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**COURSE TITLE:GENERAL BIOLOGY II**

**COURSE CODE:BIO 102**

ANSWERS:

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

|  |  |
| --- | --- |
| DIVISION | CLASS |
| Thallophyta | hycotinae(algae)Mycotinae(Fungi) |
| Bryophyta | Hepaticae(liverworts)Musci(Mosses) |
| Pteridophyta | Psilotinate(Psilotum)Lycopodinae(Lycopodium,Selaginella)Equisetinae(horsetails)Filicinae(ferns) |
| Spermatophyta | Gymnospermae(gymnosperms)Angiospermae(angiosperms) |

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

i)certain species are harvested for food and cosmetics in the east.

ii)it can be used as a thickening agent in icecream,shampoo and drugs to ward off diseases.

iii)the iodine present in algae prevents goitre in man.

iv)seaweed is used extensively in food, pharmaceutical,textile and cosmetic industries.

v)different species of red algae provides agar and carrageen used for the preparation of various gels used in scientific research.

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

**Chlamydomonas**represents the unicellular and motile forms of green algae.

-they are found in stagnant water usually with other forms

-flagella are the structures for mobility

-the cell is bounded by a cellulose wall;contains organelles e.gnucleus, mitochondria,stigma(eyespot), cup-shaped chloroplast, pyrenoid etc.

-the nucleus carries the genetic programme of the cell.

-the stigma is for photoreception

-the mitochondria mediate the elaboration of energy molecules.

-manufactured sugar is processed into starch on the pyrenoid.

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

Its reproduction can either be **sexual** or **vegitative**.

by **sexual reproduction**: lack of nutrients or moisture may trigger the haploid daughter cells to undergo sexual reproduction. In chlamydomonas, aggregation of cells in a colony occurs under favourable conditions.The zygote undergoes meiosis.

by **vegetive reproduction**:it results in production of daughter cells in which the amount and quality of genetic materials in The the nucleus of the mother cellis maintained in the daughter cells.The kind of cell division which maintains the quantity and quality of genetic material is called mitotic divison.

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

**Pandorina** which usually ocours in water bloom has a colony of 16 cells attached to one another. Each cell has many features/attributes in common with chlamydomonas. eg. nucleus,large chloroplast pyrenoid etc.

     **while**

**Volvox**shows more complex form than pandorina. There are more cells in the colony, number may run into thousands and connected with cytoplasmic strands that run through the cells.

6)**Describe a named complex form of algae**

**FUCUS**: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, dichotomously- branched thallus with a mid rib, a vegetative apex at maturity) and a multicellular disk (hold fast) with which plant is attached to rock surface. The plant body also has air bladders which is believed to aid the plant to float on water. Various species of fucus exist;vary in size a few centimeters to about 2 metres in length. They also vary in terms of whether the sexual chambers on different plant bodies. Sexual reproduction is oogamous,sex cells are produced in conceptacles which have openings(ostioles) on the surface of the thallus..