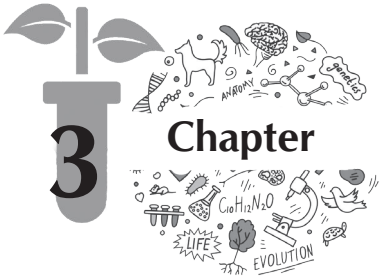


Plant Kingdom

MULTIPLE CHOICE QUESTIONS

1. Phylogenetic classification is based on –
(a) evolutionary relationship
(b) organism belonging to some taxa do not have a common ancestor
(c) giving equal weightage to vegetative & sexual character but not on evolutionary relationship
(d) A and B both

2. Artificial classification system is –
(a) based mainly on vegetative character and androecium structure
(b) based on ultrastructure, anatomical, and embryological characters
(c) based on external and internal features
(d) based on chromosome number.

3. Which system is given by George Bentham and Joseph Dalton Hooker?
(a) Artificial classification system
(b) Phylogenetic classification
(c) Natural classification system
(d) (a) and (b) respectively

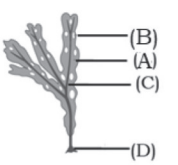
4. Which one is incorrectly paired?
(a) Numerical taxonomy – Number and code are assigned to all the characters and the data are then processed
(b) Cytotaxonomy – Based on cytological information
(c) Chemotaxonomy – Based on phytochemistry
(d) Natural classification – Linnaeus

Topic 1	Algae

5. *Eudorina* show –
(a) Fusion of flagellate and similar sized gametes
(b) Fusion of non – flagellate and similar size gametes
(c) Oogamous
(d) Anisogamous

6. How many of following are isogamous *Ulothrix, Spirogyra, Volvox, Fucus, Polysiphonia*
(a) 1 (b) 2
(c) 3 (d) 4

7. Identify organism and label A, B, C, D



(a) *Laminaria* A = leaf, B = air bladder, C = stipe, D = holdfast
(b) *Fucus* A = frond, B = air bladder, C = stipe, D = holdfast
(c) *Fucus* A = air bladder, B = frond, C = midrib D = holdfast
(d) *Laminaria* A = leaf, C = midrib, D = petiole

8. Algae are useful to man in –
(a) Fixation of almost half of total CO_2 on earth
(b) Primary producer
(c) Increase level of oxygen
(d) All of these

9. Hydrocolloids are produced by –
   (a) Brown algae (algin), carrageen (red algae), Agar (brown algae)
   (b) Brown algae (algin), Red algae (carrageen)
   (c) Brown algae (algin, agar), Red algae (carrageen)
   (d) None of these

10. Choose correct statement –
   (a) *Chlorella*, a multicellular alga rich in protein
   (b) *Chlorella* & *Spirulina* are astronaut food because of their high carbohydrate, vitamin mineral but less protein
   (c) The product obtained by *Gracilaria* are used to grow microbes
   (d) *Laminaria Sargassum* a member of Rhodophyceae are among 70 species of marine algae used as food

11. Blue – green algae are placed in which kingdom according to R.H. Whittaker?
   (a) Monera (b) Protista
   (c) Fungi (d) Plantae

12. Choose the correct statement related to algae:
   (a) Algae are chlorophyllous, autotrophic member of Plantae
   (b) Some algae occur in association with fungi and on sloth bear
   (c) The plant body of algae lack root, stem, leaf
   (d) All of these

13. Colonial form alga is –
   (a) *Ulothrix* (b) *Volvox*
   (c) Kelp (d) *Spirogyr*a

14. Zoospore is –
   (a) Sexual spore in algae
   (b) Asexual spore in algae
   (c) Develop in zoosporangium in number of four
   (d) Non-flagellated spore

15. Fusion between one large static female gamete and smaller motile male gamete is termed as___ and seen in ___
   (a) Isogamous, *Spirogyra*
   (b) Oogamous, *Volvox*
   (c) Anisogamous, *Fucus*
   (d) Oogamous, *Ulothrix*

Topic 2 Chlorophycease

16. *Chara* is
   (a) Common stonewort
   (b) Marine green algae
   (c) Unisexual algae
   (d) None of these

