

NCERT PROBLEMS

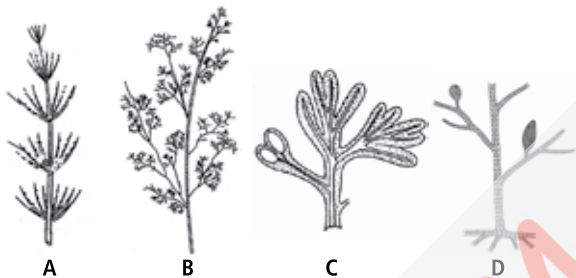
Biology

Questions for NEET

Exam on 5th May

Plant Kingdom

1. Identify the plants shown in figure and select the incorrect statement.



- (a) Plant A is *Chara*, which is fixed to the substratum by means of highly branched multicellular rhizoids.
 (b) Plant B is *Polysiphonia*, in which female sex organ remains attached to the plant and forms a structure called carposporophyte.
 (c) Plant C is *Fucus*, in which phycocolloids are sulphated mucopolysaccharides.
 (d) Plant D is *Ectocarpus*, in which isomorphic alternation of generations occur.
2. Match column I with column II and select the correct option from the codes given below.

Column I	Column II
A. Alginic acid	(i) <i>Rhodomela</i>
B. Bromine	(ii) <i>Gracilearia</i>
C. Agar	(iii) <i>Chlamydomonas</i>
D. Sewage oxidation	(iv) <i>Polysiphonia</i>
	(v) <i>Gelidium</i>
	(vi) <i>Laminaria</i>
	(vii) <i>Scenedesmus</i>
	(viii) <i>Sargassum</i>

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

3. Read the given statements and select the incorrect ones.

- (i) In angiosperms, sporophylls are aggregated to form flowers.
 (ii) Embryo sac of angiosperms have a three celled egg apparatus.
 (iii) In angiosperms, size ranges from almost microscopic *Wolffia* to tall tree of *Eucalyptus*.
 (iv) In angiosperms, synergids and antipodals degenerate before fertilisation.
 (v) In angiosperms, embryo sac formation is preceded by meiosis.

- (a) (ii) and (v) (b) (i) and (iv)
 (c) (v) only (d) (iv) only

4. Read the given statements and select the correct options.

Statement A : In *Spirogyra*, some cells in one of the two filaments become empty after conjugation.

Statement B : In cells of *Spirogyra*, aplanogametes pass through conjugation tube into cells of other filament.

- (a) Both statements A and B are correct and statement B is the correct explanation of statement A.
 (b) Both statements A and B are correct but statement B is not the correct explanation of statement A.
 (c) Statement A is correct but statement B is incorrect.
 (d) Both statements A and B are incorrect.

5. Select the mismatched pair.

- (a) *Selaginella* - Club moss
 (b) *Dryopteris* - Maiden hair fern
 (c) *Ophioglossum reticulatum* - Adders tongue fern
 (d) *Equisetum* - Horsetail

6. In which of the following options, do all listed genera belong to the same class of pteridophytes?

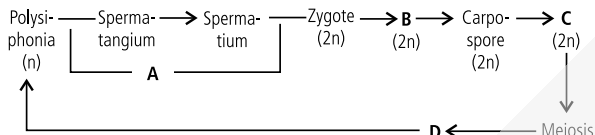
- (a) *Lycopodium*, *Psilotum*, *Selaginella*, *Rhynia*
 (b) *Rhynia*, *Cooksonia*, *Psilotum*, *Tmesipterus*

- (c) *Selaginella*, *Lycopodium*, *Equisetum*, *Dryopteris*
 (d) *Psilotum*, *Adiantum*, *Lycopodium*, *Equisetum*

7. Consider the following statements and select the correct option stating which one is true (T) and which one is false (F).
 (i) Both stem and leaves of *Funaria* are sporophytic structures.
 (ii) Coralloid roots are irregular, negatively geotropic, dichotomously branched coral like root, which possess root hairs and root caps.
 (iii) *Ginkgo biloba* has not changed for the several millions of years since its appearance in triassic period.
 (iv) In seedless vascular plants, the gametophyte must develop on moist soil with a thin sheet of water.
 (v) *Ophioglossum reticulatum* has maximum number of chromosomes.

