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MATRIC NUMBER: 19/MHS02/021

DEPARTMENT: NURSING

COURSE: BIOLOGY 102

**ASSIGNMENT**

Q1. 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 | Gymnospermae (Gymnosperms)Angiospermae (Angiosperms) |

Q2. Importance of algae to man:

* It serves as thickening agent in ice cream and shampoo
* Algae have high iodine content that prevents goiter
* It serves as food for man and livestock
* Alginic acid (from brown algae) is used to stabilize emulsions and suspensions
* Red algae provide agar and carrageen used for the preparation of various gels used in scientific research

Q3. Unicellular form of algae:

* Chlamydomonas represents the unicellular and motile form of green algae
* It is found in stagnant water usually along with other forms
* Flagella are the structures for mobility
* The cell is bounded by a cellulose cell wall; contains organelles e.g. nucleus, pyrenoid, mitochondria etc.
* The genetic programme of the cell is carried by the nucleus
* The stigma is for photoreception
* The mitochondria mediate the elaboration of energy molecules
* Manufactured sugar is processed into starch on the pyrenoid

Q4. Reproduction in unicellular form of algae:

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

**Vegetative reproduction**: It 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. Therefore, if the amount of genetic material in the mother cell nucleus is n, the daughter cells also have n quantity of genetic material. The kind of cell division which maintains the quantity and quality of genetic material is called mitotic divisions.

**Sexual reproduction**: It involves union of sex cells (gametes). In Chlamydomonas, aggregation of cells (clumping) in a colony occurs under favourable conditions. These cells pair by their posterior (flagellated) ends. This pairing is said to be isogamous because the pairing cells (gametes) are morphologically identical.

Q5. Differences between the two types of colonial form of algae;

* Pandorina
* Volvox

|  |  |
| --- | --- |
| Pandorina | Volvox |
| It’s a genus of green algae | It’s a complex form of pandorina |
| Sexual reproduction is anisogamous | Sexual reproduction is Oogamous |
| Unicellular motile thallus | Multicellular motile thalllus |

Q6. Complex form of algae:

**Fucus**

It is a genus of brown algae whose species are often found on rocks in the intertidal zones of the sea shores. The body of the plant is flattened, dichotomously-branched thallus with a midrib, a vegetative apex, a reproductive apex and a multicellular disk (hold fast) with which plant is attached to rock surface. The plant body has air bladders which is believed to aid the plant to float on the water. It vary in size from a few centimeters to about 2 meters in length. They also vary in terms of whether the sex cells are found in the same sexual chamber or in different 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. Apart from the antheridia and oogonia, sterile multicellular filaments (paraphyses) are also produced in the conceptacles which are dispersed among the antheridial and oogonial outgrowths and at the entrance into the conceptacles.