17. Flagellation in green algae is –
   (a) 2 – 8, equal, apical
   (b) 2, unequal, lateral
   (c) 2 – 8, unequal, lateral
   (d) Absent

18. Chlorophyceae are commonly called as-
   (a) Green algae
   (b) Blue – green algae
   (c) Brown algae
   (d) Red algae

19. Major pigment of *Chlamydomonas* –
   (a) Chlorophyll a, b
   (b) Chlorophyll a, c
   (c) Chlorophyll a, d
   (d) Fucoxanthin, phycoerythrin

20. Choose incorrect statement about green alga-
   (a) The chlorophyll is localised in definite chloroplast
   (b) *Spirogyra* have spiral chloroplast
   (c) Most member have one or more storage bodies i.e., pyrenoid localised in chloroplast
   (d) The cell wall is made of outer layer that is of cellulose and inner layer of pectose

21. Reproduction in green algae is/are –
   (a) Isogamous (b) Anisogamous
   (c) Oogamous (d) All of these

Topic 3 Phaeophyceae

22. The color of brown algae depend upon
(a) Amount of xanthophyll
(b) Fucoxanthin present in them
(c) Phycoerythrin and fucoxanthin ratio
(d) (a) & (b) both

23. Choose the correct statement about cell of brown algae:
(a) Cellulosic cell wall is covered outside by algin
(b) Cellulosic cell wall is covered with pectin and polysulphate esters
(c) They have two flagella, equal sized and laterally inserted
(d) (a) and (c)

24. *Dictyota* is member of –
(a) *Ectocarpus, Gelidium* and *Fucus*
(b) Laminarin or mannitol as stored food
(c) *Laminaria, Porphyra* and *Fucus*
(d) Phycoerythrin as accessory pigment

25. Gametes of *Sargassum* are-
(a) Pyriform (b) Cup – shaped
(c) Ribbon – shaped (d) Discoid

26. Phaeophyceae is commonly named as –
(a) Green alga (b) Brown alga
(c) Red algae (d) None

27. Choose the correct statement from the following –
(a) *Ectocarpus* is filamentous forms while kelps is profusely branched from
(b) Kelps may reach a height of average 100 cm
(c) The plant body of brown algae is attached to substratum by stipe
(d) Leaf – like photosynthetic organ of brown algae is stipe

28. Major pigment found in *Fucus* is/are
(a) Chlorophyll a, c
(b) Chlorophyll a, d
(c) Chlorophyll a, b
(d) Fucoxanthin and phycoerythrin

Topic 4 Rhodophyceae

29. Sexual reproduction in Porphyra is –
(a) Isogamous (b) Anisogamous
(c) Oogamous (d) All of these

30. Rhodopyceae is called red algae because of –
(a) predominance of red pigment
(b) abundance if d – phycoerythrin
(c) (a) & (b) both
(d) none of these

31. The stored food in *Polysiphonia* is ____A___ which is very similar to _____B_____ and _____C____ in structure
(a) A = floridean starch, B = amylopectin, C = glycogen
(b) A = floridean starch, B = chitin, C = glycogen
(c) A = mannitol, B = floridean starch, C = amylopectin
(d) None of these

32. Member of Rhodophyceae reproduce by–
(a) Non – motile asexual spores and motile sexual gametes
(b) motile asexual spores and motile sexual gametes
(c) Non – motile asexual spores and non – motile sexual gametes
(d) motile asexual spores and non – motile sexual gametes

Topic 5 Bryophyta

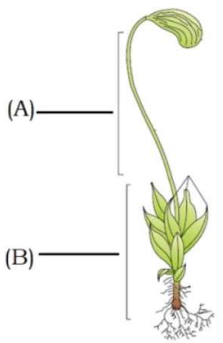
33. First organism to colonize bare rocks are –
(a) Mosses (b) Lichens
(c) Liverworts (d) (a) & (b) both

34. For trans – shipment of living material which of the following is more suitable?
(a) *Marchantia* (b) *Funaria*
(c) *Sphagnum* (d) *Riccia*