- | | | | | | |
|-----|-----|------|-------|------|-----|
| | (i) | (ii) | (iii) | (iv) | (v) |
| (a) | F | T | T | F | T |
| (b) | T | F | F | T | F |
| (c) | F | T | F | T | F |
| (d) | F | F | T | T | T |

8. Complete the following flow chart by selecting the correct option.



- | | | | | |
|-----|-----------------|-------------|-----------------|-----------------|
| | A | B | C | D |
| (a) | Carpogonium | Cystocarp | Tetrasporophyte | Tetraspore |
| (b) | Cystocarp | Carpogonium | Tetrasporophyte | Tetraspore |
| (c) | Tetrasporophyte | Cystocarp | Carpogonium | Tetraspore |
| (d) | Cystocarp | Carpogonium | Tetraspore | Tetrasporophyte |

9. Fill up the blank spaces in the table below by selecting the correct option.

Classes	Major pigments	Stored food	Cell wall
Chlorophyceae	Chlorophyll a, b	Starch	Cellulose
Phaeophyceae	A	B	Cellulose and algin
Rhodophyceae	C	D	Cellulose, pectin and polysulphate esters

- | | | | | |
|-----|---------------------------------|------------------|---------------------------------|------------------|
| | A | B | C | D |
| (a) | Chlorophyll a, c, fucoxanthin | Mannitol | Chlorophyll a, d, phycoerythrin | Floridean starch |
| (b) | Chlorophyll a, d, fucoxanthin | Floridean starch | Chlorophyll a, c, phycoerythrin | Mannitol |
| (c) | Chlorophyll a, d, phycoerythrin | Mannitol | Chlorophyll a, c, fucoxanthin | Floridean starch |
| (d) | Chlorophyll a, c, phycoerythrin | Floridean starch | Chlorophyll a, d, fucoxanthin | Mannitol |

10. Following are the differences between liverworts and mosses.

	Liverworts	Mosses
(i)	Branching is generally dichotomous.	Branching is lateral and extra-axillary.
(ii)	Seta develops rapidly towards the maturity of spores.	Seta grows slowly over a long period and fully develops before the spores mature.
(iii)	Elaters are absent.	Capsule often possesses elaters.
(iv)	Peristome teeth are absent.	Peristome teeth occur towards the apical region of the capsule.
(v)	Capsule contains a sterile columella.	Columella is generally absent.

Select the option with correct pair of differences.

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

11. Fill the blanks in the given statements and select the correct option.

- (i) _____ are peculiar to *Selaginella*.
 (ii) The sperms of _____ are the largest in the biological world.
 (iii) In *Marchantia*, two types of _____ are anchoring smooth walled and capillary conducting tuberculate.
 (iv) _____ causes red rust of tea.

- | | | | | |
|-----|------------|-------------------|----------|--------------------|
| | A | B | C | D |
| (a) | Rhizome | <i>Cycas</i> | Roots | <i>Cephaleuros</i> |
| (b) | Rhizophore | <i>Cycas</i> | Rhizoids | <i>Cephaleuros</i> |
| (c) | Rhizophore | <i>Eucalyptus</i> | Rhizoids | <i>Scendesmus</i> |
| (d) | Rhizophore | <i>Eucalyptus</i> | Rhizoids | <i>Scendesmus</i> |

12. If the leaf cells of *Funaria* have 24 chromosomes. What will be the number of chromosomes in its seta?

- (a) 12 (b) 24
 (c) 48 (d) 36

13. Below is given the unorganised arrangement of reproductive structures of gymnosperm. Identify the correct sequence of arrangements and select the correct option.

- (i) Spores (ii) Sporangia
 (iii) Strobili (iv) Sporophylls
 (a) (i) → (iii) → (ii) → (iv)
 (b) (i) → (ii) → (iv) → (iii)
 (c) (i) → (ii) → (iii) → (iv)
 (d) (ii) → (i) → (iv) → (iii)

14. In which of the following plants stomata are not found in dominant stage of life cycle?

- (a) *Marchantia* (b) *Riccia*
 (c) *Funaria* (d) *Equisetum*

15. Which of the following plants have ligule?

- (a) *Selaginella* (b) *Lycopodium*
 (c) *Pinus* (d) *Cycas*

16. Leaves of ferns are covered with

- (a)ramenta (b) spores
 (c) indusium (d) wax.

