YAKEEN NEET 2.0

2026

Plant Kingdom

Botany | Lecture - 01

Rupesh Chaudhary Sir

Topics to be covered

4 chapters

1. Wed : Test
   THUR : "
   FRIDAY : "
   SUMMARY
2. Algae
3.
4.

ALGAE

- Root, Stem, leaves, embryo, flower, seed, fruit : ABSENT
- Thalloid, autotrophs, chlorophyll ✓ (Phycology)
- Aquatic (fresh, marine H_2O,) but Terrestial also
- Wood, soil, moist stone, animal (Sloth Bear)
- Algae + Fungus ⟶ LICHEN.
- Vascular Tissue (xylem, phloem) : ABSENT
- ZYGOTE ✓

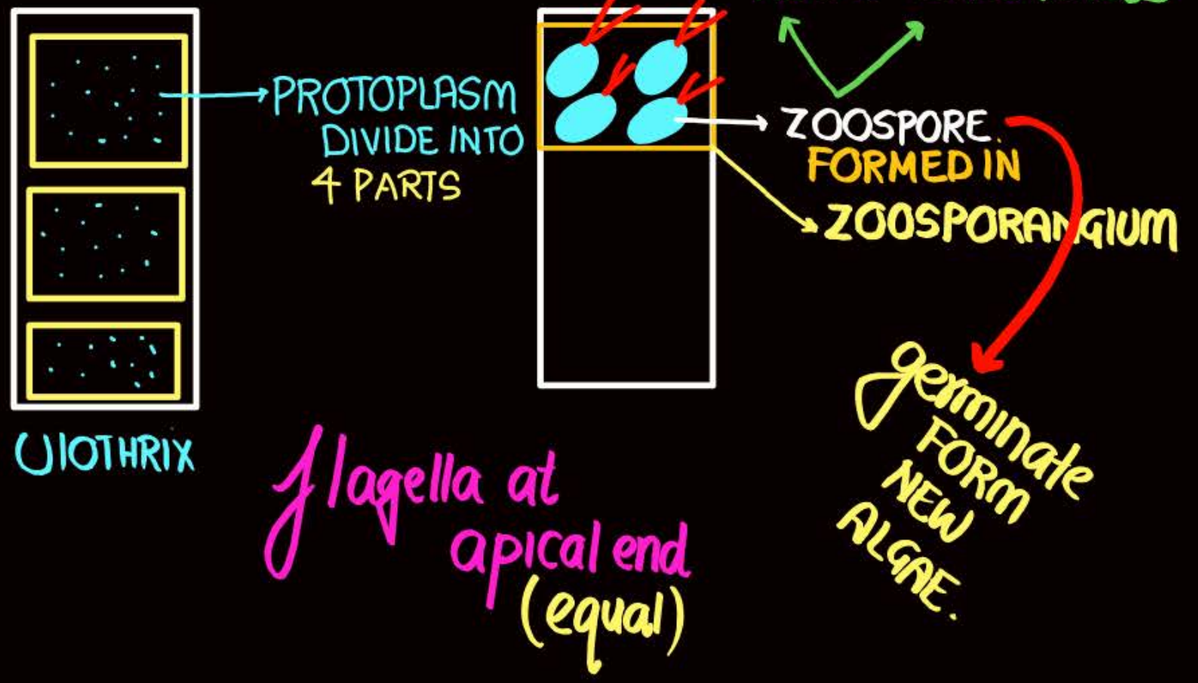
FORMS

- filamentous : Ulothrix, spirogyra (GREEN)
- Colonial : Volvox (GREEN)
- Massive Body (LARGE SIZE) : KELPS (BROWN)

REPRODUCTION

Vegetative fragmentation : small fragment germinate to form new algae

Asexual : common spore : zoospore



Sexual Reproduction

	Both fusing gamete
Isogamous	Morphologically similar → Flagellated (ULOTHRIX) / Non-flagellated (SPIROGYRA)
Anisogamous	Morphologically dissimilar Eudorina (GA)
Oogamous.	Male gamete : motile, (Usually) small female gamete : Large non-motile eg: Chara (GA) Fucus (BA)

NOTE: CHLORELLA: (PROTISTA): PROTEIN SOURCE
SPACE TRAVELLERS.