35. Which of the following is obtained from Sphagnum as coal:
(a) Bituminous (b) Peat
(c) Lignite (d) Anthracite

36. Bryophyta include –
(a) Hornwort (b) Liverwort
(c) Mosses (d) All of these

37. Identify given plant diagram and label its parts:



(a) *Funaria*, A = gametophyte B = sporophyte
(b) *Sphagnum*, A = gametophyte B = sporophyte
(c) *Funaria*, A = sporophyte B = gametophyte
(d) *Sphagnum*, A = sporophyte B = gametophyte

38. Bryophytes are –
(a) Amphibians of the plant kingdom
(b) Reptilians of the plant kingdom
(c) First vascular bundles containing plant
(d) (a) & (c) both

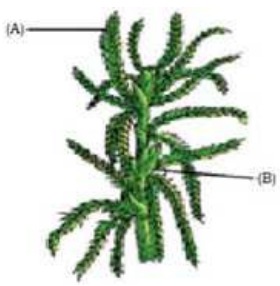
39. The body organization of bryophytes have –
(a) Unicellular or multicellular rhizoid
(b) Less differentiation than algae
(c) They have true root stem and leaves
(d) (a) & (c) both

40. The main plant body of bryophyte is ___A___ that produce ____B____
(a) A = diploid B = gametes
(b) A = haploid B = gametes
(c) A = haploid B = spores
(d) A = diploid B = spores

41. Choose the correct statement:
(a) Sex organs in bryophytes are unicellular and jacketed
(b) Male sex organ is antheridium that produce flagellate (four flagella) antherozoids
(c) Female sex organ is archegonium which is flask – shaped and produce single egg
(d) Water is required for transport of egg from archegonium to antheridium

42. In bryophyta, meiosis occur –
(a) during development of gametes
(b) immediately after zygote formation
(c) after sometime of zygote formation
(d) in gameophytic stage

43. Identify the given diagram and label



(a) *Sphagnum*, a liverwort, A = archegonia branch, B = antheridial branch
(b) *Sphagnum*, a moss, A = antheridial branch , B = archegonial branch
(c) *Funaria*, a moss, A = antheridial branch, B = archegonia branch
(d) *Sphagnum*, a liverwort, A = antheridial branch, B = archegonia branch

44. Choose the correct statement with regard to bryophyta:
(a) Sporophyte is free – living but attached to photosynthetic gametophyte and derives nourishment from it
(b) Sporophyte is not free – living but attached to photosynthetic gametophyte and derives nourishment from it

(c) Gametophyte is not free – living but attached to photosynthetic sporophyte and derives nourishment from it
(d) Gametophyte is free living but attached to photosynthetic sporophyte and derives nourishment from it

Topic 6 Liverworts

45. In *Marchantia*
(a) Male and female sex organs are produced on same thalli
(b) Male and female sex organs are produced on different thalli
(c) Gametophyte is differentiated into foot, seta and capsule
(d) Both (a) and (b)

46. Choose the correct statement :
(a) The thalloid plant body of liverwort is dorsiventrally appressed closely to substrate
(b) The leafy members have tiny true leaf in two rows on the stem like structure
(c) The leafy membrane have tiny leaf like appendage in four rows on the stem like structure
(d) The thalloid plant body of liverwort is isobilaterally appressed closely to substrate

47. Asexual reproduction in bryophytes do not take place by –
(a) Fragmentation
(b) Gemmae
(c) Budding in secondary protonema
(d) Oogamous

48. Gemmae are –
(a) Green, unicellular, asexual bud which, develop in small receptacles i.e., gemma cup
(b) Green, multicellular, asexual bud which develop in small receptacles i.e., gemma cup
(c) Non – green unicellular, asexual bud, which develop in small receptacles i.e. gemma cup
(d) Green, multicellular, sexual bud develop in small receptacles i.e., gemma cup

Topic 7 Mosses

49. The predominant stage of life cycle of a moss is-
(a) Gametophyte (b) Sporophyte
(c) Protonema stage (d) prothallus stage

50. The gametophyte of moss is divided into-
(a) Two stage, first protonema stage which develops directly from gamete.
(b) Two stage, second leafy stage which develops from secondary protonema as a lateral bud.
(c) Two stage, first leafy stage and second protonema stage
(d) Two stage, first protenema stage which developss directly from spore and second leafy stage which develops from spore germination as terminal bud.