17. Read the given statements and select the incorrect ones.

- (i) A coenobium is a colony having definite number of cells in multiples of two in the adult stage.
 (ii) All algae are autotrophic.
 (iii) Heterotrichy means having branches modified into leaves and air bladders.
 (iv) In *Volvox*, asexual reproduction occurs through formation of palmella stage.
 (a) (i), (iii) and (iv) (b) (ii), (iii) and (iv)
 (c) (i), (ii) and (iii) (d) (i), (ii) and (iv)

18. In which of the following plant stem is jointed and ribbed with leaves and branches borne in whorls?

- (a) *Equisetum* (b) *Selaginella*
 (c) *Lycopodium* (d) *Cooksonia*

19. The development of gametophyte is endosporic and precocious in

- (a) *Marchantia* (b) *Lycopodium*
 (c) *Selaginella* (d) *Azolla*.

20. Conifers differ from grasses in the

- (a) formation of endosperm before fertilisation
 (b) production of seeds from ovules
 (c) lack of xylem tracheids
 (d) absence of pollen tube.

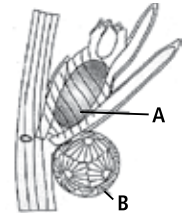
21. Select the plants categorised in living fossil.

- (i) *Gnetum* (ii) *Ephedra*
 (iii) *Cycas* (iv) *Pinus*

- (v) *Ginkgo biloba* (vi) *Zamia pygma*
 (vii) *Cedrus* (viii) *Picea*
 (ix) *Abies* (x) *Juniperus*
 (a) (i), (iii) and (v) (b) (ii), (iv) and (v)
 (c) (iii) and (v) (d) (iii), (iv) and (v)

22. Select the incorrect statement about the given figure?

- (a) A is nucule and B is globule.
 (b) Both A and B have multicellular coverings.
 (c) A represents male reproductive organ while B represents female reproductive organ.
 (d) Both A and B are borne on the branches of limited growth.



23. Which of the following character represents the affinities of *Gnetum* with angiosperms and differences with *Cycas* and *Pinus*?

- (a) Presence of vessel cells
 (b) Two integuments
 (c) Embryo development
 (d) Absence of resin duct

24. In angiosperms, each embryo sac has a three celled egg apparatus, one egg cell and two (i), three (ii) cells and two (iii).

- (a) (i)-synergids, (ii)-antipodal cells, (iii)-polar nuclei
 (b) (i)-antipodal cells, (ii)-synergids, (iii)-polar nuclei
 (c) (i)-polar nuclei, (ii)-synergids, (iii)-antipodal cells
 (d) (i)-synergids, (ii)-polar nuclei, (iii)-antipodal cells

25. Select the plant in which dominant phase is sporophyte.

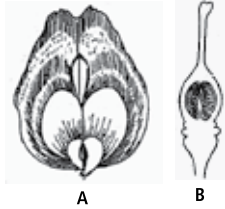
- (i) *Pinus* (ii) *Riccia*
 (iii) *Gnetum* (iv) *Marchantia*
 (v) *Marsilea* (vi) *Anthoceros*
 (vii) *Sphagnum* (viii) *Funaria*
 (ix) *Polytrichum* (x) *Ephedra*
 (a) (i), (iii), (v) and (x) (b) (iii), (v) and (x)
 (c) (ii), (iv) and (x) (d) (x), (v), (iii) and (i)

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

- | Column I | Column II |
|--|----------------------------|
| A. Natural system of classification | (i) Carolus Linnaeus |
| B. Phylogenetic system of classification | (ii) Takhtajan |
| C. Artificial system of classification | (iii) Bentham and Hooker |
| (a) A-(iii), B-(ii), C-(i) | (b) A-(ii), B-(iii), C-(i) |
| (c) A-(ii), B-(i), C-(iii) | (d) A-(i), B-(ii), C-(iii) |

27. Select the incorrect pair.
- (a) Cladistic taxonomy - Common phylogeny
 - (b) Numerical taxonomy - All observable characteristics
 - (c) Chemotaxonomy - Chromosome structure and number
 - (d) Cytotaxonomy - Cytological information

28. Refer the given figure of sexual organs of gymnosperms and angiosperms. Select the incorrect statement regarding given figure.



