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### Assignment

1) Classify plants according to Eichler's grouping of 1883.

Thallophyta (Algae, fungi).

Bryophyta (mosses, liverwort).

pteridophyta (Psilotum, Lycopodium, Selaginella, ferns, horsetails).

Spermatophyta (gymnosperm, angiosperm).

2) How are algae of importance to man?

\* Algae is used in yielding certain chemicals e.g. the brown algae yields alginate acid

\* Algae is used in the manufacture of cosmetics.

\* Algae can also serve as food to ~~livestock~~ and man.

\* Algae is ~~also~~ used in the manufacture of medicine.

3) Describe the unicellular form of algae.

The Chlamydomonas is a unicellular form of algae. It is found in stagnant water. The cell is bounded by a cellulose cell wall. The nucleus carries the genetic programme of the cell, the stigma is for photoreception. The manufactured sugar is processed into starch on the pyrenoid. It possesses flagella for movement.

4) How does this unicellular alga described in question 3 carry out its reproduction?

The Chlamydomonas reproduces vegetatively or sexually.

Vegetative reproduction: results in the production of daughter cells in which the amount and quality of genetic materials in the nucleus of the mother cell is maintained in the daughter cells. If a cell is about to divide it loses its flagella. The cell undergoes mitotic division leading to two nuclei, cell walls are elaborated with delimit cytoplasm



around each other, nucleus. Increase in the population of cells in a colony is achieved by repeated mitotic divisions.

## Sexual reproduction

This is as a result of certain/unfavourable environmental conditions which triggers the haploid daughter cells to undergo sexual reproduction. Instead of forming two spores, the cells form gametes that have two<sup>2n</sup> different mating strains. opposite mating strains fuse in a process called isogamy to form a diploid zygote with two sets of chromosomes. After a dormancy period, the zygote undergoes meiosis, ~~and~~ ~~the~~ ~~c~~

5) Differentiate between the two types of colonial form of algae.

### Pandoxina

It consists of 16 cells attached to one another

\* Complex

Each cell can form a colony

### Volvox

It consists of thousands of cells.

more complex

only ~~po~~ larger cells at the posterior ends that form colonies.

6. Describe a named complex form of alga.

~~Fucus~~ Fucus is a rock weed. It is a genus of brown algae whose species are often found on rocks in the intertidal zones of the sea shores. The plant body is flattened, dichotomously-branched thallus with a mid-rib, a vegetative apex, a reproductive apex at maturity and a multicellular disk (hold fast) with which the plant is attached to rock surface. They also have air bladders to aid ~~float~~ floatation.