51. Protonema stage is –
(a) Creeping, green unbranched and frequently filamentous stage
(b) Prostate, green, branched and frequently filamentous stage
(c) Creeping, green, branched and frequently filamentous stage
(d) Prostate, non – green, unbranched and frequently leaf-like stage

52. Choose the correct statement about leafy stage of mosses:
(a) They consist of upright, slender axes bearing spirally arranged leaves.
(b) They are attached to soil through multicellular and branched rhizoid
(c) This stage bear sex organs
(d) All of these

53. In sexual reproduction which of following is not seen in mosses?
(a) Sex organs are produced at apex of leafy stage
(b) After fertilization zygote develops into sporophyte
(c) Development of embryo
(d) All of these

54. The sporophyte of mosses –
I) Is more elaborate than that in liverwort
II) Consists of foot, seta and capsule
III) Spores are present in capsule
IV) Spores are produce after meiosis
V) Elaborate mechanism of spore dispersal
VI) Presence of peristomic teeth.
(a) All are correct
(b) I), II), III) only
(c) IV, V, VI only
(d) I, III, V only

55. Choose incorrect match.

Column – I	Column – II
(a) Hornwort	i) *Marchantia*
(b) Bryopsida	ii) *Polytrichum*
(c) Liverwort	iii) *Marchantia*
(d) Mosses	iv) *Sphagnum*

Topic 8 Pteridophytes

56. Heterosporous pteridophytes is/are-
(a) *Selaginella* (b) *Salvinia*
(c) *Psilotum* (d) (a) & (b) both

57. Pteridophytes with all similar kind of spores is in
(a) Salvinia
(b) Psilotum
(c) Selaginella
(d) (a) & (b) both

58. Seed habit is reported for the first time in
(a) Blue – green algae
(b) Pteridophyte
(c) Angiosperm
(d) Bryophyta

59. Pteridophyte is classified into –
(a) 4 classes (b) 4 orders
(c) 4 families (d) All of these

60. *Adiantum* is member of the same class along with –
(a) Pteris (b) *Equisetum*
(c) *Lycopodium* (d) *Selaginella*

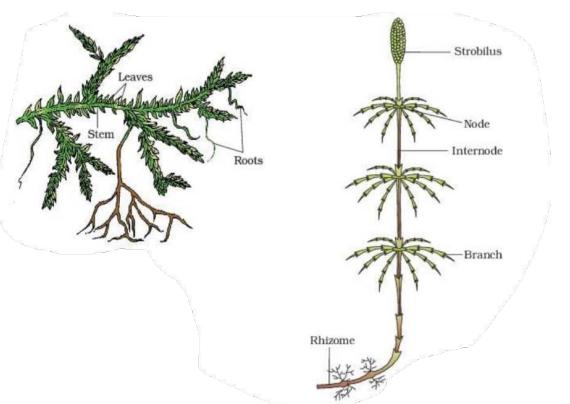
61. Match the following:

Column – I	Column – II
i) Sphenopsida	(a) *Dryopteris*
ii) Lycopsida	(b) *Selaginella*
iii) Psilopsida	(c) *Psilotum*
iv) Pteropsida	(d) *Equisetum*

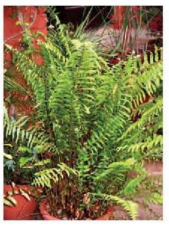
(A) a – iv, b – ii, c – iii, d – i
(B) a – iii, b – ii, c – iv, d – i
(C) a – ii, b – iii, c – i, d – iv
(D) a – i, b – iv, c – ii, d – iii

62. Identify following pteridophytes –

A D



C B



(a) A = *Salvinia*, B = horsetail, C = fern, D = *Selaginella*
(b) A = *Selaginella*, B = *Salvinia*, C = fern, D = horsetail
(c) A = *Equisteum*, B = fern, C = *Selaginella*, D = horsetail
(d) A = *Selaginella*, B = Salvinia, C = *Dryopteris,* D = *Equisteum*

63. Label A, B, C, D, E in following diagram:
(a) A = strobilus, B = rhizome,
(b) A = cone, C = Node, D = internode
(c) A = strobilus, B = rhizome, C = node, D = internode, E = branch
(d) None of these