- (a) In figure A megasporophyll is unrolled.
- (b) In figure B megasporophyll is delicate and rolled to produce carpel.
- (c) In figure A seeds develop inside the ovary and matures into a fruit.
- (d) In figure B seeds develop inside the ovary.

29. Identify the plant shown in the given figure and select the incorrect statement regarding this plant.



- (a) An adaxial outgrowth from the base of the leaves in given plant is called ligule.
- (b) Stele in stem of given plant is protostele.
- (c) In given plant development of female gametophyte is exosporic.
- (d) In given plant, the antherozoids are biflagellate.

30. Identify the plant shown in the given figure and select the correct statement regarding this plant.



- (a) In given plant, spores germinate and gives rise to protonema which bears archegonia and antheridia.
- (b) In given plant, stem and leaves are gametophytic structures.
- (c) In given plant, antherozoids are flagellated with no coiling.
- (d) In given plant, stomata are present in seta.

31. Select the haploid structures from the given list.

- (i) Protonemal cell
- (ii) Primary endosperm nucleus of dicot
- (iii) Leaf cell of moss
- (iv) Prothallus cell of fern

(v) Gemma cup of *Marchantia*

(vi) Ovum of a liverwort

(vii) Zygote of a fern

(viii) Meristem cell of monocot

(a) (i), (ii), (iv), (v) and (vi) (b) (i), (iii), (iv), (v) and (vi)

(c) (i), (ii), (iii) and (iv) (d) (i), (ii) (iii), (iv) and (v)

32. Which of the following is a living member of sphenopsida?

- (a) *Equisetum* (b) *Marsilea*
- (c) *Selaginella* (d) *Lycopodium*

33. Circinate vernation in ferns refers to

- (a) uncoiling of young leaves from the base towards the apex
- (b) system of leaf gaps in the stem
- (c) acropetally arranged fronds
- (d) presence of sori on the leaf surface.

34. Amphiphloic siphonostele is present in the rhizome of

- (a) *Pteris* (b) *Marsilea*
- (c) *Lycopodium* (d) *Psilotum*.

35. Read the following statements and select the incorrect ones.

- (i) The pollen tube in *Cycas* is of haustorial nature.
- (ii) In *Cycas* antherozoids are motile.
- (iii) The upper fertile portion of the microsporophyll of *Cycas* is called apophysis.
- (iv) The archegonium of *Cycas* lacks neck canal cell.
- (v) The secondary wood of *Cycas* is pycnoxylic.

(a) (ii) and (v) (b) (iii) and (v)

(c) (i) and (iv) (d) (ii) and (iv)

36. Consider the following statements and select the correct option, stating which one is true (T) and which one is false (F).

- (i) In *Pinus* branches are dimorphic.
- (ii) In *Pinus* pollination is anemophilous.
- (iii) Roots of *Pinus* are of two types normal and coralloid.
- (iv) Sexually *Pinus* is dioecious with distinct male and female plants.

(i) (ii) (iii) (iv)

(a) T F T F

(b) F T T F

(c) T T F F

(d) T T T F

37. Which of the following gives us fuel?

- (a) *Sphagnum* (b) *Marchantia*
- (c) *Marsilea* (d) *Adiantum*

38. Which of the following genera have fungal association in form of mycorrhiza?

- (a) *Pinus* (b) *Cycas*
- (c) *Cedrus* (d) *Sequoia*

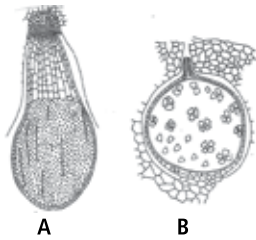
39. The leaves of ferns are
 (a) macrophylls (b) microphylls
 (c) protonema (d) gemmae.

40. Which of the following is leaf like photosynthetic organ/ organs in brown algae?
 (a) Frond (b) Stipe
 (c) Holdfast (d) Both (a) and (b).



