revoluta

68. Match Column-I with Column-II

Column-I	Column-II
(A) Saprophyte	(i) Symbiotic association of fungi with plant roots of fungi with plant roots
(B) Parasite	(ii) Decomposition of dead organic materials
(C) Lichens	(iii) Living on living plants or animals
(D) Mycorrhiza	(iv) Symbiotic association of algae and fungi

Choose the correct answer from the option given below:

- a) (A)(B)(C)(D)    b) (A)(B)(C)(D)    c) (A)(B)(C)(D)    d) (A)(B)(C)(D)  
 (a)(iii)(ii) (i) (iv)    (b)(ii) (i) (iii)(iv)    (c)(ii) (iii)(iv)(i)    (d)(i) (ii) (iii)(iv)



69. Myxomycetes are-
- a) saprobes or parasites, having mycelia, a sexual reproduction by fragmentation, sexual reproduction
  - b) Slimy mass of multinucleate protoplasm, having pseudopodia-like structures for engulfing food reproduction through fragmentation of zoospores
  - c) Prokaryotic organisms, cellular or acellular saprobes or autotrophic, reproduce by binary fission
  - d) Eukaryotic, single-celled or filamentous saprobes or autotrophic, asexual reproduction by division of haploid individuals, sexual reproduction by fusion of two cells or their nuclei
70. Cup-shaped chloroplast is present in
- a) Spirogyra   b) Chlamydomonas   c) Ulothrix   d) Chara.
71. In pteridophyta, reduction division occurs when:-
- a) Prothallus is formed   b) Spores are formed   c) Sex organs are formed
  - d) Gametes are formed
72. In which of the following would you place the plants having vascular tissue, lacking seeds?
- a) Algae   b) Bryophytes   c) Pteridophytes   d) Gymnosperms
73. The number of species that are known and described ranges between:
- a) 1-2 million   b) 1.7-1.8 billion   c) 1.7-1.8 million   d) 7 million
74. Pigment-containing membranous extensions in some cyanobacteria are:
- a) Chromatophores   b) Heterocysts   c) Basal bodies   d) Pneumatophores
75. Which one of the following is a vascular cryptogam?
- a) Ginkgo   b) Marchantia   c) Cedrus   d) Equisetum
76. A good producer of citric acid is:
- a) Saccharomyces   b) Aspergillus   c) Pseudomonas   d) Clostridium
77. **Assertion:** Bryophytes are called as terrestrial amphibians.  
**Reason:** Bryophytes require an external layer of water on the soil surface for their existence.

a)

If both assertion and reason are true and reason is the correct explanation of assertion.

b)

If both assertion and reason are true but reason is not the correct explanation of assertion.

c) If assertion is true but reason is false.

d) If both assertion and reason are false.

78. Five kingdom system of classification suggested by R.H. Whittaker is not based on:

a) Presence or absence of a well defined nucleus    b) Mode of reproduction

c) Mode of nutrition    d) Complexity of body organisation

79. The common nitrogen -fixer in paddy fields is:

a) Frankia    b) Rhizobium    c) Azospirillum    d) Oscillatoria

80. The plant body of moss (Funaria) is \_\_\_\_\_ .

a) completely sporophyte    b) completely gametophyte

c) predominantly sporophyte with gametophyte

d) predominantly gametophyte with sporophyte

81. Select true statement about lichens:-

a) These are very good pollution indicators

b) The algal component of lichen is known as phycobiont

c) The fungal component of lichen is known as mycobiont    d) All the above

82. ICBN stands for:

a) Indian code of Botanical Nomenclature

b) Indian Congress of Botanical Names

c) International code of Botanical Nomenclature

d) International Congress of Botanical Names

83. A sterile jacket around gametangia is found among

a) bryophytes    b) lichens    c) algae    d) fungi.

84. In **Ulothrix**, sexual reproduction is by

a) isogamy    b) anisogamy    c) oogamy    d) conjugation.

85. Pteridophytes differ from mosses/ bryophytes in possessing \_\_\_\_\_ .

a) flagellate spermatozoids    b) independent gametophyte

c) well developed vascular system    d) archegonia

86. Gymnosperms are also called soft wood spermatophytes because they lack:

a) Thick walled tracheids    b) Xylem fibres    c) Cambium    d) Phloem fibres

87. Which one of the following matches is correct?

a)

Alrenaria	Sexual reproduction absent	Deuteromycetes
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b)

Mucor	Reproduction by Conjugation	Ascomycetes
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c)

Agaricus	Parasitic fungus	Basidiomycetes
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d)

Phytophthora	Aseptate mycelium	Basidiomycetes
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88. Which one is wrong statement?

a) Mucor has biflagellate zoospores.

b) Haploid endosperm is typical feature of gymnosperms.

c) Brown algae have chlorophyll a and c and fucoxanthin.

d) Archegonia are found in Bryophyta, Pteridophyta and Gymnosperms

89. Algin is phycocolloid, obtained from the cell wall of

a) Polysiphonia and Porphyra    b) Gelidium and Laminaria

c) Microcystis and Volvox    d) Focus and Dictyota

90. The algae shown in the given figure belong to the Class



a) Chlorophyceae    b) Phaeophyceae    c) Rhodophyceae    d) Cyanophyceae.

91. Read the given statements and select the correct option.

**Statement 1** : Bryophytes are amphibians of plant kingdom.

**Statement 2** : They live in soil but depend on water for sexual reproduction.

a) Both statements 1 and 2 are correct.

b) Statement 1 is correct but statement 2 is incorrect

c) Statement 1 is incorrect but statement 2 is correct

d) Both statements 1 and 2 are incorrect.

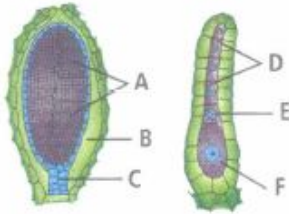
92. In **Pinus**, male strobilus bears a large number of

a) anthers    b) stamens    c) microsporophylls    d) megasporophylls.

93. Branch of biology, which deals with study of relationship among different kind of organisms, is

a) Taxonomy    b) systematics    c) Ecology    d) Taximetrics

94. Refer to the following figures regarding Division Bryophyta.



- (i) 'A' are the androcyte mother cells of the antheridium, which give rise to a large number of biflagellate male gametes.
- (ii) 'B' is the antheridial chamber and 'C' is the multicellular stalk of antheridium.
- (iii) 'D' and T respectively represent venter canal cells and neck canal cell of the female sex organ.
- (iv) T is the egg cell of the archegonium, which usually possesses several female gametes.

Which of the following combinations of above statements is incorrect?

- a) (i) and (ii)   b) (iii) and (iv)   c) (ii) and (iii)   d) (i) and (iv)

95. Which of the following statements is correct?

- a) Azotobacter fixes atmospheric nitrogen in the nodules of legumes
- b) Certain cyanobacteria like Anabaena can fix nitrogen in paddy fields
- c) Azospirillum species fixes nitrogen in chick-pea
- d) Mycorrhiza absorb nitrates from soil and provide it to the plant

96. Bryophytes comprise \_\_\_\_\_ .

- a) Sporophyte of longer duration
- b) Dominant phase of sporophyte which is parasitic
- c) Dominant phase of gametophyte which produces spores
- d) Small sporophyte phase generally parasitic on gametophyte

97. Read the following five statements (A-E) and answer as asked next to them:-

- (A) In Equisetum the female gametophyte is retained on the parent sporophyte
- (B) In Ginkgo male gametophyte is not independent
- (C) The sporophyte in Riccia is more developed than that in Polytrichum
- (D) Sexual reproduction in -Vovox is isogamous
- (E) The spores of slime molds lack cell walls

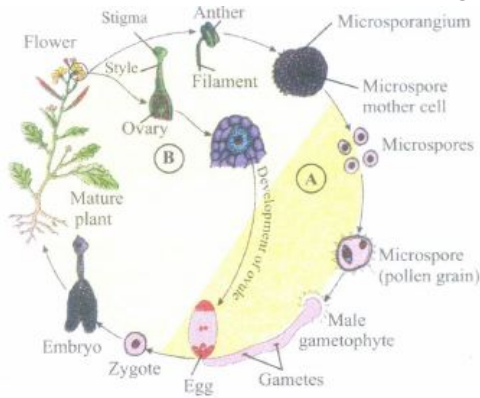
How many of the above statements are correct?

- a) Four   b) One   c) Two   d) Three

98. Which of the following is not a moss?

- a) Polytrichum   b) Sphagnum   c) Funaria   d) Riccia

99. The given figure shows two phases, A and B of a typical angiospermic life cycle. Select the correct option regarding it.



a)

A	B
Gametophytic generation (n)	Sporophytic generation (2n)

b)

A	B
Sporophytic generation (2n)	Gametophytic generation (n)

c)

A	B
Sporophytic generation (2n)	Sporophytic generation (2n)

d)

A	B
Gametophytic generation (n)	Gametophytic generation (n)

100. Dichotomous branching is found in \_\_\_\_\_ .

a) Fern b) Funaria c) Liverworts d) Marchantia

101. \_\_\_\_\_ classification systems were based on evolutionary relationships between various organisms.

a) Natural b) Artificial c) Phylogenetic d) Both (a) and (b)

102. The standard size of herbarium sheets is:-

a) 11.5" x 16.5" b) 15.5" x 16.5" c) 18.5" x 10.5" d) 20.5" x 21.5"

103. The prominent phase in the life cycle of bryophytes is

a) gametophyte b) sporophyte c) seta d) sporogonium.

