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DEPARTMENT: MEDICINE AND SURGERY

COURSE: BIO 102

1. Classify plants according to Eichler’s grouping of 1883.

Eichler classified the plant kingdom into two sub kingdoms. They are Cryptogamae and Phanerogamae.

Cryptogamae: they are flowerless and seedless plants. They are simple plants like algae, mosses and ferns which do not produce flowers, fruits and seeds. Cryptogams are considered as lower plants.

Phanerogamae: they are seed bearing plants, they are also known as spermatophytes. They are higher plants, the plant body is differentiated into roots, stem, and leaves with well developed vascular system.

1. How are algae of importance to man?

* Food for sea animals and fishes
* Algae is used as food

#### As a source of vitamins

#### It is used in the manufacture of light weight buildings

* Algae is Used as Fertilizers
* Algae is Used as Medicine
* Algae is Useful in Fish Culture
* Algae is Used for Recreational Purposes
* Algae is Useful in Sewage Treatment Plants

#### Nitrogen fixation by blue green algae (cyanobacteria)

1. Describe a unicellular form of algae.

**Euglena**

These organisms have chlorophyll and carotenoid pigments for photosynthesis and flagella for movement. They share many characteristics with both plants and animals and are believed to be a basic stock of evolution. A typical Euglena cell has a large nucleus and nucleolus. Contractile vacuoles help empty water from the organism, and two flagella arise at one end of the cell.

1. How does this unicellular alga described in question3 carry out its reproduction?

Its carries out its reproduction by binary fission in the longitudinal plane.

1. Differentiate between the two types of colonial form of algae.

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| Pandorina | Volvox |
| Sexual reproduction is achieved by anisogamous pairing | Sexual reproduction is oogamous |
| The colony consists of 16 cells attached to one another | There are thousands of cells connected with cytoplasmic strands that run through the cell |
| All 16 cells form new colonies | Not all cells form new colonies. |

1. Describe a named complex form of alga.

Charophyta

Charophyta are commonly known as stoneworts or brittleworts. Charophyta are mainly freshwater organisms. They tend to grow in slow-moving or standing water. They come from a monophyletic lineage, and are a paraphyletic group. There are five classes: Chlorokybales, Klebsormidiales, Coleochaetales, Charales, and Zygnematales. It was commonly believed that Charophyta were related to embryophytes (land plants). Their analysis also identified Charales as the closest living relatives of plants. Charophyta are autotrophic, creating starch from photosynthesis. Charophyta can reproduce asexually or sexually; sexual reproduction is the primary method. Asexual reproduction occurs by fragmentation. Sexual reproduction is oogamous, with zygotic meiosis; plants may be monoecoious or dioecious. None of the Charophyta species experience alternation of generations. Like plants, they utilize the phragmoplast method of cell division.