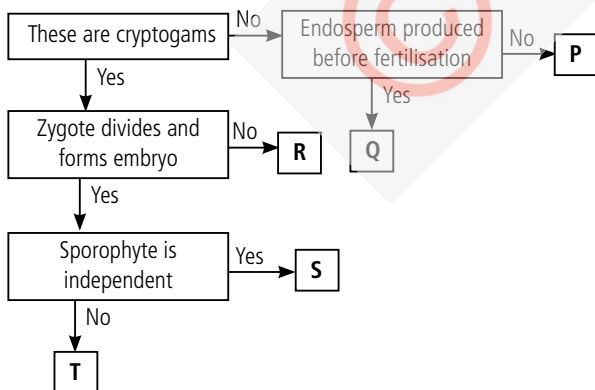
HIGHER ORDER THINKING SKILLS QUESTIONS (HOTS)

41. Refer the following figures regarding division Bryophyta.



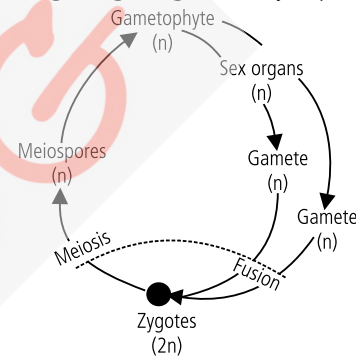
- Select the incorrect statement regarding the given figure.
 (i) A is sporophyte of *Riccia* in which sporophyte is divided into foot, seta and capsule.
 (ii) B is sporophyte of *Marchantia* in which sporophyte is represented by capsule only.
 (iii) In sporophyte of plant A, capsule bears elaters which assists dispersal of spore.
 (iv) Both A and B are completely dependent upon gametophyte.
 (a) (i) and (ii) (b) (ii) and (iii)
 (c) (i) and (iii) (d) (i) and (iv)

42. Refer to given flowchart regarding different groups of Kingdom Plantae.



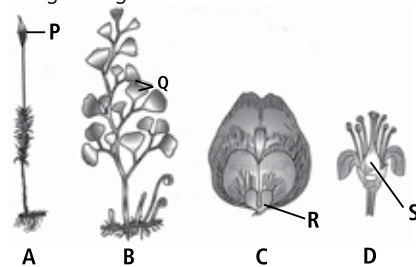
- Which of the following is incorrect regarding P, Q, R, S and T?
 (a) Examples of group S includes, *Marsilea*, *Azolla* and *Lycopodium*
 (b) In group S archegonium has neck canal cells and they are absent in Q.

- (c) Group P have a great adaptive advantage over Q and as a result P have become the dominant vegetation on the earth.
 (d) In group T, vascular system is composed of xylem and phloem.
43. Identify the life cycle pattern and select the incorrect statement regarding this given life cycle pattern.



- (i) The plants which possess this life cycle patterns are bryophytes and pteridophytes.
 (ii) In this life cycle pattern the reduction division takes place at the time of the formation of gametes.
 (iii) In plants which represent this life cycle pattern, possess embryo which is formed after fertilisation.
 (iv) In plants which possess this pattern of life cycle, sporophyte generation is represented by one-celled zygote.
 (a) (i), (ii) and (iii) (b) (ii) and (iv)
 (c) (i) and (iv) (d) (iii) and (iv)

44. Refer the given figure and select the incorrect statement regarding the figure.



- (a) Figure A represents *Pogonatum* and labelled part P has several layered wall with stomata on its epidermis.
 (b) Figure B represents *Adiantum* and labelled part Q is pinnules.
 (c) Figure C represents ovuliferous scale of *Pinus* and labelled part R is bitegmic structure.
 (d) Figure D represents flower of angiosperms and labelled part S represents female reproductive organ.

45. Read the given paragraph.

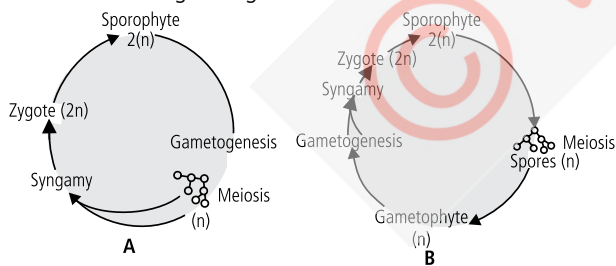
Sporophyte of moss plant has embedded *foot*, an elongated curved *seta* and a terminal pyriform asymmetrical capsule. Capsule has three parts basal photosynthetic *columella* with central non photosynthetic *apophysis*, middle spore producing theca and upper lid operculum separated from theca by large celled annulus on the *innerside* and peristome on the *outside*. Peristome consists of **16 cellular** teeth arranged in two whorls outer *hygroscopic* and inner *non-hygroscopic*.