104. Floridean starch has structure similar to \_\_\_\_\_ .

- a) Mannitol and algin   b) Laminarin and cellulose   c) Starch and cellulose  
d) Amylopectin and glycogen
105. Endomycorrhizal fungus is:-  
a) Amanita   b) Boletus   c) Glomus   d) Pisolithus
106. A plant in which sporophytic generation is represented by zygote is \_\_\_\_\_ .  
a) Pinus   b) Selaginella   c) Chlamydomonas   d) Dryopteris
107. Autotrophic aquatic organisms which usually reproduce vegetatively by fragmentation, and perform sexual reproduction also by the nonmotile gametes. These organism are:-  
a) Polysiphonia, Porphyra, Gracilaria   b) Ectocarpus, Dictyota, Laminaria  
c) Laminaria, Fucus, Sargassum   d) Volvox, Chara, Spirogyra
108. Select one of the following of important featuresdistinguishing Gnetum from Cycas and Pinus and showing:  
a) Embryo development and apical meristem  
b) Absence of resin duct and leaf venation  
c) Presence of vessel elements and absence of archegonia  
d) Perianth and two integuments
109. One of the free-living, anaerobic nitrogen-fixer is:  
a) Azotobacter   b) Beijernickia   c) Rhodospirillum   d) Rhizobium
110. which group of organism is related with basidiomycetes?  
a) Mushroom, Ustilago, Aspergillus   b) Puffballs, Agaricus, Aspergillus  
c) Mushroom, Ustilago, Agaricus   d) Ustilago, Aspergillus, Agaricus
111. Most advanced Gymnosperm belongs to:-  
a) Cycadales   b) Coniferales   c) Gnetales   d) Cyadofillicales
112. Read the given statements and select the correct option.  
**Statement 1:** Main plant body of bryophytes is sporophytic.  
**Statement 2:** Main plant body of pteridophytes is gametophytic.  
a) Both statements 1 and 2 are correct.  
b) Statement 1 is correct but statement 2 is incorrect  
c) Statement 1 is incorrect but statement 2 is correct.  
d) Both statements 1 and 2 are incorrect.
113. Grass leaves curl inwards during very dry weather. Select the most appropriate reason from the following:  
a) Flaccidity of bulliform cells   b) Shrinkage of air spaces in spongy mesophyll  
c) Tyloses in vessels   d) Closure of stomata

114. Winged pollens are present in:  
 a) Mango b) Cycas c) Mustard d) Pinus
115. In angiosperms, functional megaspore develops into \_\_\_\_\_ .  
 a) Embryo sac b) Ovule c) Endosperm d) Pollen sac
116. Which one of the following statements is wrong?  
 a) Mannitol is stored in Rhodophyceae  
 b) Algin and Carrageen are product of algae  
 c) Agar-agar is obtained from Gelidium and Gracilaria  
 d) Chlorella and Spirulina are used as space food.
117. Selaginella and Salvinia are considered to represent a significant step toward evolution of seed habit because:  
 a) Megaspores possess endosperm and embryo surrounded by seed coat  
 b) Embryo develops in female gametophyte which is retained on parent sporophyte  
 c) Female gametophyte is free and gets dispersed like seeds  
 d) Female gametophyte lacks archegonia
118. Male gametophyte with least number of cells is present in:  
 a) Funaria b) Liliium c) Pinus d) Pteris
119. Bryophytes can be separated from algae because they \_\_\_\_\_ .  
 a) are thalloid forms b) have no conducting tissue  
 c) possess archegonia with outer layer of sterile cells  
 d) contain chloroplasts in their cells
120. **Assertion** : Red colour of Rhodophyta is due to abundant formation of r-phycoerythrin.  
**Reason** : r-Phycoerythrin is able to absorb blue-green wavelength of light and reflect red colour.  
 a) If both assertion and reason are true and reason is the correct explanation of assertion.  
 b) If both assertion and reason are true but reason is not the correct explanation of assertion.  
 c) If assertion is true but reason is false.  
 d) If both assertion and reason are false.
121. In bryophytes

- a) sporophytes are dependent upon gametophytes  
 b) sporophyte and gametophyte generations are independent  
 c) sporophyte in itself completes the life cycle  
 d) gametophytes are dependent upon sporophyte.
122. Select the correct pattern of arrangement of reproductive structures for gymnosperms.  
 a) Spores → Sporophylls → Sporangia → Strobili  
 b) Spores → Sporangia → Sporophylls → Strobili  
 c) Sporangia → Sporophylls → Spores → Strobili  
 d) Spores → Sporangia → Strobili → Sporophylls
123. Mycorrhizal roots of \_\_\_\_\_ are associated with some fungal symbionts.  
 a) Pinus   b) Cedrus   c) Cycas   d) Ginkgo
124. Algae, bryophytes and pteridophytes resemble with each other in which one of the following feature?  
 a) Main body is gametophytic   b) Dependence on water for fertilisation  
 c) Absence of alternation of generations   d) Presence of embryo
125. Which of the following is responsible for peat formation?  
 a) Marchantia   b) Riccia   c) Funaria   d) Sphagnum
126. The absence of chlorophyll, in the lowermost cell of Ulothrix, shows \_\_\_\_\_ .  
 a) functional fission   b) tissue formation   c) cell characteristic  
 d) beginning of labour division
127. All single celled eukaryotes placed under protista and the link with fungi, plants and animals, Slime moulds are saprophytic protists. what is incorrect about it:  
 a) Body moves along decaying twigs and leaves engulfing organic matter  
 b)  
 Under suitable conditions from plasmodium which may grow and spread over several feet  
 c) Under favourable conditions plasmodium differentiate and form fruiting body  
 d) Their spores possess cell wall
128. Which one of the following is wrong statement  
 a)  
 Phosphorus is a constituent of cell membranes certain nucleic acids and all proteins  
 b) Nitrosomonas and Nitrobacter are chemoautotrophs  
 c) Anabaena and Nostoc are capable of fixing nitrogen in free-living state also  
 d) Root nodule forming nitrogen fixers live aerobes under free-living conditions



129. Viruses have:-

- a) DNA enclosed in a protein coat
- b) Prokaryotic nucleus
- c) Single chromosome
- d) Both DNA and RNA

130. In taxonomy the first step is:-

- a) Identification
- b) Nomenclature
- c) Classification
- d) Affinities

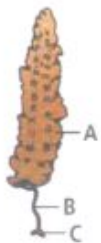
131. Which one of the following is correct statement?

- a) A antheridiophores and archegoniophores are present in pteridophytes
- b) Pteridophytes gametophyte has a protonemal and leafy stage
- c) In gymnosperms, female gametophyte is freeliving
- d) Origin of seed habit can be traced in pteridophytes

132. Heterospory is found in some members of \_\_\_\_\_ and all members of \_\_\_\_\_.

- a) Bryophyta, Pteridophyta
- b) Pteridophyta, Bryophyta
- c) Bryophyta, Gymnospermae
- d) Pteridophyta, Spermatophyta

133. Refer to the given figure and select the correct option.



a)

<b>A</b>	<b>B</b>	<b>C</b>
Stipe	Holdfast	Fron

b)

<b>A</b>	<b>B</b>	<b>C</b>
Fron	Stipe	Holdfast

c)

<b>A</b>	<b>B</b>	<b>C</b>
Holdfast	Fron	Stipe

d)

<b>A</b>	<b>B</b>	<b>C</b>
Stipe	Fron	Holdfast

134. Which of the following statements is correct regarding microbes in human welfare?

- a) *Saccharomyces cerevisiae* is useful in industries for production of citric acid
- b) *Trichoderma polysporum* is used as blood cholesterol lowering agent
- c) *Aspergillus niger* used to obtain acetic acid
- d)

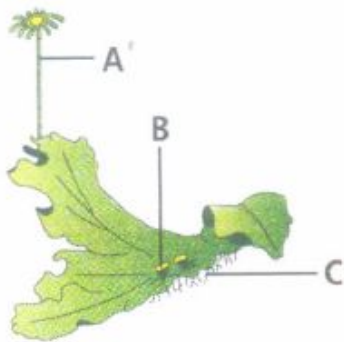
In sewage treatment CO<sub>2</sub>, H<sub>2</sub>, and CH<sub>4</sub> gases are produced from activated sludge by bacteria such as *Methanobacterium*

135. The main difference between gram ⊕ and gram ⊖ resides in the composition of:-

- a) Cilia
- b) Cell-wall
- c) Cell-membrance
- d) Cytoplasm

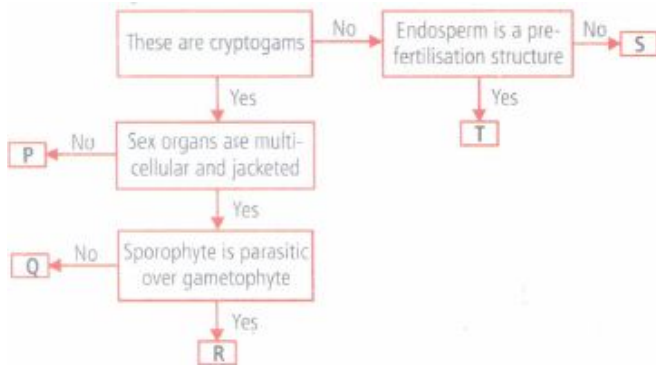
136. The embryo sac of an angiosperm is made up of

- a) 8 cells   b) 7 cells and 8 nuclei   c) 8 nuclei   d) 7 cells and 7 nuclei.
137. Each cell of Volvox colony has a structure; similar to  
 a) Ulothrix   b) Spirogyra   c) Chlamydomonas   d) Nostoc.
138. The spread of living pteridophytes is limited and is restricted to narrow geographical region because  
 a) gametophytic growth needs cool, damp and shady places  
 b) there is requirement of water for fertilisation  
 c) there is absence of stomata in leaf and absence of vascular tissue  
 d) both (a) and (b).
139. Select the option that correctly identifies A, B and C in the given figure of female thallus of Marchantia.



- a) A - Antheridiophore, B - Gemma cup, C - Rhizoids  
 b) A - Antheridiophore, B - Rhizoids, C - Gemma cup  
 c) A - Archegoniophore, B - Gemma cup, C - Rhizoids  
 d) A - Archegoniophore, B - Rhizoids, C - Gemma cup
140. Read the following statements regarding bryophytes and select the correct answer.  
 (i) Bryophytes lack true roots, stem and leaves.  
 (ii) The main plant body is haploid.  
 (iii) Sex-organs are unicellular and non-jacketed.  
 (iv) Fertilisation produces an embryo inside the water.  
 a) Statements (i) and (ii) are correct.   b) Statements (ii) and (iii) are correct.  
 c) Statements (iii) and (iv) are correct.   d) All statements are correct.
141. The structures that help some bacteria to attain to rocks and /or host tissues are:  
 a) Holdfast   b) Rhizoids   c) Fimbriae   d) Mesosomes

142. Refer to the given flow chart regarding different groups of Kingdom Plantae.



Which of the following is true regarding P, Q, R, S and T?

- Examples of group 'P' include Riccia, Marchantia, Sphagnum, etc.
- Members of group 'R' can be both homosporous as well as heterosporous.
- Group 'Q' includes seedless vascular plants having sporophytic plant body.
- 

Group 'S' is more ancient than group T and formed a dominant vegetation on Earth some 200 million years back in mesozoic era.

143. Single-celled eukaryotes are included in:-

- Monera
- Protista
- Fungi
- Archaea

144. The function of mesosome in prokaryotes is:-

- Aerobic respiration
- Cell wall formation
- Both (1) and (2)
- N<sub>2</sub>-fixation

145. Deuteromycetes are called 'Imperfect fungi' as:-

- They have no cell wall
- No mycelium
- No sexual reproduction
- No asexual reproduction

146. Holdfast, stipe and frond constitute the plant body in case of

- Rhodophyceae
- Chlorophyceae
- Phaeophyceae
- all of these.