64. Pteridophytes includes –
(a) Horsetail (b) Ferns
(c) *Polytrichum* (d) (a) and (b) both

65. First terrestrial vascular plant is –
(a) Algae
(b) Bryophyta (liverworts & hornworts)
(c) Pteridophyta
(d) Bryophyta (Mosses)

66. Choose the correct statement from following:
(a) The plant body is differentiated into true root, only true prostrate stem as in *Selaginella* and true leaf
(b) The leaves of pteridophytes are small as in *Selaginella* or macrophyll in ferns.
(c) Pteridophytes possess xylem, phloem
(d) All of these

67. In pteridophyta –
(a) the main plant body is a sporophyte
(b) the main plant body is a gametophyte
(c) the main plant body is a gametophyte on which sporophytic phase is partially dependent
(d) (a) and (b)

68. Choose the correct with regard to reproduction in pteridophyte:
(a) Sporophyte bear sporangia that are subtended by sporophyll
(b) Gametophyte bear sporangia that are subtended by sporophyll
(c) Sporophyll compact to form strobili as in fern
(d) The sporangia produce spores by mitosis in spore mother cell

69. Gametophyte of pteridophyte is –
(a) Small but multicellular, free living, mostly photosynthetic, differentiated into root, stem and leaf
(b) Small inconspicuous but multicellular dependent, mostly photosynthetic thalloid body
(c) Small but multicellular, free living, mostly photosynthetic thalloid structure
(d) Small inconspicuous but multicellular free – living mostly non – photosynthetic thalloid body

70. Water is needed for fertilization in –
(a) *Eucalyptus* (b) Bryophytes
(c) Pteridophyptes (d) (b) & (c) both

71. Sex organ are borne on –
(a) Sporophytes
(b) Gametophyte
(c) On both gametophytes & sporophyte
(d) None

Topic 9 Gymnosperms

72. The endosperm of gymnosperm represents-
(a) Female gametophyte
(b) Triploid structure
(c) Diploid structure
(d) (a) and (c)

73. Read the following statements and choose the incorrect response with respect to reproduction in Gymnosperm.
(a) Pollen grains are carried by air currents
(b) Pollen tube carries the male gametes to archegonia
(c) Following fertilization, zygote develop but embryo stage is lacking
(d) Ovule develops into seed

74. All the given structure of *Pinus* and *Cycas* are haploid, except
(a) Pollen grain (b) Egg
(c) Nucellus (d) Endosperm

75. Gymnosperm is an example of –
(a) Vascular, embryophyte with ovule enclosed is ovary
(b) Vascular, non-embryophyte
(c) Non-vascular, non-embryophyte
(d) Vascular, embryophyte

76. Vascular archegoniates with diplontic life-cycle are –
(a) Bryophytes (b) Gymnosperms
(c) Pteridophytes (d) (b) & (c)

77. Gymnosperms are plants in which –
(a) Ovules are enclosed by any ovary wall both before and after fertilization
(b) Ovules are not enclosed by any ovary wall both before and after fertilization
(c) Ovules are enclosed by any ovary wall before fertilization but not after fertilization
(d) Ovules are not enclosed by any ovary wall before fertilization but after fertilization

78. Tallest tree species belongs to –
(a) Angiosperms (b) Gymnosperms
(c) Pteridophytes (d) Algae

79. Fungi show symbiotic association with gymnosperm in form of –
(a) Mycorrhiza in *Pinus*
(b) Mycorrhiza in *Cycas*
(c) Coralloid roots in *Pinus*
(d) Coralloid roots in *Cycas*

80. The stem of –
(a) *Cycas* is unbranched
(b) *Pinus* is branched
(c) *Cedrus* is branched
(d) All of these

81. Needle-like leaves, thick cuticle, sucken stomata are characters of –
(a) *Cycas* (b) *Pinus*
(c) *Gnetum* (d) *Ginkgo*

82. Gymnosperms are –
(a) Heterosporous, haploid microspores and haploid megaspore
(b) Homosporous, both spores are haploid
(c) Heterosporous, both spores (microspores & megaspores) are diploid
(d) None of these

83. Choose the correct statement –
(a) The male and female cones are borne on the same plant as in *Cycas*
(b) The male and female cones are borne on different plant as in *Cycas*
(c) The male and female cones are borne on same plant as in *Pinus*
(d) Both (a) and (c)

