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**DEPARTMENT: PHARMACY**

**MATRIC NUMBER: 19/MHS11/049**

**COURSE CODE: BIO 102**

**ASSIGNMENT AND ANSWERS**

1. Classify 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) and Filicinae (ferns) |
| Spermatophyta | Gymnospermae (Gymnosperms)  Angiospermae (Angiosperms) |

2. Importance of algae to man

It serves as food for people and livestock

It is used as a thickening agent in shampoo and ice-cream

It serves as drugs to ward off diseases

Algae are considered nutritious because of their high protein content and high concentration of minerals, trace elements and vitamins.

Due to their high Iodine content, they prevent Goitre

Brown algae which yields Alginic acid is used to stabilize emulsions and suspensions; found in products such as syrup, ice cream and paints

3. Describe a unicellular form of algae

This form of algae are usually found in stagnant water. They possess flagella for movement, with the cell bounded by a cellulose cell wall which contains organelles e.g. nucleus, mitochondrion, stigma(eyespot), cup-shaped chloroplast and pyrenoid etc

4. Reproduction of the unicellular algae: it reproduces vegetative(asexual) reproduction which involves binary fission of the nucleus which results in the production of daughter cells with the same amount and quality of genetic materials present in the mother cell. OR sexual reproduction which involves the union of sex cells(gametes) then goes through fertilization process so that a zygote is formed.

5. Differentiate between the two forms of colonial algae

The forms of colonial algae are: pandorina and volvox

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| PANDORINA | VOLVOX |
| The colony consist of only 8 to 32 cells attached to one another | There are thousands of cells in this colony these cells are connected with cytoplasmic strands that runs throughout the cels. |
| Their cells show lower levels of differentiation and specialization | The cells show greater levels of differentiation and specialization |
| Reproduction is either asexual or sexual | It undergoes sexual reproduction while asexual reproduction remains throughout the life of the colony |
| It is a motile multicellular algae. | Some species are unicellular while others live In colonies of up to 50,000 cells. |
| The cells are ovoid or slightly narrowed at one end to appear keystone or pear-shaped. | The cells are single ovoid or spherical in shape which contains two flagella and it appears like a minute floating ball of a pinhead size. |

6. Description of a named complex form of algae: FUCUS

Fucus is a genus of brown algae whose species are often found on rocks in the intertidal zones of seashores. The plant body is flattened, dichotonomously-branched thallus with a midrib, a vegetative apex, a reproductive apex at maturity and a multicellular disk with which plant is attached to rock surface. Sexual reproduction is oogamous, sex cells are produced in conceptacles which have openings(SSostioles) on the surface of the thallus.