147. Plant *Ocimum sanctum* belongs to kingdom Plantae. As per taxonomic terminology term kingdom and Plantae are respectively:

- taxon and category
- category and taxon
- taxon and division
- taxonomy and systematics

148. Chromatophores take part in:

- Respiration
- Photosynthesis
- Growth
- Movement

149. In prokaryotes, chromatophores are-

- Specialized granules responsible for colouration of cells
- structures responsible for organizing the shape of the organism

c)

Inclusion bodies lying free inside the cells for carrying out various metabolic activities

d)

Internal membrane systems that may become extensive and complex in photosynthetic bacteria

150. The diatoms do not easily decay like most of the other Algae because:-

- a) They have water proof cell    b) Their walls are mucilagenous  
c) They have highly siliceous wall    d) They are non living

151. In Ulothrix/Spirogyra a, reduction division (meiosis) occurs at the time of \_\_\_\_\_ .

- a) gamete formation    b) zoospore formation    c) zygospore germination  
d) vegetative reproduction

152. Nuclear membrane is absent in:-

- a) Penicillium    b) Agaricus    c) Volvox    d) Nostoc

153. Mannitol is stored food in:

- a) Porphyra    b) Fucus    c) Gracilaria    d) Chara

154. In which of the following gametophyte is not independent free living?

- a) Pinus    b) Funaria    c) Marchantia    d) Pteris

155. Which one of the following statements is wrong?

- a) Cyanobacteria are also called blue-green algae  
b) Golden algae are also called desmids  
c) Eubacteria are also called false bacteria  
d) Nitrococcus Phycomycetes are also called algal fungi

156. Common example of red algae is

- a) Porphyra    b) Batrachospermum    c) Ectocarpus    d) both (a) and (b).

157. A plant having seeds but lacking flowers and fruits belongs to \_\_\_\_\_ .

- a) pteridophytes    b) mosses    c) ferns    d) gymnosperms

158. Fill in the blanks (a), (b) & (c) by observing the characters given in tables and choose the correct answer from the options:-

Class	Major pigments	Stored food	Flagella	Cell wall
(a)	chlorophyll a&b	starch	2-8 equal and apical	Cellulose
(b)	chlorophyll a&c	Mannitol	2, unequal and lateral	Cellulose & Algin
(c)	chlorophyll a&d	Floridean starch	Absent	Cellulose

a) Chlorophyceae, Rhodophyceae, Phaeophyceae

b) Rhodophyceae, Chlorophyceae, Phaeophyceae

- c) Chlorophyceae, Phaeophyceae, Rhodophyceae  
d) Rhodophyceae, Phaeophyceae, Chlorophyceae
159. A plant shows thallus level of organisation. It shows rhizoids and is haploid. It needs water to complete its life cycle because the male gametes are motile. It may belong to  
a) pteridophytes    b) gymnosperms    c) monocots    d) bryophytes.
160. Find correct Statement for the Prothallus of fern  
a) Monoecious, multicellular and parasitic  
b) Monoecious, multicellular and photosynthetic  
c) Dioecious with unicellular thallus  
d) Monoecious, large and differentiated vascular body
161. Planaria possess high capacity of:-  
a) Metamorphosis    b) Regeneration    c) Alternation of generation  
d) Bioluminescence
162. Which one of the following plants is monoecious?  
a) Pinus    b) Cycas    c) Papaya    d) Marchantia
163. Choose the correct set of bacterial disease  
a) Mumps, cholera, dengue    b) Chicken pox, typhoid, mumps  
c) Mumps, tetanus, chicken pox    d) cholera, typhoid, tetanus
164. Aquatic fern which supports the growth of blue green algae, Anabaena, and used to increase the yield of paddy crop is:-  
a) Salvinia    b) Marsilea    c) Isoetes    d) Azolla
165. Read the given statements and select the correct option.  
Statement 1 Bryophytes show alternation of generation.  
Statement 2 A haploid gametophytic generation and a diploid sporophytic generation alternate in the life cycle.  
a) Both statements 1 and 2 are correct.  
b) Statement 1 is correct but statement 2 is incorrect.  
c) Statement 1 is incorrect but statement 2  
d) Both statements 1 and 2 are incorrect
166. Sexual reproduction involving fusion of two cells in Chlamydomonas is \_\_\_\_\_ .  
a) isogamy    b) homogamy    c) somatogamy    d) hologamy
167. Denitrification is done by:-  
a) Pseudomonas    b) Nitrosomonas    c) Nitrobacter    d) Nitrococcus
168. Pick up the wrong statement:

- a) Nuclear membrane is present in Monera    b) Cell wall is absent in Animalia  
c) Protista have photosynthetic and heterophyte modes of nutrition  
d) Some fungi are edible
169. Which of the following plants produces seeds but not flowers?  
a) Maize    b) Mint    c) Peepal    d) Pinus
170. Compared with the gametophyte of the bryophytes, the gametophytes of vascular plants tend to be:  
a) Smaller and to have smaller sex organs  
b) Smaller but to have larger sex organs  
c) Larger but to have smaller sex organs  
d) Larger and to have larger sex organs
171. At least a half of the total CO<sub>2</sub> fixation on Earth is carried out through photosynthesis by:  
a) angiosperms    b) gymnosperms    c) algae    d) bryophytes
172. The basidiomycetes includes:-  
a) Rusts    b) Smuts    c) Mushrooms    d) All the above
173. A plant producing seeds but lacking flowers is :  
a) Gymnosperm    b) Bryophyte    c) Angiosperm    d) Pteridophyte
174. Which one of the following shows isogamy with non-flagellated gametes?  
a) Sargassum    b) Ectocarpus    c) Ulothrix    d) Spirogyra
175. Cycas possesses two cotyledons but it is not dicot because of:  
a) Compound leaves    b) Naked seeds    c) Circinate ptyxis  
d) Monocot like stem
176. Which one of the following is common to multicellular fungi, filamentous algae and protonema of mosses?  
a) Multiplication by fragmentation    b) Diplontic life cycle  
c) Members of kingdom plantae    d) Mode of nutrition
177. The "seaweeds" that form the underwater forest are  
a) kelps    b) Laminaria    c) Macrocystis    d) all of these.
178. **Assertion:** Algae show only anisogamous type of reproduction.  
**Reason:** In algae, gametes can never be non flagellated.

a)

If both assertion and reason are true and reason is the correct explanation of assertion.

b)

If both assertion and reason are true but reason is not the correct explanation of assertion.

c) If assertion is true but reason is false.

d) If both assertion and reason are false.

179. The guts of cow and buffalo possess:

a) *Chlorella* spp. b) Methanogens c) Cyanobacteria d) *Fucus* spp.

180. In *Pinus*/*Cycas*/gymnosperms, the endosperm is \_\_\_\_\_ .

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

181. Which of the following is true about bryophytes?

a) They possess archegonia b) They contain chloroplast c) They are thalloid  
d) All of the above

182. The plant group that produces spores and embryo but lacks vascular tissues and seeds is \_\_\_\_\_ .

a) Pteridophyta b) Rhodophyta c) Bryophyta d) Phaeophyta

183. Which of the following structures are haploid in gymnosperms?

a) Pollen grain, megaspore, embryo b) Pollen grain, megaspore, endosperm  
c) Megaspore, leaf, root d) Leaf, root, integument

184. \_\_\_\_\_ do not have free living gametophyte.

a) Bryophytes b) Pteridophytes c) Gymnosperms d) both (b) and (c)

185. In which organisms external fertilization occurs:-

a) Echinodermata/Moss b) Hemichordata/Fern c) Reptilia/Gymnosperm  
d) Amphibia/Algae

186. Archaeobacteria differ from eubacteria in:

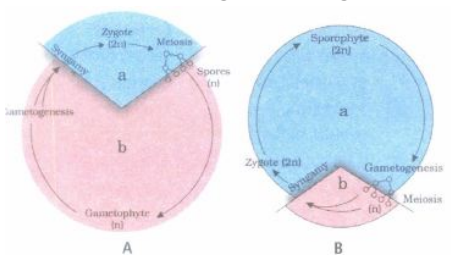
a) Cell membrane b) Mode of nutrition c) Cell shape  
d) Mode of reproduction

187. Match column I with column II and select the correct option from the codes given below.

Column I	Column II
A. Sagopalm	(i) <i>Ephedra</i>
B. Chilgoza fruit	(ii) <i>Pinus gerardiana</i>
C. Ephedrine drug	(iii) <i>Cycas revoluta</i>
D. Cedar wood oil	(iv) <i>Juniperus virginiana</i>

- a) A-(iv), B-(ii), C-(i), D-(iii)    b) A-(iii), B-(ii), C-(i), D-(iv)  
 c) A-(iii), B-(iv), C-(i), D-(ii)    d) A-(ii), B-(iii), C-(i), D-(iv).c

188. Cellulose is the major component of cell walls of:-  
 a) Pseudomonas    b) Saccharomyces    c) Pythium    d) Xanthomonas
189. What is the ploidy of primary endosperm nucleus (PEN) in angiosperms?  
 a) Haploid    b) Diploid    c) Triploid    d) Polyploid
190. Which of the following shows coiled RNA strand and capsomeres?  
 a) Polio virus    b) Tobacco masaic virus    c) Measles virus    d) Retrovirus
191. Which of the following is commonly known as "chilgoza pine"?  
 a) Pinus roxburghii    b) P.strobus    c) P.gerardiana    d) P.sylvestris
192. Carperls are equivalent to the  
 a) Microsporophylls    b) Megasporophylls    c) Megasporangia    d) Embryo sac
193. In most green algae, pyrenoids, the storage bodies, are located in \_\_\_\_\_.  
 a) chloroplasts    b) mitochondria    c) cytoplasm    d) nucleus
194. Choose the correct statement:-  
 a)  
 Aspergillus niger is bacterium which is used for obtaining acetic acid & citric acid  
 b) Streptokinase is used as a clot buster  
 c)  
 Monascus purpureus is responsible for production of large holes in swiss cheese  
 d) Toddy is manufactured by Lactobacillus
195. Refer to the given figure showing life cycle patterns and identify them.



a)

A	B
Diplontic	Haplontic

b)

A	B
Haplontic	Diplontic

c)

A	B
Haplo diplontic	Haplontic

d)