84. Choose the correct statement about female cone of gymnosperm:
(a) The nucleus is protected by bitegmic structure
(b) The megaspore mother cell divides mitotically to form four megaspores
(c) One of four megaspores, enclosed within the megasporangium develop into a multicellular female gametophyte that bear one archegonia
(d) Ovule is unitegmic

85. Statement-I : The cones bearing megasporophyll with ovules are female cones

Statement-II : The strobili bearing microsporangia are called male cones
(a) Both stated statement are correct
(b) Both stated statement are incorrect

(c) Statement-I is correct while statement- II is incorrect
(d) Statement-I is incorrect while statement-II is correct

86. Identify given plant diagram and choose correct response

(a) *Ginkgo*, a living fossil
(b) *Cycas*, a living fossil
(c) *Taxus*
(d) *Gnetum*

87. What is the difference between gametophytes of bryophytes and pteridophytes?
(a) Bryophytic gametophytes are independent free-living structures while gametophytes of gymnosperm are dependent
(b) Gametophyte of gymnosperm remain within the sporangia retained on sporophytes
(c) Both (a) & (b)
(d) None of these

88. Choose the correct set about given figure:

i) Pinnate leaves
ii) Palmate leaf
iii) Branched stem
iv) Branching is same as in *Cedrus*
v) Unbranched
vi) Bear male cone and female cone on same plant
vii) Bear male cone & female cone on different plant
viii) It is living fossil along with *Ginkgo*
(a) i, iii, vi, viii (b) i, v, vii, viii
(c) ii, v, vi (d) i, iv, vii, viii

89. *Anthoceros* thallus and coralloid root of *Cycas* :
(a) Similar in morphological structure
(b) Perform N_2-fixing
(c) Presence of vascular bundle
(d) (b) and (c)

90. Gametophytes is parasitic over sporophytes in
(a) Cycadales (b) Coniferales
(c) Monocot (d) All of these

Topic 10 Angiosperms

91. Zygote is result of-
(a) Syngamy (b) Double fertilization
(c) Triple fusion (d) Both (a) & (c)

92. Fusion of 2nd male gamete with diploid secondary nucleus results in the formation of-
(a) Primary endosperm nucleus (PEN)
(b) Embryo
(c) Both (a) and (b)
(d) Sporophyte

93. Double fertilization is-
(a) Fusion of two nuclei of polar nuclei
(b) Fusion of male gamete with egg
(c) Fusion of male gamete with secondary nuclei
(d) Both (b) & (c)

94. PEN provides-
(a) Protection to embryo
(b) Nourishment to embryo
(c) Anchorage to embryo
(d) None of these

95. Which of following structure degenerate after fertilization?
(a) Synergid (b) Antipodal cell
(c) (a) & (b) (d) Embryo

96. Angiosperm differ from gymnosperm-
(a) In presence of true root, stem & leaf
(b) Seed enclosed in fruit
(c) Ovary enclosed in ovule
(d) Both (b) and (c)

97. Ovule develop into _____ and ovaries develop into _____ of angiosperm
(a) Seed, fruit (b) Fruit, seed
(c) Fruit, fruit (d) Seed, seed

98. Pistil is-
(a) Female sex organ of flower
(b) Male sex organ of flower
(c) Non-reproductive organ of flower
(d) Divided into two parts that are anther and filament.

99. Kelp, *Polysiphonia, Ectocarpus, Fucus, Wolffia, Volvoxh* how many of the following are haplontic, haplodiplontic and diplontic life cycle respectively?
(a) 1, 3, 2 (b) 3, 1, 2
(c) 1, 2, 3 (d) 2, 3, 1

100. Mitosis is observed in-
(a) Haploid plant cell
(b) Diploid plant cell
(c) Both (a) & (b)
(d) Only vegetative cell

101. Choose the correct statement about haplontic life cycle:
i) Sporophytic generation is represented by single cell zygote
ii) Free-living sporophyte
iii) Sporophyte is parasite on gametophyte
iv) Gametophyte arises from gametes after mitotical division
v) Examples are *Spirogyra* and some species of *Chlamydomonas*
vi) Gametophyte arises from meiosis occuring in spore-
(a) i, ii, v, vi (b) i, iii, v, vi
(c) iii, iv, v (d) i, iii, iv

