

**NAME: Oluwadamilare Faith Oluwadarasimi**

**DEPARTMENT: Human Nutrition and Dietetics**

**MATRIC NO: 19/mhs04/002**

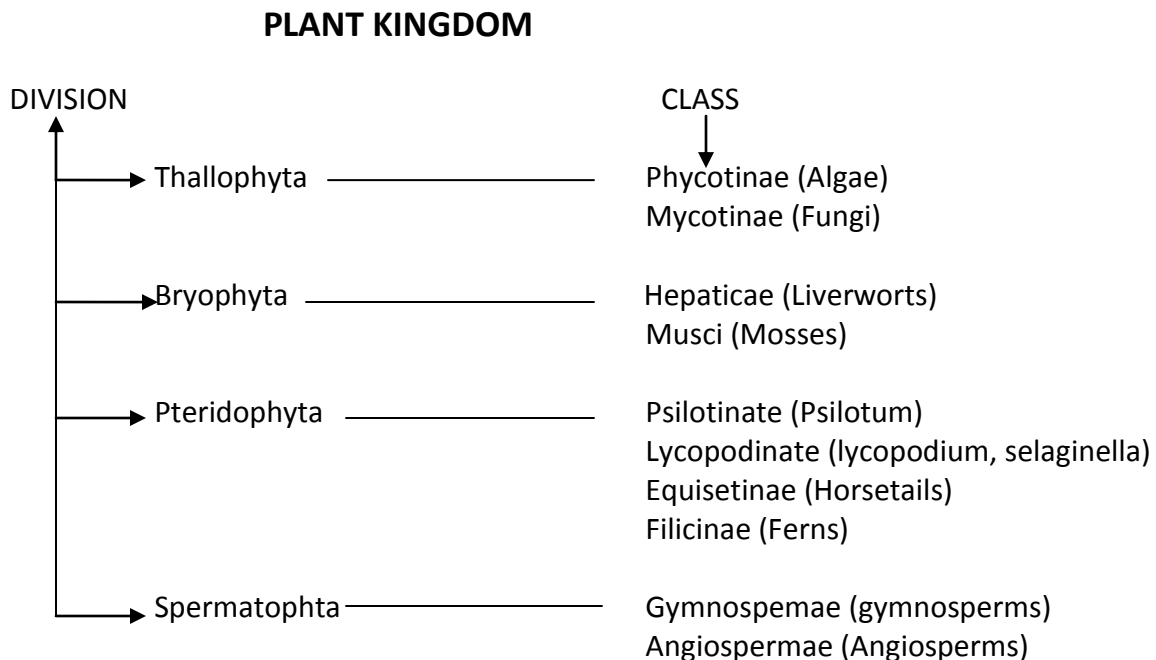
**ASSIGNMENT TITLE: GENERAL BIOLOGY II**

**COURSE TITLE: GENERAL BIOLOGY II**

**COURSE CODE: BIO 102**

**Question**

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



**2.) How are algae of importance to man?**

**Answer**

- i)** Some species are harvested for cosmetics.
- ii)** It serves as a source of food.
- iii)** It serves as thickening agents in ice creams and shampoo.
- iv)** It prevents Goiter due to its high iodine content.

v) Brown algae yields Alginic acid used to stabilize emulsions and suspensions found in syrups, ice cream and paints.

vi) Different species of Red Algae provides agar and carrageen used to prepare various gels used in scientific research.

### **3.) Describe a unicellular form of algae.**

Chlamydomonas is a unicellular form of algae. They are usually found in stagnant water and they possess Flagella for mobility. The cell is bounded by a cellulose cell wall which contains organelles like the nucleus, mitochondria, Eyespot, cup shaped chloroplast and pyrenoid. The nucleus carries the genetic programme of the cell, eyespot is used for photoreception, the Mitochondrion produces energy and on the Pyrenoid manufactured sugar is processed into starch. They reproduce either by Asexual or sexual reproduction.

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

It reproduces either by Sexual or Asexual reproduction.

#### **i) Asexual reproduction**

The chlamydomonas cell about to reproduce loses its flagella. It then undergoes mitotic division leading to two nuclei. The mother cell walls are elaborated which delimit cytoplasm around each nucleus such that two daughter cells are released. The amount and quality of genetic material in the nucleus of the mother cell is maintained in the daughter cells.

#### **ii) Sexual reproduction**

This usually occurs when the environmental condition is not favourable like when there is lack of nutrients or moisture. Due to this the haploid daughter cells undergo sexual reproduction. The haploid daughter cells then form gametes that have two different mating strains (positive and negative strains) which are structurally similar. Aggregation of cells in a colony occurs under favourable conditions. These cells pair by the posterior flagellated end this pairing is said to be isogamous because the pairing cells (gametes) is morphologically identical. The cytoplasm of the pairing cells fuse this process is called plasmogamy and the flagella are lost. Karyogamy which is the fusion of two nuclei occurs. This is a fertilization process in which a diploid zygote is formed. Two cells each with n quantity of genetic (nuclear) material (i.e. haploid nuclear material) undergo karyogamy (fusion of nuclei) to produce a single cell with 2n (diploid) nuclear material. The zygote secretes a thick cell wall called a zygospore and may remain dominant in that state for sometimes. After karyogamy, sometimes the zygote undergoes two successive cell division. The zygote undergoes meiosis which is the first division. The haploid condition is restored by halving the nuclear material in the two resulting nuclei while in the second division each haploid nucleus undergoes a normal mitotic division. The four products of meiosis are released as haploid zoospores.

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

<b>Volvox</b>	<b>Pandorina</b>
It has cells that may run into thousands and are connected with cytoplasmic strands that run through the cells.	A colony consists of 16 cells attached to one another.
Not all cells undergo cell division because they are too many.	All cells undergo cell division.

**6.) Describe a named complex form of alga.**

**Fucus** is an example of a complex form of algae.

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, has a dichotomously-branched thallus with a mild rib, a vegetated apex, a reproductive apex when matured and a multicellular disk with which plant is attached to rock surface. It also has air bladders which are believed to aid the plant to float on the water. There are various species of Fucus which vary in size from a few centimeters to about two meters in length and also varies in where the sex cells are found(whether in the same or different sexual chambers on different plant bodies). It undergoes sexual reproduction. The sexual reproduction is oogamous. The sex cells are produced in conceptacles which have openings (ostioles) on the surface of the thallus.