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**DEPARTMENT: DENTISTRY AND DENTAL SURGERY**

**COURSE: BIO 102**

**QUESTION 1:**

Eichler’s grouping of 1883:

Division Class

Thallophyta Phycotinae ( Algae)

 Mycotinae ( Fungi)

Bryophyta Hepaticae ( Liver wort)

 Musci( Mosses)

Pteridophyta Psilotinae ( Psilotum)

 Lycopodinae ( Lycopodium, selaginella)

 Equisetinae ( Horsetail)

 Filicinae ( Ferns)

Spermatophyta Gymnospermae ( Gymnosperms)

 Angiospermae ( Angiosperms).

**QUESTION 2:**

1. Algae serve as food for man; It is highly nutritious because it has a high concentration of protein, minerals, trace elements and vitamins.
2. It serves as drugs to ward off diseases.
3. Algae has high concentration of iodine, therefore, it prevents goitre.
4. Diatoms help in forensic medicine; if an algae is found in the lungs of a dead person, it means the person died by drowning.
5. It is used as a thickening agent in ice-cream and shampoo.

**QUESTION 3:**

Unicellular form of algae:

Chlamydomonas is a unicellular and motile form of green algae. It is found in stagnant water, the flagella is used for mobility. The cell is bounded by a cellulose cell wall and it contains organelles e.g nucleus, mitochondria, stigma[eye spot], cup-shaped chloroplast, pyranoid etc.

The nucleus carries the genetic programmes of the cell, the stigma is for photoreception, mitochondria for elaboration of energy molecules and pyrenoid acts to convert suger into starch.

**QUESTION 4:**

Chlamydomonas undergoes vegetative (asexual) reproduction and sexual reproduction.

Vegetative reproduction involves production of daughter cells in which the amount of genetic material in the nucleus of the mother cell is maintained in the daughter cell. If the amount of material in the nucleus of the mother cell is “n”, the daughter cell would also have “n” quantity of genetic material. Mitotic division takes place during vegetative reproduction, it is responsible for increase in the number of cells. In chlamydomonas, a cell about to divide loses its flagella. The cell undergoes mitotic division leading to two nuclei, cell walls are elaborated which delimits cytoplasm around each nucleus i.e two daughter cells (zoosphores) are released.

Sexual reproduction 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 are morphologically identical. The cytoplasm of the pairing cells fuse (plasmogamy) and the flagella are lost. The two nuclei fuse(karyogamy), this situation is essentially a fertilization process so that a zygote is formed. The zygote secretes thick cell wall called a zygospore and may remain dormant in that state for some time. After Karyogamy sometimes, the zygote undergoes two successive cell divisions. These two divisions end up with 4 cells with n quantity of nuclear material. The four products of meiosis are released as haploid zoospores.

**QUESTION 5:**

Pandorina Volvox

1. Sexual reproduction is Sexual reproduction is oogamous

anisogamous

1. Less advanced Cells show greater level of

 differentiation and specialization

**QUESTION 6:**

FUCUS:

A genus of brown algae whose species are often found in rocks and intertidal zones of the sea shores. The plant body is flattened, 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. The plant body also has air bladders which is believed to aid the plant to float on the water. 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.