102. *Eucalyptus* show-
(a) Diploid dominant sporophyte that is photosynthetic and independent phase
(b) Gametophyte is represented by few diploid cells
(c) Dominant phase is gametophyte
(d) All of these

103. Gymnosperms are-
(a) Haplontic (b) Diplontic
(c) Haplo-diplontic (d) Diplo-haplontic

104. Bryophytes and Pteridophyte exhibit-
(a) Multicellualr sporophyte
(b) Multicellular gametophyte
(c) Unicellular sporophyte
(d) (a) & (b) both

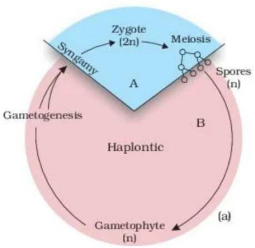
105. Bryophytes and pteridophytes differ in their –
(a) Stage of meiosis
(b) Dominant phases
(c) Stage of syngamy
(d) Stage of gametogenesis

106. In bryophytes –
(a) Sporophyte are totally or partially dependent on the gametophyte for its anchorage and nutrition
(b) Gametophyte are totally or partially dependent on the sporophyte for its anchorage and nutrition
(c) A dominant, independent, photosynthetic, thalloid haploid sporophyte alternate with gametophyte
(d) (a) and (c) both

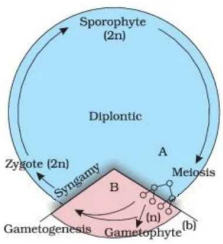
107. Choose the correct response with respect to pteridophyte lifecycle.
(a) Diploid gametophyte alternate with sporophyte
(b) Sporophyte and gametophyte are independent
(c) Sporophyte show saprophytic existence
(d) Meiosis occur in gametophyte

108. The sporophyll of gymnosperms are arranged ____ on axis to form cones.
(a) Spirally (b) Alternately
(c) Decussate (d) Superposed

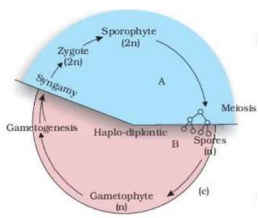
109. Identify life cycle pattern



(B)



(C)



(A)

(a) A = haplontic, B =haplo – diplontic, C = diplontic
(b) A = haplontic, B = diplontic, C = haplo – diplontic
(c) A = haplo – diplontic, B = haplontic, C = diplontic
(d) A = as in *Volvox* and angiosperm, B = as in *Ectocarpus*, C = as in gymnosperm

110. Bryophytes are to substratum by –
(a) Holdfast (b) Rhizoids
(c) Root (d) (a) & (c)

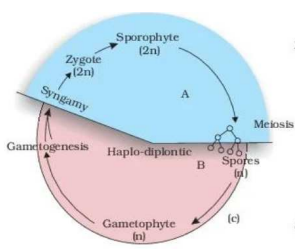
111. Brown algae Fucus are attached to substratum by –
(a) Holdfast (b) Stipe
(c) Frond (d) Rhizoid

112. The plant body of liverwort is ___A__ whereas mosses have _____B___ bearing _____C___ arranged leaves.
(a) A = dorsiventral, B = upright, slender axes, C = alternally
(b) A = isobilateral, B = upright, slender axes, C = spirally
(c) A = dorsiventral, B = isobilateral axes, C = alternately
(d) A = dorsiventral, B = upright, slender axes, C = spirally

113. Embryophytes does not include-
(a) Algae, Bryophytes
(b) Bryophyte, Pteridophytes
(c) Gymnosperm, angiosperm
(d) Algae only

114. Double fertilization does not occur in –
(a) Pteridophyte, some Gymnosperm,
(b) Monocot, Dicot
(c) Dicot, some Gymnosperm
(d) Bryophytes, Pteridophyte, some Gymnosperm & Monocot

115. Identify the following life cycle pattern and its example matched correctly.



(a) Haplontic life cycle eg: *Volvox*
(b) Haplodiplontic lifecycle eg: *Ectocarpus*, *Psilotum*
(c) Haplodiplontic lifecycle eg: *Fucus*, *Marchantia*
(d) Diplontic lifecycle eg: Bryophytes, Pteridophytes