IMPORTANCE

- ★ HAIF OF CO_2 FIXTN (Photosynthesis)
- ★ Main producer
- ★ Increase dissolved O_2 in H_2O
- ★ Aquatic animals depends on algae.
- ★ Porphyra (RED), Sargassum (Brown), Laminaria (Brown)

Among 70 marine species: FOOD.

Phycocolloids/Hydrocolloid

★ H_2O holding Capacity.

Agar-agar: Gracilaria, Gelidium (RED)
Used in lab to grow microbes
Ice cream, Jellies.

Carrageen (RED)

Algin (Brown)

Classification (Pigments)

class.

Chlorophyceae → Green algae

- ★ Chla, b, carotene, xanthophyll.
- ★ Unicellular, Colonial, Filamentous.
  - Unicellular → Chlamydomonas (Placed in protista)
  - Colonial → volvox
  - Filamentous → Ulothrix, spirogyra

★

- PECTIN (outer)
- CELLULOSE (inner)

] Cell wall double layer

- Chloroplast (Pigments)
  - disc
  - Plate
  - Reticulate
  - Cup
  - Spiral/Ribbon etc.
- PROTEIN (CENTRE)
- STARCH (OUTER)
- Pyrenoids (In chloroplast) (Food storing Body).

Vegetative: fragmentation

Asexual: zoospore (Flagella equal, apical end)

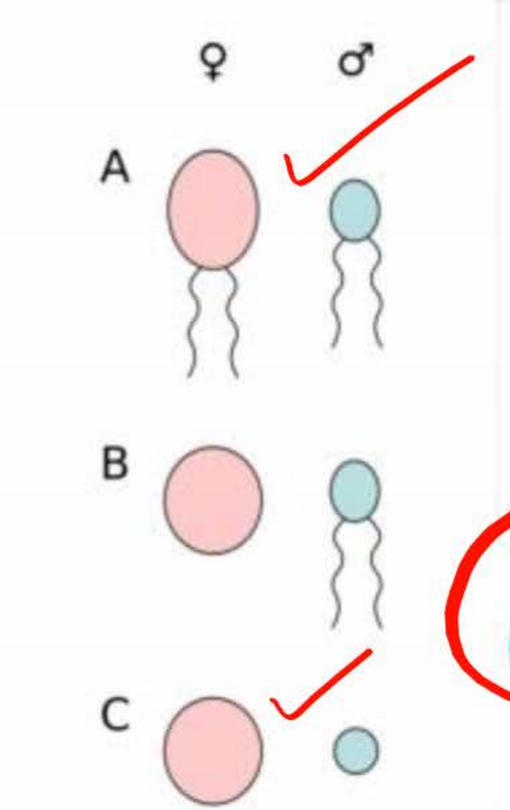
Sexual: Isog, anisogamous, Oogamous

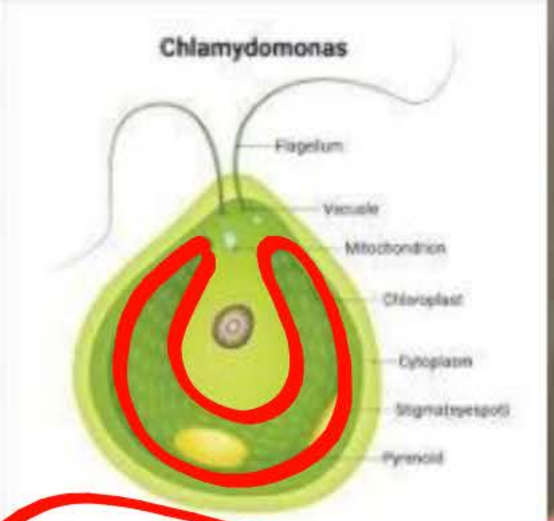
FOOD: Mainly starch

Some: oil.