A	B
Haplo- diplontic	Diplontic



196. Which one of the following is commonly used in transfer of foreign DNA into crop plants?  
a) *Penicillium expansum*    b) *Trichoderma harzianum*  
c) *Meloidogyne incognita*    d) *Agrobacterium tumefaciens*
197. A vascular cryptogam is:  
a) *Equisetum*    b) *Cedrus*    c) *Marchantia*    d) *Ginkgo*
198. For higher plants, flowers are chiefly used as a basis of classification, because:-  
a) These show a great variety in colour    b) It can be preserved easily  
c) Reproductive parts are more conservative than vegetative parts  
d) None of these
199. Apophysis in the capsule of *Funaria* is \_\_\_\_\_ .  
a) lower part    b) upper part    c) middle part    d) fertile part
200. Cell wall is absent in:  
a) *Nostoc*    b) *Aspergillus*    c) *Funaria*    d) *Mycoplasma*
201. Algae with starch as reserve food material are also characterised by  
a) Presence of chlorophyll b    b) Sulphated phycocolloids  
c) Nonsulphated phycocolloids    d) Nonflagellate nature
202. Which of the following statements is wrong?  
a) *Laminaria* and *Sargassum* are used as food  
b) Algae increases the level of dissolved oxygen in the immediate environment  
c) Algin is obtained from red algae and carrageen from brown alga.  
d) Agar-agar is obtained from *Gelidium* and *Gracilaria*
203. Mayr proposed which type of concept of species:  
a) Taxonomic concept    b) Biological concept  
c) Taxonomic and Biological concept    d) Genetic concept
204. The sporophyte is attached to the gametophyte in  
a) algae    b) fungi    c) bryophytes    d) pteridophytes.
205. Which of the following characters represent the affinities of *Gnetum* with angiosperms and differences with *Cycas* and *Pinus*?  
a) Presence of xylem vessels and absence of archegonia  
b) Perianth and two integuments  
c) Embryo development and apical meristem  
d) Absence of resin ducts and leaf venation
206. Phycoerythrin, chlorophyll a and chlorophyll d are characteristics of  
a) *Phaeophyceae*    b) *Xanthophyceae*    c) *Chlorophyceae*    d) *Rhodophyceae*.
207. Which of the following is homosporous:

a) Selaginella b) Pinus c) Cycas d) Lycopodium

208. Select the correct combination of the statement (a-d) regarding the characteristics of certain organisms:

- (a) Methanogens are Archaeobacteria which produce methane in marshy areas
- (b) Nostoc is filamentous blue-green alga which atmospheric nitrogen
- (c) Chemosynthetic autotrophic bacteria synthesis cellulose from glucose
- (d) Mycoplasma lack a cell wall and can survive without oxygen

The correct statements are:

- a) (a), (b), (c) b) (b), (c), (d) c) (a), (b), (d) d) (b), (c)

209. Select the correct statement

- a) Leaves of gymnosperms are not well adapted to extremes of climate.
- b) Gymnosperms are both homosporous and heterosporous.
- c) Salvinia, Ginkgo and Pinus are all gymnosperms
- d) Sequoia is one of the tallest trees

210. Pollen Grain is a reduced

- a) Female gametophyte b) Male Gametophyte c) Young sporophyte
- d) Parent Sporophyte

211. Which pigment is found in phaeophyceae?

- a) Chl.a, c and fucoxanthin b) Chl.a, d and violoxanthin
- c)  $\beta$  Carotene and phycocyanin d) None of these

212. Which of the following gymnosperms has branched stems?

- a) Pinus b) Cycas c) Cedrus d) Both (a) and (c)

213. Protonema occurs in the life cycle of \_\_\_\_\_ .

- a) Riccia b) Funaria c) Chlamydomonas d) Spirogya

214. The gametophyte is not an independent, free living generation in

- \_\_\_\_\_ .
- a) Polytrichum b) Adiantum c) Marchantia d) Pinus

215. Read the given statements about algae and select the correct option.

- (i) Plant body is thalloid.
  - (ii) They are largely aquatic.
  - (iii) Reproduction occurs by vegetative, asexual and sexual methods.
  - (iv) Chlamydomonas, Volvox and Ulothrix are the multicellular algae.
- a) Statements (i) and (ii) are true. b) Statements (ii) and (iii) are true.  
c) Statements (i), (ii) and (iii) are true. d) All statements are true.

216. Flagellated male gametes are present in all the three of which one of the following sets?

- a) Riccia, Dryopteris and cycas    b) Athoceros, Funaria and Spirogyra  
 c) Zygnema, Saprolegina and Hydrilla    d) Fucus, Marsilea and Calotropis

217. In class Phycomycetes the mycelium is:-

- a) Coenocytic and aseptate    b) Coenocytic and septate  
 c) Uninucleate and aseptate    d) Multinucleate and septate

218. choose the incorrect statement about Phycomycetes:-

- a) Members are found in aquatic habits  
 b) Spores are endogenously produced in sporangium  
 c) A zygosporangium is formed by reduction division  
 d) They show all type of syngamy

219. Match items in Column I with those in Column- II:

Column-I	Column-II
(A) Peritrichous	(J) Ginkgo flagellation
(B) Livingfossil	(K) Macrocystis
(C) Rhizophore	(L) Escherichia coli
(D) Smallest flowering plant	(M) Selaginella
(E) Largest perennial	(N) Wolffia alga

Select the correct answer from the following:

- a) A-L; B-J; C-M; D-N; E-K;    b) A-K; B-J; C-L; D-M; E-N  
 c) A-N; B-L; C-K; D-N; E-J;    d) A-J; B-K; C-N; D-L; E-K

220. Which one of the following is not common between Funaria and Selaginella?

- a) Archegonium    b) Embryo    c) Flagellate sperms    d) Roots

221. The imperfect fungi which are decomposers of and help in mineral cycling belong to:

- a) Ascomycetes    b) Deuteromycetes    c) Basidiomycetes    d) Phycomycetes

222. Match column I with column II and select the correct option from the codes given below.

Column I	Column II
A. Pteris	(i) Bryophyte
B. Cedrus	(ii) Pteridophyte
C. Sonchus	(iii) Gymnosperm
D. Marchantia	(iv) Angiosperm

- a) A-(ii), B-(iii), C-(iv), D-(i)    b) A-(ii), B-(i), C-(iv), D- (iii)  
c) A-(i), B-(iii), C-(iv). D-(ii)    d) A-(iii), B-(iv), C-(ii), D-(i)

23. Which of the following statements about Phaeophyceae is incorrect?

- a) Vegetative reproduction occurs by fragmentation.  
b) Asexual reproduction is by biflagellate pear-shaped zoospores.  
c)

In sexual reproduction, gametes are pyriform and bear 2 laterally attached flagella.

d) None of these

24. Dinoflagellates are called fire algae due to which character:-

- a) They appear like fire due to pigments    b) They produce fire due to friction  
c) They occur on burnt places    d) They show bioluminescence

25. Which of the following are not membrane-bounds :

- a) Mesosomes    b) Vacuoles    c) Ribosomes    d) Lysosomes

26. In Pinus, endosperm cells have 30 chromosomes then how many chromosomes are present in sieve cells:-

- a) 30    b) 60    c) 10    d) 15

27. In a moss the sporophyte:

- a) arises from a spore produced from the gametophyte  
b) manufactures food for itself, as well as for the gametophyte  
c) is partially parasitic on the gametophyte  
d) produces gametes that give rise to the gametophyte

28. Green algae usually have a rigid cell wall made of an inner layer of \_\_\_\_\_ and an outer layer of \_\_\_\_\_.

- a) cellulose, cellulose    b) pectose, pectose    c) pectose, cellulose  
d) cellulose, pectose

29. Seaweeds are a source of

- a) chlorine    b) fluorine    c) bromine    d) iodine.

30. Nitrogen fixation in root nodules of Anus is brought about by:-

- a) Frankia    b) Azorhizobium    c) Bradyrhizobium    d) Clostridium

31. In pteridophytes, main plant body is a \_\_(i)\_\_ which is \_\_(ii)\_\_ into true roots, stem and leaves.

Fill the blanks in above statement and select the correct option.

a)

i	ii
sporophyte	differentiated

b)

i	ii
sporophyte	not differentiated

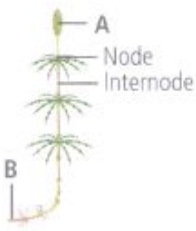
c)

i	ii
gametophyte	differentiated

d)

i	ii
gametophyte	not differentiated

232. Identify the parts labelled as A and B in the given figure of **Equisetum** and select the correct option.



a)

A	B
Strobilus	Rhizome

b)

A	B
Sporophylls	Tuber

c)

A	B
Sporangia	Rhizome

d)

A	B
Sporophyte	Tuber

233. Which one of the following is a living fossil?

- a) Pinus b) Opuntia c) Ginkgo d) Thuja

234. The sporophyte is the dominant phase in

- a) pteridophytes b) gymnosperms c) angiosperms d) all of these.

235. Select the wrong statement:

a)

Chlamydomonas exhibits both isogamy and anisogamy and Fucus shows oogamy

b) Isogametes are similar in structure, function and behaviour

c) Anisogametes differ either in structure, function or behaviour

d)

In Oomycetes female gamete is smaller and motile, while male gamete is larger and non-motile

236. Two microbes found to be very useful in genetic engineering are:

a) Diplococcus sp. and Pseudomonas sp.

b) Crown gall bacterium and Caenorhabditis elegans

c) Escherichia coli and Agrobacterium tumefaciens

d) Vibrio cholerae and a tailed bacteriophage

237. Black(stem) rust of wheat is caused by:  
 a) *Ustilago nuda*   b) *Puccinia graminis*   c) *Xanthomonas oryzae*  
 d) *Alternaria solani*
238. Which group of plantae represents gametophytic plant body with dependent sporophyte?  
 a) Algae and bryophytes   b) Bryophytes and pteridophytes  
 c) Liverworts and mosses   d) Ferns and Cycads
239. Which of the following are likely to be present in deep sea water?  
 a) Saprophytic fungi   b) Archaeobacteria   c) Eubacteria   d) Blue-green algae
240. Among the following plant group which have independent gametophyte and sporophyte?  
 a) Bryophyta   b) Pteridophyta   c) Gymnosperms   d) Angiosperms
241. Megasporophyll of gymnosperms is homologous to \_\_\_\_\_ of angiosperms.  
 a) stamen   b) carpel   c) sepal   d) petal
242. Floridean starch is characteristic feature of :-  
 a) *Polysiphonia*, *Gracilaria*, *Porphyra*   b) *Laminaria*, *Sargassum*, *Porphyra*  
 c) *Polysiphonia*, *Laminaria*, *Porphyra*   d) *Chara*, *Dictyota*, *Polysiphonia*
243. Which one of the following is wrong about *Chara*?  
 a) Upper oogonium and lower round antheridium  
 b) Globule and nucule present on the same plant  
 c) Upper antheridium and lower oogonium  
 d) Globule is male reproductive structure
244. Nitrifying bacteria:-  
 a) Oxidize ammonia to nitrates  
 b) Convert free nitrogen to nitrogen compounds  
 c) Convert proteins into ammonia   d) Reduce nitrates to free nitrogen
245. Embryophyta includes:-  
 a) Angiosperms only   b) Only Pteridophytes   c) Bryophyta & Pteridophyta  
 d) All plants except thallophyta
246. Match the column I with column II

	Column -I		Column-II
(i)	Chlorophyceae	(a)	Ectocarpus
(ii)	Hemichordata	(b)	<i>Chara</i>
(iii)	Phaeophyceae	(c)	<i>Selaginella</i>
(iv)	Liverwort	(d)	<i>Marchantia</i>