116. Tallest and smallest plant species belonging to angiosperm is –
(a) *Sequoia* and *Wolffia*
(b) *Eucalyptus* and *Wolffia*
(c) *Sequoia* and duck-weed

(d) None of these

117. Dicotyledons and monocotyledons are two _____ of angiosperm
(a) Family (b) Class
(c) Order (d) Division

118. How many of the following is correct about dicotyledons and monocotyledons respectively- Seed with two cotyledons, trimerous, pentamerous, parallel veination, Seed with one cotyledons, tetramerous, reticulate venation?
(a) 4, 3 (b) 3, 4
(c) 2, 5 (d) 5, 2

119. A group of plant flower having three members in each whorl is placed is-
(a) Monocot (b) Dicot
(c) Tetramerous (d) Both (b) & (c)

120. Choose the correct statement :
(a) Embryo sac develop from one functional megaspore(diploid) which result from mitosis and degeneration of megaspore mother cell
(b) Embryo sac of consist of one egg apparatus, three antipodal cell and two polar nuclei
(c) Polar nuclei, antipodal cells, egg are diploid structure of embryo sac of angiosperm
(d) Secondary nuclei is haploid

121. Secondary nuclei results from fusion of-
(a) Polar nuclei and 1st male gamete
(b) Polar nuclei and 2nd male gamete
(c) Both nuclei of polar nuclei
(d) Egg apparatus and polar nuclei

122. Choose the correct sequence:
(a) Gamete formation → pollination → fertilization → embryo → new plant
(b) Gamete formation → transfer of gamete → fertilization → pollination → embryo → new plant
(c) Pollination → gametogenesis → fertilization → embryo → new plant
(d) None of these

123. Microspore of angiosperm represents-
(a) Sporophytic phase
(b) Gametophytic phase
(c) Both (a) and (b)
(d) Female gamete

124. Pollen tube in angiosperm discharge-
(a) One male gamete in embryo sac
(b) Two male gamete in embryo sac
(c) Three male gamete in embryo sac
(d) More than one option is correct

125. Syngamy is-
(a) Fusion of egg and 1st male gamete
(b) Fusion of egg and 2nd male gamete
(c) Fusion of polar nuclei & 1st male gamete
(d) Both (b) and (c)

ANSWER KEY

1. (a)	2. (a)	3. (c)	4. (d)	5. (d)	6. (b)	7. (b)	8. (d)	9. (b)	10. (d)
11.(a)	12. (d)	13.(b)	14. (b)	15. (b)	16.(a)	17.(a)	18. (a)	19.(b)	20. (d)
21. (d)	22. (d)	23.(b)	24.(c)	25.(b)	26.(b)	27. (a)	28. (d)	29. (c)	30. (a)
31.(c)	32.(a)	33.(d)	34.(c)	35. (b)	36.(d)	37.(c)	38.(a)	39. (a)	40.(b)
41.(c)	42.(d)	43.(b)	44.(b)	45. (d)	46.(a)	47.(d)	48.(b)	49. (a)	50. (b)
51. (a)	52.(d)	53.(d)	54. (a)	55.(a)	56. (d)	57.(b)	58. (b)	59.(a)	60. (a)
61. (a)	62.(d)	63.(d)	64.(d)	65. (c)	66. (d)	67. (a)	68.(a)	69.(b)	70. (d)
71.(b)	72.(c)	73.(c)	74. (c)	75. (d)	76. (b)	77. (b)	78. (b)	79.(a)	80. (a)
81. (b)	82.(a)	83.(b)	84.(d)	85. (a)	86. (a)	87. (c)	88.(b)	89.(b)	90.(d)
91.(a)	92. (a)	93.(d)	94.(b)	95. (c)	96.(d)	97. (a)	98.(a)	99.(a)	100.(c)
101.(d)	102.(a)	103.(b)	104.(d)	105.(b)	106.(a)	107.(b)	108.(a)	109.(c)	110.(b)
111.(a)	112(d)	113.(a)	114.(a)	115.(b)	116.(b)	117.(b)	118.(a)	119.(a)	120.(b)
121.(c)	122.(a)	123.(b)	124.(b)	125.(a)					