

Q.1 How are cones and flowers alike? How they are different?

Ans. Both cones and flowers function as reproductive structures of plants. They are alike in that they facilitate the reproduction process. However, they differ significantly in their structure and development. Cones are generally simpler and typically found in gymnosperms like pines, whereas flowers, which are found in angiosperms, are usually more complex and serve to attract pollinators with their petals and scents.

Q.2 What is the importance of alternation of generation, pollen tube, and seed?

Ans. Alternation of generation allows for genetic diversity through sexual reproduction, involving both haploid and diploid stages. The pollen tube facilitates the direct transfer of sperm to the ovule, enabling fertilization in a protected environment, which is crucial for plant reproduction without water. Seeds enable plants to disperse to new locations and provide a protected environment for the developing embryo, increasing the chances of survival in various conditions.

Q.3 Write three main features of bryophytes.

- Ans. (i) Bryophytes are non-vascular, meaning they lack specialized tissues for water and nutrient transport.
(ii) They are generally small and grow close to the ground, which helps in moisture retention.
(iii) The dominant life form in their life cycle is the gametophyte, which is photosynthetic and green.

Q.4 Name the land adaptation features of bryophytes.

- Ans. (i) Waxy cuticle, it prevents water loss.
(ii) Rhizoids, they anchor them to the substrate and help in water absorption.
(iii) Compact plant bodies, these reduce water loss and protect from environmental stress.

Q.5 Write any four features of vascular plants.

- Ans. (i) Vascular plants possess specialized tissues, xylem and phloem, for water and nutrient transport.
(ii) They typically exhibit a dominant sporophyte stage.
(iii) Many vascular plants also have roots, stems, and leaves, which help them thrive in diverse environments.

- (iv) Additionally, they can produce seeds, enhancing their reproductive success and dispersal.

Q.6 Why are bryophytes called amphibious plants?

Ans. Bryophytes are called amphibious plants because they require water for the movement of male gametes during fertilization, despite being primarily terrestrial.

Q.7 Give one example of: Whisk ferns, club mosses, horsetails, and ferns.

Ans.

- **Whisk Ferns:** *Psilotum*
- **Club Mosses:** *Lycopodium*
- **Horsetails:** *Equisetum*
- **Ferns:** *Adiantum*

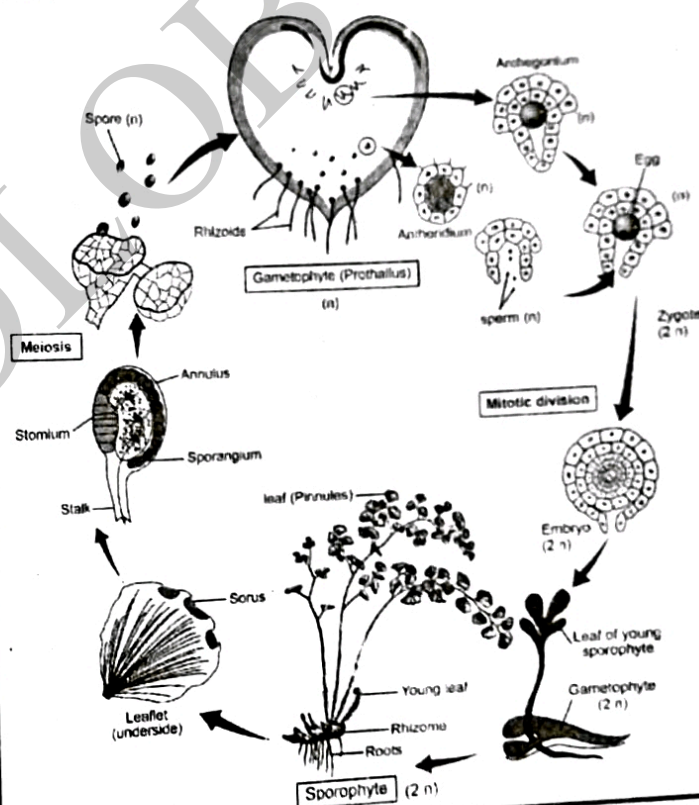
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Q.8 Draw and label the life cycle of a fern.

Ans.



Q.9 What is the importance of seedless vascular plants?

Ans. Seedless vascular plants, such as ferns and horsetails, are important for stabilizing soil and preventing erosion, contributing to ecosystems as primary producers, and serving as a bridge in plant evolution from non-vascular to seed-producing vascular plants.

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Q.10 Write botanical names and families of the following plants:

Ans:

Common Name	Botanical Name	Family
Rice	<i>Oryza sativa</i>	Poaceae
Potato	<i>Solanum tuberosum</i>	Solanaceae
Sugar cane	<i>Saccharum officinarum</i>	Poaceae

Q.11 Write any four uses of bryophytes and gymnosperms.

Ans. Bryophytes:

- Used as bioindicators for environmental monitoring.
- In horticulture as soil conditioners.
- For decorative purposes in gardens.
- Medically for their antibacterial properties.

Gymnosperms:

- Source of timber and paper products.
- Ornamental uses.
- Extraction of resins and essential oils.
- As sources of food (e.g., pine nuts).

Q.12 Define: angiosperms, inflorescence, and alternation of generation.

Ans. Angiosperms: Plants that are characterized by having flowers and producing seeds enclosed within a fruit.

- Inflorescence:** A group or cluster of flowers arranged on a stem that is composed of a main branch or a complicated arrangement of branches.
- Alternation of Generation:** A life cycle in which there is both a multicellular diploid form, the sporophyte, and a multicellular haploid form, the gametophyte; characteristic of plants.

Q.13 What is the advantage of the seed?

Ans. Seeds provide protection and nourishment to the developing plant embryo, facilitate dispersal to new locations, and allow plants to survive unfavorable conditions through dormancy.

Q.14 What do monocots and dicots have in common? How do they differ?

Ans. Common: Both are flowering plants that produce seeds.

- Difference:** Monocots have one cotyledon, parallel venation, and scattered vascular bundles.
- Dicots have two cotyledons, reticulate venation, and arranged vascular bundles.

15. Give three reasons to justify that the following plant is a monocot.

Ans.

