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Bio Botany	Chapter 2 Plant Kingdom	11th Std

1. Define alternation of generation?

❖ Alternation of generation is common in all plants.

❖ Alternation of the haploid gametophytic phase (n) with diploid sporophytic phase (2n) during the life cycle is called **alternation of generation.**

2. Explain the types of life cycle in Plant?

Three types of life cycles are found in plants

2.1Haplontic Life Cycle

❖ Gametophytic phase is dominant, photosynthetic and independent, whereas sporophytic phase is represented by the zygote.

❖ The Zygote undergoes meiosis to restore the haploid condition.

❖ Example: *Volvox*, *Spirogyra*.

2.2 Diplontic Life Cycle

❖ Sporophytic phase (2n) is dominant, photosynthetic and independent.

❖ The gametophytic phase is represented by the single to the few celled gametophyte.

❖ The gametes fuse to form Zygote which develops into Sporophyte.

❖ Example: *Fucus*, Gymnosperms and Angiosperms.

2.3 Haplodiplontic Life Cycle

✓ This type of life cycle is found in Bryophytes and pteridophytes which is intermediate between haplontic and diplontic type.

✓ Both the phases are multicellular.

✓ But they differ in their dominant phase.

3. What is the Cryophytes algae, giving on one example?

❖ Algae is adapted to thrive in harsh environment too.

- *Dunaliella salina* grows in salt pans (**Halophytic alga**).
- Algae growing in snow is called **Cryophytic algae**.
- Example - *Chlamydomonas nivalis* grow in snow covered mountains.

4. Short account on General Characteristic features of algae?

- The algae shows a great diversity in size, shape and structure.
- A wide range of thallus organisation is found in algae.
- Algae is Eukaryotes except blue green algae (BGA).
- The plant body does not show differentiation into tissue systems.
- The cell wall of algae is made up of cellulose and hemicellulose.
- Unicellular motile (*Chlamydomonas*), unicellular non-motile (*Chlorella*), Colonial motile (*Volvox*), Colonial non motile (*Hydrodictyon*), etc.

5. Define Fronds and Stipe?

The thallus is differentiated into leaf like photosynthetic part called **fronds,**

A stalk like structure called **stipe** and a **holdfast** which attaches thallus to the substratum.

6. List out the economic Important of Algae?

Name of the Algae	**Economic importance**
Beneficial activities	
Chlorella, Laminaria, Sargassum, Ulva, Enteromorpha	Food
Gracilaria, Gelidiella, Gigartina	Agar Agar – Cell wall material used for media preparation in the microbiology lab. Bucking canned food, cosmetic, textile, paper industry
Chondrus crispus	Carrageen a - Preparation of toothpaste, paint, blood coagulant
Laminaria, Ascophyllum	Alginate – ice cream, paints, flame proof

	fabrics
Laminaria, Sargassum, Ascophyllum, Fucus	Fodder
Diatom (Siliceous frustules)	Diatomaceous earth– water filters, insulation material, reinforcing agent in concrete and rubber.
Lithophyllum, Chara, Fucus	Fertilizer
Chlorella	Chlorellin -Antibiotic
Chlorella, Scenedesmus, Chlamydomonas	Sewage treatment, Pollution indicators
Harmful activity	
Cephaleuros virescens	Red rust of coffee

7. Define vascular cryptogams and Non vascular cryptogams?

❖ Vascular tissue like xylem and phloem are completely absent, hence called **'Non vascular cryptogams'.**

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8. What is the amphibian of plant kingdom?

➢ Bryophytes are simplest land inhabiting cryptogams and are restricted to moist, shady habitats.

➢ They lack vascular tissue and hence called **'Non- vascular cryptogams'**.

➢ They are also called as '**amphibians of plant kingdom.**

9. List out the Economic important of Bryophytes?

✓ A large amount of dead thallus of *Sphagnum* gets accumulated and compressed, hardened to form peat. In northern Europe peat is used as fuel in commercial scale (Netherlands). Apart from this Nitrates, brown dye and tanning materials are derived from peat.

✓ *Sphagnum and* peat are also used in horticulture as packing material because of their water holding capacity.

✓ *Marchantia polymorpha* is used to cure pulmonary tuberculosis.

✓ *Sphagnum*, *Bryum* and *Polytrichum* are used as food.

✓ Bryophytes play a major role in soil formation through succession and help in Soil conservation.

10. What is Prothallus?

The spore germinates to produce haploid, multicellular green, cordate shaped independent gametophytes called **prothallus.**

11. List out the Economic importance of Pteridophyte?

Pteridophyte Spp.	Uses
Rumohra adiantiformis (leather leaf fern)	Cut flower arrangements
Marsilea	Food
Azolla	Bio fertilizer
Dryopteris filix–mas	Treatment for tapeworm.
Pteris vittata	Removal of heavy metals from soils - Bioremediation
Pteridium sp.	The leaves yield a green dye
Equisetum sp.	Stems for scouring
Psilotum, Lycopodium, Selaginella, Angiopteris, Marattia	Ornamental plants

12. What are the differences between the Gymnosperms and Angiosperms?

S.No	Gymnosperms	Angiosperms
1.	Vessels are absent [except Gnetales]	Vessels are present
2.	Phloem lacks companion cells	Companion cells are present

3.	Ovules are naked	Ovules are enclosed within the ovary
4.	Wind pollination only	Insects, wind, water, animals, etc., act as pollinating agents
5.	Double fertilization is absent	Double fertilization is present
6.	Endosperm is haploid	Endosperm is triploid
7	Fruit formation is absent	Fruit formation is present
8.	Flowers absent	Flowers present

13. Explain the Salient features of Angiosperms?

- ❖ Vascular tissue (Xylem and Phloem) is well developed.
- ❖ Flowers are produced instead of a cone.
- ❖ The embryo sac (Ovule) remains enclosed in the ovary.
- ❖ Pollen tube helps in fertilization, so water is not essential for fertilization.
- ❖ Double fertilization is present. The endosperm is triploid.
- ❖ Angiosperms are broadly classified into two classes namely Dicotyledons and Monocotyledons.

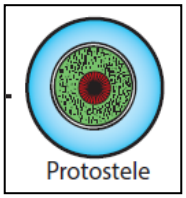
14. Different between the Dicotyledon and Monocotyledon?

Plant Parts	**Dicotyledons**	**Monocotyledons**
Morphological features		
Leaves	**Reticulate** venation	**Parallel** venation
Seed	**Two** cotyledons	**Single** cotyledon
Root System	Primary root radical persists as **Taproot**	Radical doesn't persist and **fibrous** root is present
Flower	Tetramerous or Pentamerous	Flowers Trimerous
Pollen	**Tricolpate** (3 furrow) pollen is present	**Monocolpate** (1 furrow) Pollen

		is present
Anatomical features		
Vascular bundles	Arranged in the form of a **ring** on the stem	**Scattered** in the stem
Cambium	Present	Absent
Secondary growth	Present	Absent

15. What is plectostele? Give an example.

- ❖ Xylem plates alternates with phloem plates.
- ❖ Example: *Lycopodium clavatum.*



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