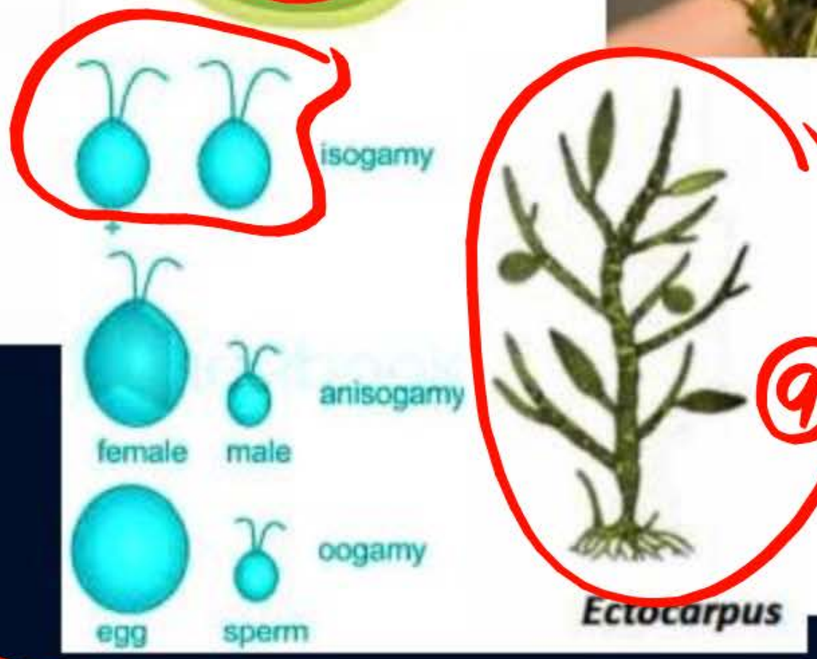
BROWN ALGAE / PHEOPHYCEAE

- ★ Chla, c, carotene, xanthophyll (Fucoxanthin)
- ★ Olive green to diff shades of Brown.
- ★ MARINE, MULTICELLULAR
- ★ LARGE SIZE / KELPS.
- ★ BODY: SIMPLE, Branched, Filamentous (Ectocarpus) OR PROFUSELY (KELPS) → 100 m.
- ★ Stored food: Complex carbohydrate (Laminarin & Mannitol).

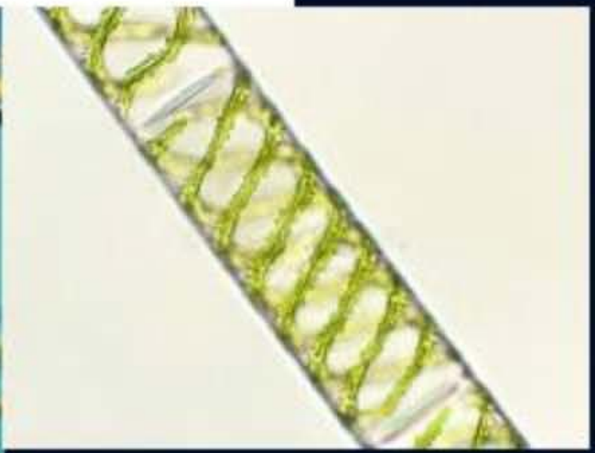

♀
♂
A
B
C


Chlamydomonas
Flagellum
Vacuole
Mitochondrion
Chloroplast
Cytoplasm
Stigma/eyespot
Pyrenoid


Acetabularia


isogamy
anisogamy
female
male
oogamy
egg
sperm


Ectocarpus



algin

b

SUMMARY

Biological classification of plants and animals was first proposed by Aristotle on the basis of simple morphological characters. Linnaeus later classified all living organisms into two kingdoms – Plantae and Animalia. Whittaker proposed an elaborate five kingdom classification – Monera, Protista, Fungi, Plantae and Animalia. The main criteria of the five kingdom classification were cell structure, body organisation, mode of nutrition and reproduction, and phylogenetic relationships.

In the five kingdom classification, bacteria are included in Kingdom Monera. Bacteria are cosmopolitan in distribution. These organisms show the most extensive metabolic diversity. Bacteria may be autotrophic or heterotrophic in their mode of nutrition. Kingdom Protista includes all single-celled eukaryotes such as Chrysophytes, Dinoflagellates, Euglenoids, Slime-moulds and Protozoans. Protists have defined nucleus and other membrane bound organelles. They reproduce both asexually and sexually. Members of Kingdom Fungi show a great diversity in structures and habitat. Most fungi are saprophytic in their mode of nutrition.

Everywhere.

diff Nutrition

B.F

They show asexual and sexual reproduction. Phycomycetes, Ascomycetes, Basidiomycetes and Deuteromycetes are the four classes under this kingdom. The plantae includes all eukaryotic chlorophyll-containing organisms. Algae, bryophytes, pteridophytes, gymnosperms and angiosperms are included in this group. The life cycle of plants exhibit alternation of generations – gametophytic and sporophytic generations. The heterotrophic eukaryotic, multicellular organisms lacking a cell wall are included in the Kingdom Animalia. The mode of

spore

gamete.