- a) i-b, ii-c, iii-a, iv-d    b) i-b, ii-d, iii-a, iv-c    c) i-a, ii-d, iii-c, iv-b  
d) i-c, ii-a, iii-b, iv-d
247. What is the characteristic branching pattern of Dictyota thallus?  
a) Monopodial    b) Excurrent    c) Dichotomous    d) Deliquescent
248. Which one is wrongly matched?  
a) Gemma cups - Marchantia    b) Biflagellate Zoospores - Brown algae  
c) Uniflagellate gametes - Polysiphonia    d) Unicellular organism - Chlorella
249. Bryophytes differ from thallophytes in having:-  
a) Embryo    b) Rhizoids    c) Sterile jacket around sex organs    d) All the above
250. select incorrect statement about viroid:-  
a) Free infectious RNA    b) It was discovered T.O Diener  
c) It causes potato spindle tuber disease  
d) It contains high molecular weight RNA
251. Which of the following is responsible for peat formation?  
a) Marchantia    b) Riccia    c) Funaria    d) Sphagnum
252. Pyrenoids are the centres for formation of \_\_\_\_\_ .  
a) porphyra    b) enzymes    c) fat    d) starch
253. Which one of the following is not a correct statements?  
a) Key is taxonomic aid for identification of specimens  
b) Herbarium houses dried, pressed and preserved plant specimens  
c) Botanical gardens have collection of living plants for reference  
d) A museum has collection of photographs of plants and animals
254. Conifers differ from grasses in the:  
a) Production of seeds from ovule    b) Lack of xylem tracheids  
c) Absence of pollen tubes    d) Formation of endosperm before fertilization
255. In gymnosperms, the pollen chamber represents:  
a) The microsporangium in which pollen grains develop  
b) A cell in in the pollen grain in which the sperms are formed  
c) A cavity in the ovule in which pollen grains are stored after pollination  
d)  
An opening in the megagametophyte through which the pollen tube approaches the egg
256. Methanogens are belong to:-  
a) Archaeobacteria    b) Eubacteria    c) Filamentous bacteria  
d) Cyanobacteria
257. The chief water conducting elements of xylem in gymnosperms are:

- a) Tracheids   b) Vessels   c) Fibres   d) Transfusion tissue

258. The function of leghaemoglobin in the root nodules of legumes is:-

- a) Inhibition of nitrogenase activity   b) Oxygen removal  
c) Nodule differentiation   d) Expression of nif gene

259. Fusion of two gametes which are dissimilar in size is termed as

- a) oogamy   b) isogamy   c) anisogamy   d) both (a) and (c).

260. Why the deuteromycetes are called as 'fungi imperfecti'?

- a) Only a sexual or vegetative phases of these fungi are known  
b) Their mycelium is separate and branched   c) The help in mineral cycling  
d) The deuteromycetes members may be saprophytes or parasites.

261. In Bryophytes diploid number of chromosomes occur in:-

- a) Gametes   b) Spores   c) Spore mother cells   d) Nuclei of gametes

262. Assertion: Stomata are found on the surface of leaves in gymnosperms.

Reason: In gymnosperms, cuticle of leaves is thin.

a)

If both assertion and reason are true and reason is the correct explanation of assertion.

b)

If both assertion and reason are true but reason is not the correct explanation of assertion.

c) If assertion is true but reason is false.

d) If both assertion and reason are false.

263. In taxonomic hierarchy families are characterised by

- a) Vegetative features   b) Generative features  
c) Both vegetative and floral feature   d) Neither vegetative nor floral features

264. Which fungus is used extensively in biochemical and genetic work?

- a) Agaricus   b) Aspergillus   c) Claviceps   d) Neurospora

265. Match the following column correctly:-

Column I	Column II
A Statins	i Monascus purpureus
B Cyclosporins	ii Trichoderma
C Acetic acid	iii Acetobacter aceti
D Butyric acid	iv Clostridium butyricum

a) A-i, B-ii, C-iii, D-iv   b) A-ii, B-i, C-iv, D-iii   c) A-ii, B-i, C-iii, D-iv

d) A-iii, B-iv, C-i, D-ii

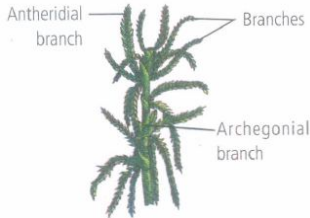


266. Which of the following are noncellular organisms that are characterized by having an inert crystalline structure outside the living cell:-  
 a) Bacteria    b) Mycoplasma    c) virus    d) Lichen
267. A well developed archegonium with neck consisting of 4-6 rows of neck canal cells, characterises:  
 a) gymnosperms only    b) bryophytes and pteridophytes  
 c) pteridophytes and gymnosperms    d) gymnosperms and flowering plants
268. An organism used as a biofertilizer for raising soyabean crop is:-  
 a) Azotobacter    b) Azospirillum    c) Rhizobium    d) Nostoc
269. Ergot of rye is caused by a species of:-  
 a) Claviceps    b) Phytophthora    c) Uncinula    d) Ustilago
270. Select one of the following pairs of important features distinguishing Gnetum from Cycas and Pinus and showing affinities with angiosperms:-  
 a) Perianth and two integuments  
 b) Embryo development and apical meristem  
 c) Absence of resin duct and leaf venation  
 d) Presence of vessel elements and absence of archegonia
271. Gymnosperm called as a living fossil is  
 a) Cycas    b) Ginkgo    c) Juniperus    d) both (a) and (b).
272. Embryo is not formed in thallophyta due to:-  
 a) Zygotic meiosis    b) Zygotic mitosis    c) Sporangial meiosis  
 d) Gametic meiosis
273. In pteridophytes, a spore germinates to produce  
 a) Sporophyte    b) sporogonium    c) prothallus    d) microsporophyll.
274. Peat moss is  
 a) Sphagnum    b) Dryopteris    c) Funaria    d) Polytrichum
275. Choose the incorrect statement regarding mycoplasma:-  
 a) They lack cell wall    b) They are smallest living cells  
 c) They can survive without oxygen    d) They have mesosome for respiration
276. Which of the following is odd one from the following about liver worts?  
 a) Foot, Seta, Capsule    b) Spore, Archegonium, Antheridium  
 c) Protonema, Primary protonema & Secondary protonema  
 d) Parenchyma, Gemmae, Scales
277. In Chlorophyceae, sexual reproduction occurs by \_\_\_\_\_ .  
 a) isogamy and anisogamy    b) isogamy, anisogamy and oogamy  
 c) oogamy only    d) anisogamy and oogamy

278. In fungi when the hyphae are continuous and branched tubes filled with multinucleated cytoplasm these are called:-

- a) Unicellular hyphae
- b) Coenocytic hyphae
- c) Non-Acellular hyphae
- d) Multicellular hyphae

279. Which of the following options correctly identifies the plant shown in figure and the group it belongs to?



- a) Marchantia - Liverwort
- b) Sphagnum - Moss
- c) Sphagnum - Liverwort
- d) Funaria - Moss

280. True nucleus is absent in:-

- a) Mucor
- b) Vaucheria
- c) Volvox
- d) Anabaena

281. Gymnosperms

- a) Are Homosporous

b)

Possess a male gametophyte which is highly reduced and is confined to single cell only

- c) possess strobili on same or different trees

d)

Show the presence of female gametophyte which is retained within microsporangium

282. Which one pair of examples, will correctly represent the grouping Spermatophyta according to one of the schemes of classifying plants?

- a) Ginkgo, Pisum
- b) Acacia, Sugarcane
- c) Pinus, Cycas
- d) Rhizopus, Triticum

283. Assertion: Gymnosperms do not produce fruit.

Reason: Ovules of gymnosperms are enclosed within the ovaries.

a)

If both assertion and reason are true and reason is the correct explanation of assertion.

b)

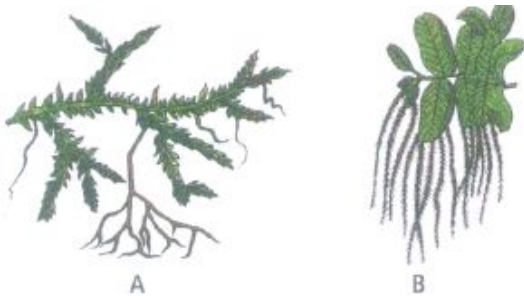
If both assertion and reason are true but reason is not the correct explanation of assertion.

- c) If assertion is true but reason is false.

- d) If both assertion and reason are false.

284. Which one is a wrong statement?
- Brown algae have chlorophyll a and c, and fucoxanthin
  - Archegonia are found in Bryophyta, Pteridophyta and Gymnosperms
  - Mucor has biflagellate zoospores
  - Haploid endosperm is typical feature of gymnosperms
285. Gametophytic plant body is nonvascular in
- Algae and liverworts
  - Mosses and ferns
  - gymnosperms and angiosperms
  - All of these
286. Organisms which obtain energy by the oxidation of reduced inorganic compounds are called
- Photo autotrophs
  - Photo autotrophs
  - Saprophytic
  - Heterotrophs
287. \_\_\_\_\_ classification systems were based on evolutionary relationships between various organisms.
- Natural
  - Artificial
  - Phylogenetic
  - Both (a) and (b)
288. Consider the following four statements whether they are correct or wrong:
- The sporophyte in liverworts is more elaborate than that in mosses
  - Salvinia is heterosporous
  - The life-cycle in all seed-bearing plants is diplontic.
  - In Pinus male and female cones are borne on different trees.
- The two wrong statements together are:
- statements (a) and (b)
  - statements (a) and (c)
  - statements (a) and (d)
  - statements (b) and (c)
289. A nitrogen fixing microbe associated with Azole in rice-fields is:-
- Frankia
  - Tolypothrix
  - Spirulina
  - Anabaena
290. Pteridophytes are divided into how many classes?
- Two
  - Three
  - Four
  - Six
291. **Assertion** : In Chlorophyceae, plant body is usually grass green.  
**Reason** : Members of Chlorophyceae, possess chlorophyll a, c, carotenoids and xanthophyll.
- If both assertion and reason are true and reason is the correct explanation of assertion.
  - If both assertion and reason are true but reason is not the correct explanation of assertion.
  - If assertion is true but reason is false.
  - If both assertion and reason are false.

292. Which group shows the most extensive metabolic diversity?  
 a) Plantae b) Animalia c) Monera d) Fungi
293. The cyanobacteria are also referred to as:-  
 a) Slime moulds b) Blue green algae c) Protists d) Golden algae
294. Agar-agar is commercially obtained from  
 a) green algae b) blue-green algae c) brown algae d) red algae.
295. Sexual reproduction in Spirogyra is an advanced feature because it shows \_\_\_\_\_ .  
 a) physiologically differentiated sex organs.  
 b) different sizes of motile sex organs. c) same size of motile sex organs.  
 d) morphologically different sex organs.
296. Identify the plants shown in figure and select the correct option.