Some of the words have been italicised in the paragraph. Select the option which is correct regarding them.

- (i) *Sporophyte* should be replaced by gametophyte.
 (ii) *Foot* and *seta* should be interchanged.
 (iii) *Columella* and *apophysis* should be interchanged.
 (iv) *Innerside* and *outside* should be interchanged.
 (v) **16 cellular** teeth should be replaced by 32 acellular teeth.
 (vi) *Hygroscopic* and *non-hygroscopic* should be interchanged.

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

46. Refer to the given figures.



Select the correct statement regarding them.

- (a) Figure A is life cycle pattern in *Fucus* in which sporophytic generation is dominant and dependent while gametophytic generation is highly reduced and independent.
 (b) Figure B is life cycle pattern in *Dictyota* in which clear alternation of generation between a haploid gamete producing gametophyte and a diploid spore producing sporophyte.
 (c) Figure A is life cycle pattern in *Cladophora* in which zygote remains single celled and protoplast of the zygote cleaves into meiospores.

- (d) Figure B is the life cycle pattern in *Marchantia* in which the zygote remains single celled, it does not multiply itself.

47. Read the following differences between plant A and plant B.

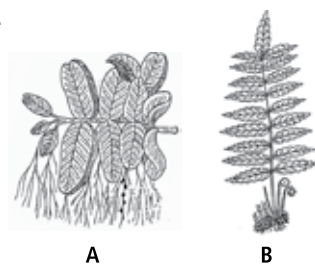
	Plant A	Plant B
(i)	It is fresh water filamentous alga	It is marine filamentous alga
(ii)	Phycobilins are present	Phycobilins are absent
(iii)	Reserve food is floridean starch	Reserve food is laminarin
(iv)	Cell wall contains cellulose and sulphated phycocolloids	Cell wall contains cellulose and non sulphated phycocolloids

Select the correct option regarding plant A and plant B.

- (a) Plant A is *Batrachospermum* while plant B is *Ectocarpus*.
 (b) In plant A thylakoids occur in groups of three while in plant B thylakoids are unstacked.
 (c) In plant A motile stage is present while in plant B motile stage is absent.
 (d) Plant A is *Batrachospermum* while plant B is *Polysiphonia*.

48. Refer to the given figure.

Which of the following statement is incorrect for plant A and plant B?



- (a) Plant A bears s p o r o c a r p symodi-ally and sporocarps are sporangia bearing bodies.
 (b) In plant A, gametophytes are of two types and both are specialised to perform their function.
 (c) In plant B oosphere gives rise to an embryo which grows to form new plant.
 (d) In plant B leaflets and leaves having sori or sporangia are called sporophylls.

49. Read the differences between plant A and plant B.

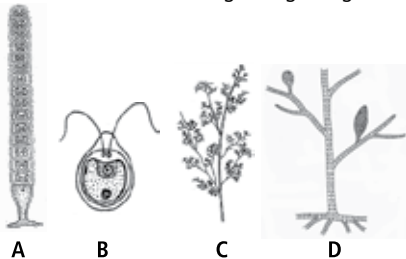
	Plant A	Plant B
(i)	Plant body is gametophyte.	Plant body is sporophyte.
(ii)	Sporophyte is parasitic over gametophyte.	Both sporophyte and gametophyte are independent.
(iii)	Rhizoids are present	Roots are present.
(iv)	Antheridium is stalked.	Antheridium is sessile.
(v)	Archegonium is commonly exposed.	Archegonium is partially embedded.

(vi)	Neck of archegonium is formed of 5-6 rows of cells.	Neck of archegonium has four rows of cells.
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Select the correct statement regarding plant A and plant B.

- (a) In plant B water is not required for fertilisation.
- (b) In plant B true stem and leaves are absent.
- (c) Plant A is *Polytrichum* while plant B is *Pteridium*.
- (d) Plant A shows heteromorphic alternation of generation while plant B shows isomorphic alternation of generation.

50. Select the incorrect statement regarding the given figures.



- (a) In alga A, asexual reproduction occurs through aplanospores and zoospores.
- (b) In alga B, asexual reproduction occurs through hypnospores and zoospores.
- (c) In alga C, asexual reproduction occurs through hypnospore.
- (d) In alga D, asexual reproduction occurs through zoospores.

ANSWER KEY

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



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