**BIO 102 ASSIGNMENT**

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DEPARTMENT: MEDICINE & SURGERY

MATRIC NO: 19/MHS01/432

LEVEL: 100

SOLUTION

1. **Eichler’s grouping of 1883**

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| DIVISION | CLASS |
| Thallophyta | Phycotinae(Algae)  Mycotinae(Fungi) |
| Bryophyta | Hepaticae(Liverworts)  Musci(Mosses) |
| Pteridophyta | Psilotinate(Psilotum)  Lycopodinae(Lycopodium)  Equisetinae(Horsetails)  Filicinae(Ferns) |
| Spermatophyta | Gymnospermae(Gymnosperm)  Angiosperm(Angiosperm) |

1. **Importance of Algae to man**

* Algae are used as food for fish, people and livestock.
* Has iodine and prevents goitre.
* Used as thickening agent in ice cream and shampoo
* Agar gels are used in growing bacteria, fungi and cell structure.
* Used as drugs to ward of diseases.
* Algae could also be used as preservative.

1. Unicellular form of Algae (Clamydomonas)

* Clamydomonas represents the unicellular form of algae
* They are motile and found in stagnant water
* It has nucleus which carries the gene of the cell
* Stigma for photoreception
* Pyrenoid which processes sugar to starch
* They reproduce by either vegetative (asexual reproduction) or sexual.

1. Reproduction in Clamydomonas

Reproduction can either be vegetative (asexual) or sexual

* Vegetative propagation: This results in production of daughter cells with equal characteristics of mother cell in a process called MITOSIS. The cell undergoes mitosis leading to two nuclei. The daughter has n quantity of genetic material same as the mother.
* Sexual reproduction: Opposite Mating strains fuse in a process called ISOGAMY. Cytoplasm of paring cells fuse (Plasmogamy) and flagella are lost, nuclei fuse (Karyogamy) and zygote is formed.

1. Differences between two colonial forms of algae

The colonial forms are pandorina and volvox

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| PANDORINA | VOLVOX |
| Sexual reproduction is anisogamous | Sexual reproduction is oogamous |
| Colony consists of 16 cells | Colony consists of up to 1000 cells |
| Unicellular motile thallus | Complex form of pandorina |
| Less evolutionary advanced | More evolutionary advanced |

1. Complex form of Alga(FUCUS)

Fucus is a genus of brown algae whose species are 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 and a multicellular disc which helps plant attach to a rock. The body has air bladders which aids the plant in floating on water.

Sexual reproduction is oogamous, sex cells are produced in conceptacles which have openings (ostioles) on the surface of the thallus.