- a) 

A	B
Equisetum	Fern
- b) 

A	B
Equisetum	Fern
- c) 

A	B
Selaginella	Salvinia
- d) 

A	B
Equisetum	Fern

297. In angiosperms, functional megaspore develops into  
 a) embryo sac b) ovule c) endosperm d) pollen sac.
298. Ringworm in humans is caused by :  
 a) Viruses b) Bacteria c) Fungi d) Namatodes
299. Which of the following are not included in the five kingdom system of classification?  
 (a) Viruses  
 (b) Viroid  
 (c) Lichen  
 a) a and b b) b and c c) a and c d) a, b and c
300. Which type of sexual reproduction is found in Volvox?  
 a) Isogamous b) Anisogamous c) Oogamous d) All of these
301. Each character is given equal importance and at the same time hundreds of characters can be considered in:  
 a) cytotaxonomy b) morphotaxonomy c) chemotaxonomy  
 d) numerical taxonomy.

302. The gametophyte of pteridophytes require to grow:-  
a) Warm, damp, and shady place    b) Cool, damp and shady place  
c) Warm, dry, and shady place    d) cool, dry, and place of well sunshine
303. The 'walking fern' is so named because \_\_\_\_\_ .  
a) it is dispersed through the agency of walking animals  
b) it propagates vegetatively by rts leaf tips    c) it knows how to walk by itself  
d) its spores are able to walk
304. Maximum nutritional diversity is found in the group:-  
a) Monera    b) Plantae    c) Fungi    d) Animalia
305. Besides paddy field, cyanobacteria are also found inside vegetative part of:  
a) Psilotum    b) Pinus    c) Cycas    d) Equisetum
306. The "seaweeds" that form the under water forest are:  
a) kelps    b) Laminaria    c) Macrocystis    d) all of these.
307. Which of the following unicellular algae reproduce by auxospores, have silicified cell wall and store food in the form of fats, leucosine and chrysolaminarin?  
a) Diatoms    b) Res algae    c) Dinoflagaellates    d) Euglenoids
308. The sequencing of DNA and chemical nature of proteins have been used as the basis of classification by a  
a) Cytotaxonomist    b) karyotaxonomist    c) chemotaxonomist  
d)  $\alpha$  - taxonomist
309. The antherozoids of Funaria are \_\_\_\_\_ .  
a) Aciliated    b) Biflagellated    c) Multiciliated    d) Monociliated
310. Male gametes are flagellated in \_\_\_\_\_ .  
a) Anabaena    b) Ectocarpus    c) Spirogyra    d) Polysiphonia
311. Algin can be obtained from:-  
a) Rhodophyceae & Chlorophyceae    b) Phaeophyceae & rhodophyceae  
c) rhodophyceae only    d) Phaeophyceae only
312. Natural systems of classification take into consideration  
a) morphological and anatomical characters  
b) morphological and anatomical characters  
c) physiological and reproductive characters    d) all of these.
313. Which one of the following is a slime mould?  
a) Anabaena    b) Rhizopus    c) Physarum    d) Thiobacillus
314. Heterosporous pteridophytes show certain characteristics, which are precursor to the 'seed habit' in gymnosperms. One of such characteristics is

- a) presence of vascular tissues    b) external water required for fertilisation  
 c) presence of embryo stage  
 d) development of embryo inside the female gametophyte.
315. Which of the following is a symbiotic nitrogen fixer?  
 a) Azolla    b) Glomus    c) Azotobacter    d) Frankia
316. Ethanol is commercially produced through a particular species of:-  
 a) Saccharomyces    b) Clostridium    c) Trichoderma    d) Aspergillus
317. cone bearing Pteridophyta are:-  
 a) Lycopsida and Psilopsida    b) Filicinae and Lycopsida  
 c) Filicinae and Sphenopsida    d) Lycopsida and Sphenopsida
318. Armoured cell wall and biflagellated cells are characteristic of:-  
 a) Chrysophyta    b) Pyrrophyta    c) Euglenophyta    d) Cyanophyta
319. Gemmae are multicellular green structures for vegetative propagation. These are found inside gemma cups in  
 a) Riccia capsule    b) Marchantia thallus    c) Funaria protonema  
 d) Polytrichum thallus.
320. Pinus differs from mango in having \_\_\_\_\_ .  
 a) tree habit    b) green leaves    c) ovules not enclosed in ovary    d) wood
321. Read the following five statements (A to E) and select the option with all correct statements:-  
 (A) Mosses and Lichens are the first organisms to colonise a bare rock  
 (B) Selaginella is a homosporous pteridophyte  
 (C) Coralloid roots in cycas have VAM  
 (D) Main plant body in bryophytes is gametophytic, whereas in pteridophytes it is sporophytic  
 (E) In gymnosperms, male and female gametophytes are present are within sporangia located on sporophyte  
 a) (B), (C) and (D)    b) (A), (D) and (E)    c) (B), (C) and (E)    d) (A), (C) and (D)
322. Which out of the following are included under Tracheophyta, i.e., vascular plants?  
 a) Pteridophytes    b) Gymnosperms    c) Angiosperms    d) All of these
323. Two plants can be conclusively said to belong to the same species if they:  
 a) Have same number of chromosomes  
 b) Can reproduce freely with each other and form seeds  
 c) Have more than 90 percent similar genes  
 d) Look similar and possess identical secondary metabolites

324. Pinus seed cannot germinate and establish without fungal association. This is because \_\_\_\_\_ .
- It has obligate association with mycorrhizae.
  - It has very hard seed coat.
  - Its seeds contain inhibitors that prevent germination.
  - Its embryo is immature.
325. **Assertion:** In angiosperms, each cell of the embryo sac is haploid.  
**Reason:** In angiosperms, embryo sac formation is preceded by meiosis.
- If both assertion and reason are true and reason is the correct explanation of assertion.
  - If both assertion and reason are true but reason is not the correct explanation of assertion.
  - If both assertion and reason are true but reason is not the correct explanation of assertion.
  - If both assertion and reason are false.
326. Evolution of seed habit first started in:-
- Selaginella like ancestral pteridophytes
  - Psilotum like ancestral pteridophytes
  - Gymnosperms
  - Mosses
327. Casparian strips occur in \_\_\_\_\_ .
- Cortex
  - Pericycle
  - Epidermis
  - Endodermis
328. Adiantum is called "walking fern" due to:-
- Power of locomotion
  - Vegetative reproduction
  - Motile antherozoites
  - All the above
329. Plants of this group are diploid and well adapted to extreme conditions. They grow bearing sporophylls in compact structures called cones. The group in reference is
- monocots
  - dicots
  - pteridophytes
  - gymnosperms.
330. Seed plants are all
- heterosporous
  - dioecious
  - monoecious
  - homosporous.
331. Largest sperms in the plant world are found in \_\_\_\_\_ .
- Pinus
  - Banyan
  - Cycas
  - Thuja
332. Which of the following statements is correct?
- Horsetails are gymnosperms
  - Selaginella is heterosporous, while Salvinia is homosporous

- c) Ovules are not enclosed by ovary wall in gymnosperms  
d) Stems are usually unbranched in both *Cycas* and *Cedrus*
333. Which of the following pairs is of unicellular algae?  
a) *Anabaena* and *Volvox*   b) *Chlorella* and *Spirulina*  
c) *Laminaria* and *Sargassum*   d) *Gelidium* and *Gracilaria*
334. Which of the following statements is incorrect about *Cycas*?  
a) It has unbranched stem.   b) It possesses pinnately compound leaves.  
c) It is a dioecious plant.   d) It is a non-archegoniate plant.
335. Read the following statements (A-E) and answer the question which follows them.  
(a) In liverworts, mosses and ferns gametophytes are free living  
(b) Gymnosperms and some ferns are heterosporous  
(c) Sexual reproduction in *Fucus*, *Volvox* and *Allbugo* is oogamous  
(d) The sporophyte in liverworts is more elaborate than that in mosses  
(e) Both, *Pinus* and *Marchantia* are dioecious  
How many of the above statements are correct?  
a) Four   b) one   c) Two   d) Three
336. The 'wing' of *Pinus* seed is derived from \_\_\_\_\_ .  
a) testa   b) testa and tegmen   c) surface of ovuliferous scale  
d) All of the above
337. Which of the statements regarding haplontic life cycle is incorrect?  
a) Sporophytic generation is represented only by the one-celled zygote.  
b) There is no free-living sporophyte.  
c) Mitosis in the zygote results in the formation of haploid spores.  
d) The haploid spores divide mitotically and form the gametophyte.
338. In which group of organisms the cells walls for two thin overlapping shells which fit together  
a) Slime moulds   b) Chrysophytes   c) Euglenoids   d) Dinoflagellates
339. System of classification that employs numerical data to evaluate similarities and differences is known as  
a) cytotaxonomy   b) biosystematics   c) phenetics   d) phenetics
340. Bryophytes are amphibians because \_\_\_\_\_ .  
a) they require a layer of water for carrying out sexual reproduction  
b) they occur in damp places   c) they are mostly, aquatic   d) All of the above
341. Which of the following has proved helpful in preserving pollen as fossils?  
a) Oil content   b) Cellulosic intine   c) Pollenkitt   d) Sporopollenin



342. One gene-one enzyme relationship was established for the first time in:-  
a) *Diplococcus pneumoniae* b) *Neurospora crassa*  
c) *Salmonella typhimurium* d) *Escherichia Coli*
343. \_\_\_\_\_ systems of classification were based on natural affinities among the organisms.  
a) Artificial b) Natural c) Phylogenetic d) Sexual
344. **Assertion:** In diplontic life cycle, gametophyte is dominant.  
**Reason:** In diplontic life cycle, there is no free living sporophyte.  
a)  
If both assertion and reason are true and reason is the correct explanation of assertion.  
b)  
If both assertion and reason are true but reason is not the correct explanation of assertion.  
c) If assertion is true but reason is false.  
d) If both assertion and reason are false.
345. Most reduced gametophyte generation is found in:-  
a) Bryophyta b) Pteridophyta c) Gymnosperms d) Angiosperms
346. Which one of the following pairs is wrongly matched?  
a) Coliforms-Vinegar b) Methanogens-Gobar gas c) Yeast-Ethanol  
d) Streptomyces-Antibiotic
347. Protonema is  
a) haploid and is found in mosses b) diploid and is found in liverworts  
c) diploid and is found in pteridophytes  
d) haploid and is found in pteridophytes
348. Which of the following character is similar in cyanobacteria and green plants?  
a) Cell wall (composition) b) Chlorophyll 'a' c) Nif gene d) 80s ribosome
349. Curing of tea leaves is brought about by the activity of :  
a) virus b) fungi c) bacteria d) mycorrhiza
350. Which group of organisms is responsible for the production of biogas from the dung of cows and buffaloes?  
a) *Methanomonas* b) Methanogens c) Cyanobacteria d) Mycoplasma
351. Protista is similar to Plantae and different from Monera in:-  
a) Mode of nutrition b) Cellular grade of organization c) Nuclear membrane  
d) Cell wall
352. Resemblances between algae and bryophytes include

- a) presence of root-like, stem-like and leaf-like structures
- b) thallus-like plant body, lack of vascular tissue, autotrophic nutrition
- c) thallus-like plant body, presence of vascular tissue, autotrophic nutrition
- d) presence of roots, heterotrophic nutrition.

