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MATRIC NUMBER: 19/MHS02/091

DEPARTMENT: NURSING

COURSE CODE: BIO102

COURSE TITLE: GENERAL BIOLOGY II

LEVEL: 100 LEVEL

1. The classification of plants according to 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, Selaginella)  Equisetinae (Horsetails)  Filicinae (Ferns) |
| Spermatophyta | Gymnospemae (Gymnosperms)  Angiospemae (Angiosperms) |

1. Importance of Algae to man

* Algae serves as source of food for fish, people and livestock
* Algae serves as thickening agents in ice-cream, shampoo and drugs to ward off diseases.
* Algae have high Iodine content to prevent goitre.
* Algae such as brown algae yield alginic acid used to stabilize emulsions and suspensions found in products such as syrup, ice-cream and paint.
* The red algae produce agar and carrageen used for the preparation of various gels used in scientific research and food industry to stabilize pie fillings and preservation of canned meat and fish.
* Algae are considered nutritious because of their high protein content and high concentrations of minerals, trace elements and vitamins.

1. The Unicellular form of algae:

The unicellular form of algae is Chlamydomonas which is the motile forms of green algae. It is usually found in stagnant water. It has a flagella which is structures for mobility. The cell which is bounded by a cellulose wall that contains organelles e.g. stigma, mitochondrion etc.

The nucleus that carries the genetic programme of the cell

The stigma used for photoreception.

1. Reproduction in unicellular form of algae (Chlamydomonas)

Reproduction in chlamydomonas can either be vegetative (asexual) or sexual.

Vegetative reproduction: reproduction in chlamydomonas results in production of daughter cells in which the amount and quality of genetic material in the nucleus of the mother cell is maintained in the daughter cells. Thus, it achieve through the cell division called mitotic division.

Sexual reproduction: the reproduction in chlamydomonas is carried out through the process of Isogamy by involving the union of sex cells (gametes). This pairing is said to be isogamous because the pairing cells (gametes) are morphologically identical. The cytoplasm of the pairing cells fuse and the flagella are lost. The two nuclei fuse (karyogamy) which is essentially a fertilization process so that a zygote is formed.

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

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| Pandorina | Volvox |
| * The sexual reproduction in pandorina is anisogamous | The sexual reproduction in volvox is oogamous |
| * Pandorina is a genus of green algae. | Volvox is the complex form of pandorina |

1. The complex form of algae:

The complex form of algae is Fucus which is a genus of brown algae that is often found on the rocks in the intertidal zones of the sea shores. The body of the plant is dichotomously-branched thallus with a mid-rib, a vegetative apex, a reproductive apex at maturity and a multicellular disk (hold fast) with which plant is attached to rock surface. It also have air bladders which aid the plant to float on the water. The sexual reproduction is Oogamous, sex cells are produced in conceptacles which have openings (ostioles) on the surface of the thallus.