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**BIO 102 ASSIGNMENT**

**MBBS 19/MHS01/192**

1. Classification of plants according to Eichler’s grouping in 1883;

Eichler created a system for classifying the plant kingdom and it is a phylogenetic system of classifying plants. He classified them into two sub-kingdoms;

1. Cryptogamae: (Gk. Kryptos=concealed, gamos=marriage) these are flowerless and seedless plants. They are lower plants which are simple plants like mosses and ferns.
2. Phanerogamae: these are seed bearing plants and are also known as spermatophytes (Gk. Sperma=seed, phyton=plant). They are higher plants in which the bodies of the plants are differentiated into roots,stem, and leaves with a well-developed vascular system. They include gymnosperms and angiosperms.

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| **DIVISIONS** | **CLASS** |
| Thallophyta | Phycotinae(algae)  Mycotinae(fungi) |
| Bryophyta | Hepaticae(liverworts)  Musci(mosses) |
| Pteridophyta | Psilotinate(psilotimate)  Lycopodinae(lycopodium,selaginella)  Equisetinae(horsetails)  Filicinae(ferns) |
| Spermatophyta | Gymnospermae(gymnosperms)  Angiospermae(angiosperms) |

Below is a table containing the divisions and classes of the plant kingdom;

1. Importance of Algae to man;
   * 1. They serve as a source of food to man.
     2. They are used as cosmetics.
     3. They are used as thickening agents in ice cream and shampoo.
     4. They are used to ward off diseases
     5. They are very nutritious and high in proteins, vitamins and trace elements.

3) The unicellular form of algae;

Chlamydomonas is the unicellular and motile forms of green algae. It is usually found in stagnant water. It posses flagella which is used in movement. The cell is bounded by a cellulose cell wall and within the cells there are organelles which are; nucleus, mitochondria, eyespot, chloroplast, pyrenoid etc. The mitochondria conveys the elaboration of energy molecules. The eyespot helps in photoreception. The nucleus carries the genetic programme of the cell while the pyrenoid is the venue where manufactured sugar is processed into starch.

4) Reproduction of chlamydomonas;

Reproduction in chlamydomonas can either be asexual in form of vegetative or sexual. In vegetative reproduction there is a replication in the amount and quality of genetic material of the nucleus in the mother cell in daughter cells. The division which is involved is mitosis. A cell about to divide in chlamydomonas loses its flagella then the cell undergoes a mitotic division where two nucleus that is two daughter cells are released. While in sexual reproduction, instead of forming spores, the haploid daughter cells form gametes that have two different mating strains. Opposite mating strains fuse in a process called isogamy to form a diploid zygote which consists two sets of chromosomes. After a period of dormancy, the zygote undergoes the division known as meiosis. Aggregation of cells, also known as clumping, occurs in favorable conditions. These cells pair by their flagellated ends which would be isogamous then the cytoplasm of the pairing cells fuse and the flagella are lost. The two nucleus fuse together then zygote goes two successive cell division. The first division restores the haploid condition while the second division each haploid nucleus undergoes a normal mitotic division. These two divisions which results in four cells and with n quantity of nuclear materials are known as meosis. The four products are released as haploid zoospores.

5) Differentiation between the two types of colonial forms of algae which are Pandorina and Volvox.

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| **PANDORINA** | **VOLVOX** |
| Consists of 16 cells attached to one another | There are more cells in the colony and the number may run into thousands and are connected with cytoplasmic strands that run through the cells. |
| Less complex than volvox | More complex than pandorina |
| Sexual reproduction is anisogamous | Sexual reproduction is oogamus. |
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6) Another complex form of algae is spirogyra. It is the best known filamentous algae. It resides in stagnant bodies of water as green floating threads. It contains a spiral ribbon like chloroplast which contains pyrenoid. Vacuoles are also present in the cells. Sexual reproduction occurs at a mature stage.