353. Which are chief producers of oceans?

- a) Diatoms    b) Dinoflagellates    c) Euglenoid    d) Green algae

354. Division "Tracheophyta" includes:-

- a) Bryophyta    b) All vascular plants    c) All non-vascular plants
- d) All non-vascular and vascular plants

355. Unique features of bryophytes is that they \_\_\_\_\_ .

- a) produce spores    b) have sporophyte attached to gametophyte
- c) lack roots    d) lack vascular tissues

356. Pteridophyta differs from bryophyta in having:-

- a) Vascular tissue    b) Archegonia    c) Alternation of generations
- d) Motile sperm

357. Study the given statements about gymnosperms and select the correct option.

- (i) Mode of fertilisation is siphonogamy.
- (ii) Male and female cones are borne on same tree in Pinus.
- (iii) Endosperm represents female gametophyte.
- a) Statements (i) and (ii) are correct.    b) Statements (ii) and (iii) are correct.
- c) Statements (i) and (iii) are correct    d) Statements (i), (ii) and (iii) are correct.

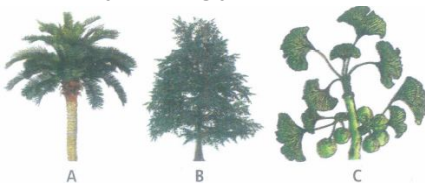
358. A moss sperm moves by means of

- a) pseudopodia    b) cilia    c) flagella    d) any of these

359. The "endosperm" of a gymnosperm represent:-

- a) Gametophytic tissue    b) Sporophytic tissue
- c) Tissue formed by double fertilization    d) Polyploid tissue

360. Identify the gymnosperms shown in figure and select the correct option.



a)

A	B	C
Cyeas	Cedrus	Ginkgo

b)

A	B	C
Pinus	Cyeas	Cedrus

c)

A	B	C
Ginkgo	Pinus	Cyeas

d)

A	B	C
Cyeas	Ginkgo	Pinus

361. Asexual reproduction in liverworts takes place by  
a) fragmentation of thalli and gemmae formation  
b) gemmae formation and diploid spore formation  
c) spores formation and isogamy d) fragmentation and zoospore formation.
362. Which one of the following is heterosporous?  
a) Adiantum b) Equisetum c) Dryopteris d) Salvinia
363. What is the chromosomes number in rhizoid, egg cells, capsule and protonema, if leaf cell of bryophyte contains 10 chromosomes?  
a) 10, 10, 20 and 10 respectively b) 10, 20, 20 and 10 respectively  
c) 20, 10, 20 and 10 respectively d) 10, 10, 20 and 20 respectively
364. The pathogen *Microsporum* responsible for ringworm disease in humans belongs to the same kingdom of organisms as that of:  
a) *Ascaris*, a round worm b) *Taenia*, a tapeworm  
c) *Wuchereria*, a filarial worm d) *Rhizopus*, a mould
365. *Ulothrix* filaments produce \_\_\_\_\_ .  
a) isogametes b) anisogametes c) heterogametes d) basidiospores
366. Cyanobacteria are classified under  
a) Protista b) Planta c) Monera d) Algae.
367. Phycoerythrin is present in  
a) *Euglena* b) *Polysiphonia* c) *Chlamydomonas* d) *Fucus*.
368. Seed habit first originated in \_\_\_\_\_ .  
a) certain ferns b) certain pines c) certain monocots d) primitive dicots
369. An alga very rich in protein is \_\_\_\_\_ .  
a) *Spirogyra* b) *Ulothrix* c) *Oscillatoria* d) *Chlorella*
370. Monoecious plant of *Chara* shows occurrence of:  
a) Upper oogonium and lower antheridium on the same plant  
b) antheridiophore and archegoniophore on the same plant  
c) stamen and carpel on the same plant  
d) upper antheridium and lower oogonium on the same plant
371. Which of the following structures is not found in prokaryotic cells?  
a) Plasma membrane b) Nuclear envelope c) Ribosome d) Mesosome
372. In pteridophytes, prothallus produces  
a) sporangia b) antheridia and archegonia c) vascular tissues  
d) root, stem and leaf.
373. Anoxygenic photosynthesis is characteristic of:  
a) *Rhodospirillum* b) *Spirogyra* c) *Chlamydomonas* d) *Ulva*

374. In *Pinus*, the pollen grain has 6 chromosomes then its endosperm will have the chromosome \_\_\_\_\_ .  
 a) 2   b) 18   c) 6   d) 24
375. Moss peristome takes part in \_\_\_\_\_ .  
 a) spore dispersal   b) photosynthesis   c) protection   d) absorption
376. *Neurospora*, which is popularly known as *Drosophila* of plant kingdom, belongs to:-  
 a) *Phycomycetes*   b) *Ascomycetes*   c) *Basidiomycetes*   d) *Seuteromycetes*
377. Which one has the largest gametophyte?  
 a) *Cycas*   b) Angiosperm   c) *Selaginella*   d) Moss
378. Canada balsam, a mounting agent used to make permanent slides, is obtained from the species of  
 a) *Abies*   b) *Cedrus*   c) *Pinus*   d) *Juniperus*
379. Identify the given figures of algae and select the correct option.



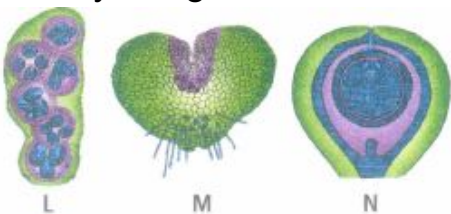
- a)
- |       |              |
|-------|--------------|
| A     | B            |
| Fucus | Polysiphonia |
- b)
- |          |              |
|----------|--------------|
| A        | B            |
| Dictyota | Polysiphonia |
- c)
- |          |          |
|----------|----------|
| A        | B        |
| Dictyota | Porphyra |
- d)
- |          |              |
|----------|--------------|
| A        | B            |
| Porphyra | Polysiphonia |

380. Match column I with column II and select the correct option from the codes given below.

Column I	Column II
A. Psilopsida	(i) Psilotum
B. Lycopsida	(ii) Equisetum
C. Sphenopsida	(iii) Selaginella
D. Pteropsida	(iv) Dryopteris

- a) A-(i), B-(ii), C-(iii), D-(iv)   b) A-(i), B-(iv), C-(iii), D-(ii)  
 c) A-(i), B-(iii), C-(ii), D-(iv)   d) A-(i), B-(iii), C-(iv), D-(ii)
381. In \_\_\_\_\_, a dominant and independent diploid sporophyte alternates with a short-lived, independent haploid gametophyte.  
 a) algae   b) bryophytes   c) pteridophytes   d) gymnosperms
382. The members of *Phaeophyceae* or brown algae are found primarily in/on

- a) freshwater b) marine habitat c) terrestrial habitat d) rock.
383. Male and female gametophytes are independent and free-living in:  
a) Sphagnum b) Mustard c) Castor d) Pinus
384. Filamentous unbranched thallus is found in  
a) Chlamydomonas b) cladophora c) volvox d) spirogyra
385. In the five-kingdom classification, Chlamydomonas and Chlorella have been included in:  
a) Plantae b) Monera c) Protista d) Algae
386. Which kind of life-cycle pattern is exhibited by seed-bearing plants?  
a) Haplontic b) Diplontic c) Haplo-diplontic d) All of these
387. The heterosporous pteridophytes are  
a) Lycopodium and Pteris b) Selaginella and Psilotum  
c) Selaginella and Salvinia d) Dryopteris and Adiantum
388. Which out of the following does not belong to brown algae?  
a) Gelidium, Batrachospermum b) Ectocarpus, Dictyota c) Laminaria, Fucus  
d) Sargassum, Ectocarpus
389. Plants having haplontic life cycle shows  
a) Sporic meiosis b) Zygotic Meiosis c) Gametic meiosis d) Both (1) & (2)
390. Identify the given structures and select the correct option



a)

L	M	N
Aplanospore of Ulothrix	Prothallus (2n) of pteridophyte	Ovule of angiosperm

b)

L	M	N
Palmella stage of Ulothrix	Prothallus (n) of bryophyte	Ovule gymnosperm

c)

L	M	N
Akinetes of Chlamydomonas	Sporophyte (2n) of bryophyte	Endosperm of gymnosperm

d)

I	M	N
Palmella stage of Chlamydomonas	Prothallus (n) of pteridophyte	Ovule of gymnosperm

391. Male and female gametophytes do not have free independent existence in:  
a) Pteris b) Cedrus c) Polytrichum d) Funaria
392. Which of the following characters indicate similarity between fungi and animals?  
a) Heterotrophic nutrition b) Type of stored food c) Presence of chitin  
d) All the above
393. Which of the following is not correctly matched for the organism and its cell wall degrading enzyme?  
a) Fungi-Chitinase b) Bacteria-Lysozyme c) Plant cells-Cellulase  
d) Algae-Methylase
394. Bryophytes are dependent on water because \_\_\_\_\_ .  
a) water is essential for fertilisation for their homosporous nature  
b) water is essential for their vegetative propagation  
c) the sperms can easily reach up to egg in the archegonium  
d) archegonium has to remain filled with water for fertilisation
395. Brown algae is characterised by the presence of \_\_\_\_\_ .  
a) phycocyanin b) phycoerythrin c) fucoxanthin d) haematochrome
396. Which one of the following fungi contains hallucinogens?  
a) Morchella esculenta b) Amanita muscaria c) Neurospora sp.  
d) Ustilago sp.
397. Which of the following propagates through leaf-tip?  
a) Walking fern b) Sproux-leaf plant c) Marchantia d) Moss
398. Peat Moss is used as a packing material for sending flowers and live plants to distant places because \_\_\_\_\_ .  
a) it is hygroscopic. b) it reduces transpiration. c) it serves as a disinfectant.  
d) it is easily available.
399. Euglenoids have a protein rich layer instead of cell wall This layer is called as:-  
a) Cellulose b) Chitin c) Pellicle d) Pectin
400. Isogamous condition with non-flagellated gametes is found in :  
a) Fucus b) Chlamydomonas c) Spirogyra d) Volvox
401. The basic smallest unit of classifications is:-  
a) Genus b) Species c) Order d) All of these

102. Which one of the following is not an inclusion body found in prokaryotes?  
a) Cyanophycean granule   b) Glycogen granule   c) Polysome  
d) Phosphate granule
103. Compared with the gametophytes of the bryophytes the gametophytes of vascular plant are \_\_\_\_\_ .  
a) Smaller but have larger sex organs   b) Larger but have smaller sex organs  
c) Larger and have larger sex organs   d) Smaller and have smaller sex organs
104. Monographs are concerned with:  
a) Information of any species only   b) Information of any genus only  
c) Information of any family only   d) Information of any family only
105. Which of the following cannot fix nitrogen?  
a) Nostoc   b) Azotobacter   c) Spirogyra   d) Anabaena
106. Which one of the following is a correct statement?  
a) Antheridiophores and archegoniophores are present in pteridophytes  
b) Origin of seed habit can be traced in pteridophytes  
c) pteridophyte gametophyte has a protonemal and leafy stage  
d) In gymnosperms female gametophyte is free living
107. The dominant Phase in the life Cycle of pteridophyta is nutritionally equivalent to the  
a) gametophytic phase of bryophyta   b) Sporophytic Phase of Bryophyta  
c) Gametophytic Phase of angiosperm  
d) Gametophytic Phase of Gymnosperm
108. A leafy gametophyte plant with multicellular rhizoids and sporophyte differentiated in foot, seta and capsule should belong to:-  
a) Psilopsida   b) Hepaticopsida   c) Bryopsida   d) Lycopsida
109. Which of the following is an aquatic fern?  
a) Adiantum   b) Dryopteris   c) Salvinia   d) Equisetum
110. Which of the following statements regarding nomenclature is correct?  
a)  
Generic name always begins with capital letter whereas specific epithet with small letter  
b) Scientific name always should be printed in italics  
c) Scientific name when typed or handwritten should be separately underlined  
d) All the above
111. Which of the following suffix is always correct for taxonomic categories without any exception?

