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1. Eichler's Classification.

DIVISION	CLASS
Thallophyta	Phycotinae (Algae) Mycotinae (Fungi)
Bryophyta	Hepaticae (Liverworts) Musci (Mosses)
Pteridophyta	Psilotinate (Psilotum) Lycopodinae (Lycopodium, Selaginella) Equisetinae (Horsetails) Filicinae (Ferns)
Spermatophyta	Gymnospermae (Gymnosperms) Angiospermae (Angiosperms)

2. IMPORTANCE OF ALGAE.
   i. It serves as food for fish, livestock and people.
   ii. Algae are considered nutritious because of their high protein content and concentrations of minerals, trace elements and vitamins.
   iii. They prevent goitre as they have high iodine content.
   iv. Brown algae yields Alginic acid which is used to stabilize emulsions and suspensions.
   v. Red algae is used to produce agar (commonly used as a culture medium) and Carrageenan (used as a thickening and stabilizing agent in products).
   vi. They are believed to cure illnesses and diseases.
   vii. They are useful in pharmaceutical and cosmetic industries.
3. Chlamydomonas is an example of unicellular algae. It is motile and found in stagnant water. It possesses two flagella which it uses for locomotion. Its cell is enclosed by a cellulose cell wall. It contains the nucleus, mitochondria, eye spot/stigma for photoreception, pyrenoid where the manufactured sugar is processed into starch, a cup-shaped chloroplast etc.
4. Chlamydomonas carries out both asexual and sexual forms of reproduction.
   Asexual Reproduction: It reproduces by mitosis, in which two daughter cells have the same quantity and quality as the mother cell. It leads to an increase in the number of cells. First, the cell loses its flagella. Then, the cell undergoes mitotic division and two nuclei are produced. Also, the cell walls elaborate and the cytoplasm divides into two around each nucleus (two cells/zoospores are released). There is an increase in the number of cells in the colony.
   Sexual Reproduction: There is clumping of cells. These cells pair by their flagellated ends and opposite but structurally similar cells fuse. This process is called ***ISOGAMY.*** The cytoplasm of the pairing cells fuse (plasmogamy) and they lose their flagella. Fusion of two nuclei occurs

(karyogamy) and afterwards, a zygote is formed. The zygote then secretes a thick cell wall called a zygospore and may sometimes remain dormant. In other conditions, the zygote undergoes two successive cell divisions after karyogamy. The first division restores the restores the haploid condition by halfing the nuclear material in the two nuclei while in the second division, each haploid nucleus undergoes a normal mitotic division. The 4 products of the meiotic division are released as haploid zoospores.

5. DIFFERENCES BETWEEN PANDORINA AND VOLVOX.

PANDORINA	VOLVOX
The colony consists of 16 cells attached to one another.	The number of cells may run into thousands and are connected with cytoplasmic strands.
Sexual reproduction is anisogamous.	Sexual reproduction is oogamous.

6. An example of a complex form of algae is Fucus. It is a brown algae. Its habitat is often rocks in the intertidal zones of the sea shores. Its body is flattened and it's a dichotomously-branched thallus with a mid rib, a vegetative apex (which is reproductive at maturity). It attaches itself to rock surfaces using a multicellular disk. It also possesses air bladders which aid it in floating on the water surface. Various species of Fucus exist and they vary in size from a few centimetres to about 2 metres in length and also in terms of whether the sex cells are found in the same sexual chamber or in different sexual chambers on different plant bodies.