Homework from YAKEEN NEET 2.0 2026 Module

T : Algae + Fungi (Phycomy)

W : A, B, D (30 minutes)

T : NCERT READ (Biolog classif)

F : Cell cycle NCERT READ

PHYSICS WALLAH

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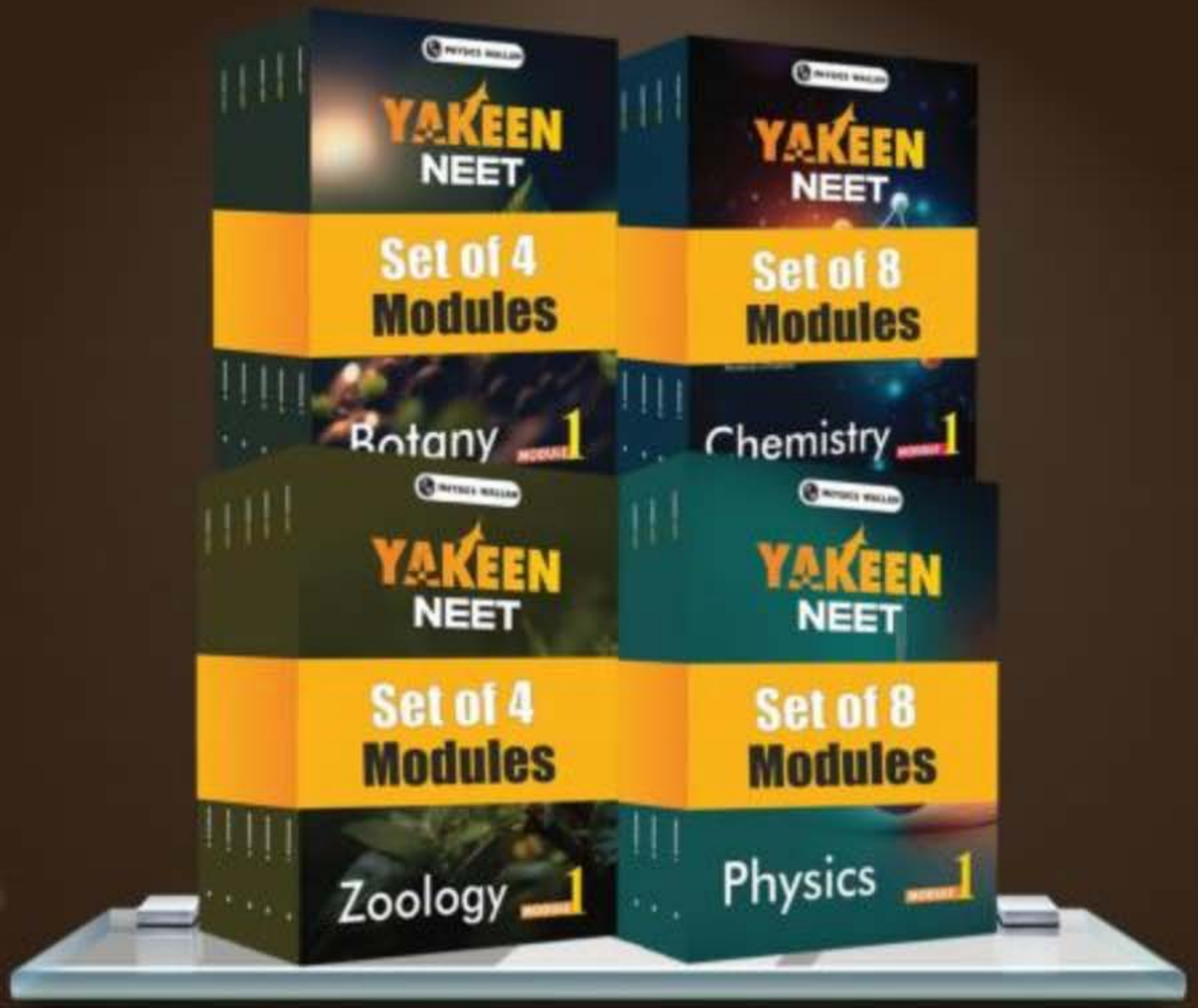

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