- a) "-ia" for class like in class Mammalia    b) "-ca" for genus like in genus Musca
- c) "-ceae" for family like is family poaceae
- d) "-oda" for phylum like in phylum Arthropoda

12. **Assertion:** Spores in mosses are contained within the capsule.

**Reason:** Spores are formed by mitotic division in mosses.

a)

If both assertion and reason are true and reason is the correct explanation of assertion.

b)

If both assertion and reason are true but reason is not the correct explanation of assertion.

c) If assertion is true but reason is false.

d) If both assertion and reason are false.

13. The thalloid body of a slime mould (Myxomycetes) is known as:

- a) Fruit body    b) Mycelium    c) Protonema    d) Plasmodium

14. Which statement is correct about mosses?

a) They have dominant and independent sporophyte

b) Their antherozoids require water for fertilisation

c) Their archegonia produce many eggs

d) Their antherozoids are multiflagellated

15. **Assertion:** In gymnosperms, the male and female gametophytes do not have independent existence.

**Reason:** They remain within the sporangia retained on the sporophyte.

a)

If both assertion and reason are true and reason is the correct explanation of assertion.

b)

If both assertion and reason are true but reason is not the correct explanation of assertion.

c) If assertion is true but reason is false.

d) If both assertion and reason are false.

16. In double fertilisation, one male gamete fuses with the \_\_\_(i)\_\_\_ form zygote and the other male gamete fuses with \_\_\_(ii)\_\_\_ form primary endosperm nucleus.

a) synergids (n), antipodals (n)    b) egg (n), antipodals

c) egg (n), secondary nucleus (2n)    d) egg (n), synergids (n)

17. Gemmae are asexual reproductive bodies of



- a) brown algae   b) mosses   c) liverworts   d) red algae
118. Infoldings of plasma membrane in bacteria are called as:-  
a) Episomes   b) Plasmid   c) Pili   d) Mesosomes
119. Which one of the following is not the ecological importance of moss plants?  
a)  
Some mosses provide food for herbaceous mammals birds and other animals  
b)  
Very high water holding capacity of mosses is useful for trans-shipment of living materials  
c) Mosses along with lichens are the pioneering organisms to colonise rocks  
d) Mosses form dense mats on the soil and reduce the impact of falling rain.
120. Batrachospermum is a  
a) red algae of sea   b) brown algae   c) blue algae   d) red algae of freshwater
121. Archaeobacterial cell lacks:-  
a) Peptidoglycan   b) DNA   c) Ribosomes   d) Branched Chain Lipids
122. Which one of the following is considered important in the development of seed habit?  
a) Heterospory   b) Haplontic life cycle   c) Free-living gametophyte  
d) Dependent sporophyte
123. Which one of the following has haplontic life cycle  
a) Wheat   b) Funaria   c) Polytrichum   d) Ustilago
124. In Whittaker's five kingdom classification, eucaryotes were assigned to:-  
a) All the five kingdom   b) Only four of the five kingdoms  
c) Only three kingdom   d) Only one kingdom
125. Strobili or cones are found in \_\_\_\_\_ .  
a) Marchantia   b) Equisetum   c) Salvinia   d) Pteris
126. Chief merit of Bentham and Hooker's classification is that:-  
a) It is a system mostly based on evolutionary  
b) It is a natural systems of classification of all groups of plants  
c) The description of the taxa are based on actual observation of the specimen  
d) It also considers the phylogenetic aspects
127. In which one of the following, male and female gametophytes do not have free living independent existence?  
a) Polytrichum   b) Cedrus   c) Pteris   d) Funaria

128. Read the given statements and select the correct option.

**Statement 1:** Each sperm of moss has two flagella.

**Statement 2:** Water is essential for fertilisation in mosses.

- a) Both statements 1 and 2 are correct.
- b) Statement 1 is correct but statement 2 is incorrect
- c) Statement 1 is incorrect but statement 2 is correct
- d) Both statements 1 and 2 are incorrect

129. Angiosperms A and B shown in the figure belong to the Class \_ and \_ respectively.

a)

A	B
Dicotyledonae	Monocotyledonae

b)

A	B
Monocotyledonae	Monocotyledonae

c)

A	B
Monocotyledonae	Monocotyledonae

d)

A	B
Dicotyledonae	Dicotyledonae

130. Choose the incorrect statement from following

- a) Dinoflagellates have stiff cellulose plates on the outer surface
- b) Euglenoids have two flagella, one lies longline dinally and the other transversely
- c) Slime mould's spores are dispersed by currents
- d) In diatoms the cell walls form two overlapping shells

131. The Plant used as an alternative of cotton:-

- a) Sphagnum
- b) Funaria
- c) Riccia
- d) Andria

132. Read the given statements and select the correct option.

Statement 1: Volvox forms spherical colony.

Statement 2: Volvox colony is made up of non-motile cells.

- a) Both statements 1 and 2 are correct.
- b) Statement 1 is correct but statement 2 is incorrect
- c) Statement 1 is incorrect but statement 2 is correct.
- d) Both statements 1 and 2 are incorrect.

133. Which of the following statements is incorrect?

- a) Mosses along with lichens are the first organisms to colonise rocks.
- b) Sphagnum is used as packing material for transportation of living material.
- c) In liverworts, spores are produced after meiosis within the capsule.
- d) Funaria possesses unicellular unbranched rhizoids.

134. The most abundant prokaryotes helpful to humans in making curd from milk and in production of antibiotics are ones categorised as:  
a) Chemosynthetic autotrophs    b) Heterotrophic bacteria    c) Cyanobacteria  
d) Archaeobacteria

135. Incorrect Statement in relation to the artificial system of classification is  
a) Used only gross morphological characters  
b) Based mainly on vegetative characters or androecium Structure  
c) Gave more preference to Sexual characteristics  
d) Separated closely related species as they were based on a few characters

136. The given figure shows a



- a) Selaginella leaf    b) Psilotum leaf    c) Adiantum plant    d) Dryopteris plant
137. If you are asked to classify the various algae into distinct groups, which of the following characters you should choose?  
a) Chemical composition of the cell wall  
b) Types of pigments present in the cell  
c) Nature of stored food materials in the cell  
d) Nature of stored food materials in the cell
138. Male gametophyte in angiosperms produces:  
a) Three sperms    b) two sperms and a vegetative cell  
c) Single sperm and a vegetative cell    d) Single sperm and two vegetative cells
139. Which one of the following statements about Cycas is incorrect?  
a) It does not have a well organised female flower    b) It has circinate venation  
c) Its xylem is mainly composed of xylem vessels  
d) Its roots contain some blue-green algae
140. Flagellated cells are absent in:-  
a) Red algae    b) Blue green algae    c) Higher seed plants    d) All the above
141. Deepest algae in sea are:-  
a) Red Algae    b) Brown Algae    c) Green Algae    d) Golden Algae
142. Select the incorrect pair.  
a) Numerical taxonomy - All observable characteristics  
b) Cytotaxonomy - Cytological information

- c) Chemotaxonomy - Chromosome number and structure.  
 d) Cladistic taxonomy - Origin from a common ancestor
143. Read the given statements and select the incorrect ones.  
 (i) Sporophyte in mosses is more elaborate than that in liverworts.  
 (ii) *Salvinia* is homosporous.  
 (iii) Life-cycle in all spermatophytes is diplontic.  
 (iv) In *Cycas*, male cones and megasporophylls are borne on the same trees.  
 a) (i) and (ii)    b) (i) and (iii)    c) (ii) and (iv)    d) (iii) and (iv)
144. Prothallus (gametophyte) gives rise to fern plant (sporophyte) without fertilisation. It is \_\_\_\_\_ .  
 a) apospory    b) apogamy    c) parthenocarpy    d) parthenogenesis
145. Which one of the wrong pairing for the disease and its causal organism?  
 a) Root-knot of vegetables-*Meloidogyne* sp  
 b) Late blight of potato-*Alternaria solani*  
 c) Black rust to wheat - *Puccinia graminis*  
 d) Loose smut of wheat - *Ustilago nuda*
146. Sperms of both *Funaria* and *Pteris* were released together near the archegonia of *Pteris*. Only *Pteris* sperms enter the archegonia as \_\_\_\_\_ .  
 a) *Pteris* archegonia repel *Funaria* sperms  
 b) *Funaria* sperms get killed by *Pteris* sperms  
 c) *Funaria* sperms are less mobile  
 d) *Pteris* archegonia release chemical to attract its sperms
147. Plant classification as proposed by Carolus Linnaeus was artificial because it was based on  
 a) only a few morphological characters    b) all the possible characters  
 c) anatomical characters which are adaptive in nature  
 d) physiological and morphological characters
148. The moss which forms dense extensive mats on the soil prevents  
 a) uprooting of trees    b) soil erosion    c) falling of leaves  
 d) evaporation of water from the soil.
149. Key, a taxonomical aid, used for identification of plants and animals based on similarities and dissimilarities its each statement is called:  
 a) Couplet    b) Lead    c) Choice    d) Indented
150. Fill in the blanks a, b, c and d by observing the characters given in the table and choose the correct answer from the options:-

Plant group	Main body	Fertilisation	Vascular tissue	Female sex organ

Bryophyte	Gametophyte	Zoodiogamy	Absent	(c)
Pteridophyta	(a)	Zoodiogamy	(b)	Archegonium
Gymnosperm	Sporophyte	Siphnogamy and zoodiogamy	Present	(d)

a)

a	b	c	d
Sporophyte	Present	Archegonium	Archegonium

b)

a	b	c	d
Sporophyte	Absent	Oogonium	Archegonium

c)

a	b	c	d
Gametophyte	Present	Archegonium	Carpel

d)

a	b	c	d
Gametophyte	Present	Archegonium	Carpel

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