HILLARY-EDJERE VWEDE PRISCILLA

BIO 102

NURSING

19/MHS02/061

ASSIGNMENT

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

Plant Kingdom

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| **DIVISION** | **CLASS** |
| 1. Thallophyta | Phycotinae (Algae)  Mycotinae (Fungi) |
| 1. Bryophtya | Hepaticae (Liverworts)  Musci (Mosses) |
| 1. Pteridophyta | Psilotinate (Psilotum)  Lycopodinae (Lyeopodium, Selaginella)  Equisetinae (Horsetails)  Filicinae (Ferns) |
| 1. Spermatophyta | Gymnospermae ( Gymnosperms)  Angiospermae (Angiosperms) |

Question 2: How are algae of importance to man?

* They have trace elements.
* They are used as food for fishes.
* They serve as food for humans and livestock.
* They are used as thickening agents in shampoo.

Question 3: Describe a unicellular form of Algae.

Chlamydomonas represents the unicellular and motile forms of green alga.

* They are usually formed in stagnant water.
* Presence of flagella for mobility.
* Cell is bounded by a cellulose cell wall.
* Contains organelles e.g nucleus, mitochondria, stigma (eyespot), cup-shaped chloroplast, pyrenoid etc.

Question 4: How does this unicellular alga described in Question 3 carry out its reproduction?

Reproduction in Chlamydomonas (unicellular green algae),

* In Chlamydomonas, reproduction can either be vegetative (asexual) or sexual.

1. Vegetative Reproduction
2. Chlamydomonas cell divides to lose its flagella.
3. The cell undergoes miotic division leading to two nuclei.
4. Cell walls are elaborate which delimit cytoplasm around each nucleus.
5. Two daughter cells (zoospores) are released.
6. Increase in the population of cells on a colony is achieved by repeated mitotic divisions.
7. Sexual Reproduction
8. The cytoplasm of the pairing cells fuse (plasmogamy) and the flagella are lost.
9. The two nuclei fuse (karyogamy).
10. The zygote secretes a thick cell wall called a zygospore and many remain dormant in that state for a period of time.
11. After karyogamy, the zygote undergoes two successive cell division.
12. The first division restores the haploid condition halving the nuclear material in the two resulting nuclei (reduction division).
13. The second division, each haploid nucleus undergoes a normal mitotic division.
14. These two divisions end up with four cells and with ‘n’ quantity of nuclear material are together known as “meiosis”.
15. The four products of meiosis are released as haploid zoospores.

Question 5: Differentiate between the two types of colonial form of Algae.

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| **Pandorina** | **Volvox** |
| 1. Colony consists of 16 cells attached to one another. | More complex form than Pandorina. Number of cells run into thousands. |
| 1. All cells produce 16 new colonies. | Not all cells form new colonies but the larger cells at the posterior ends form new colonies. |
| 1. Sexual reproduction is achieved by anisogamonas pairing (pairing by the flagella ends). | Sexual reproduction is by oogamous i.e the male gamete, while the femaole gamete (eggs) is not motile. |
| 1. Pandorina are cells advanced. | The volvox are said to be more advanced than the Pandorina. |

Question 6: Describe a named complex form of Algae.

An example of complex form of Algae is Brown Algae Fucus.

* 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, vegetative apex, reproductive apex at maturity.
* Presence of multicellular disk (hold fast) with which plant is attached to rock surfaces.
* Presence of air bladders which aids to the plant to float on water.
* Focus are from few centimeters to about 2 meters in length.
* Sexual reproduction is oogamous.
* Sex cells are produced in conceptacles which have openings (ostioles) on the surface of the thallus.