



Attempt questions first; check the separate key afterward. Use labelled diagrams where asked. Give scientific reasons; answer key covers closed questions.

A. Very short answers - 1 mark each

1. Name the main pigments in green algae.
2. Name the reserve food of red algae.
3. Name the brown-algal pigment chiefly responsible for colour.
4. Which plant group is called amphibians of the plant kingdom?
5. Name the first vascular land-plant group in the conventional sequence.
6. Are gymnosperm ovules enclosed in an ovary?
7. Name a heterosporous pteridophyte.
8. What is the ploidy of a typical gametophyte?

B. Short answers / practice - 2 marks each

9. Compare green, brown and red algae by pigments and reserve food.
10. Explain isogamy, anisogamy and oogamy with examples.
11. State three ecological or economic roles of algae.
12. Distinguish liverworts and mosses.
13. Describe vegetative reproduction by gemmae in Marchantia.
14. Why do bryophytes require water for fertilisation?
15. Explain dependence of a bryophyte sporophyte on its gametophyte.
16. Describe protonema and leafy stages in mosses.
17. Compare dominant phases in mosses and ferns.
18. What is a prothallus? State its role.
19. Distinguish homospory and heterospory.
20. Explain how heterospory relates to the evolution of seed habit.

C. Application / reasoning - 3 marks each

21. Name the symbiotic partner in *Cycas* coralloid roots.
22. Name the association in *Pinus* roots.
23. Are all gymnosperms dioecious?
24. Compare male and female cones in a gymnosperm.
25. Explain why gymnosperm seeds are described as naked.
26. State three features distinguishing angiosperms from gymnosperms.
27. Differentiate monocot and dicot embryos.
28. What follows meiosis in a diploid spore mother cell?
29. Explain alternation of generations using a fern.
30. Can a sporophyte be diploid while dependent on a haploid plant body?
31. Why does external similarity alone not distinguish algal groups reliably?

D. Extended practice - 5 marks each

32. Compare algae, bryophytes, pteridophytes and seed plants in vascular tissue and dominant phase.
33. Draw and explain the life cycle of a moss, marking meiosis and fertilisation.
34. Describe gymnosperm reproduction from cone formation to seed formation.
35. Trace key evolutionary changes from bryophytes to angiosperms with examples.

ANSWER KEY - Numerical / closed questions

- 1) Chlorophyll a and b. 2) Floridean starch. 3) Fucoxanthin. 4) Bryophytes. 5) Pteridophytes. 6) No. 7) Selaginella or Salvinia. 8) Haploid. 21) Nitrogen-fixing cyanobacteria. 22) Mycorrhiza. 23) No; *Pinus* is monoecious. 28) Four haploid spores, typically. 30) Yes; as in bryophytes.