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 MATRIC NO: 19/MTS011206

Division	Class
Thallophyta	Phycothae (Algae) Mycotinae (Fungi) Uterobae (Liverworts) Musci (Mosses)
Bryophyta	Psilotaceae (Psilotum)
Pteridophyta	Lycopodiaceae (Lycopodium, Selaginella) Equisetaceae (Horse tails)
Spermatophyta	Filicinae (Ferns) Gymnosperms (Gymnosperms) Angiosperms (Angiosperms)

- i) They serve as food for people, thickening agents in ice cream and shampoo and drugs to ward off disease.
- ii) Algae have high iodine content therefore prevent goitre.
- iii) Brown algae yields Alginate acid which is used to stabilize emulsions and suspensions; found in products such as syrup, ice cream and paint. Different species of red algae provide agar and carrageenan used for the preparation of various gels used in scientific research.
- iv) Algae has been used for centuries, especially in Asian countries, for their purported powers to cure and prevent illness e.g. cough, gout, gallstones, goitre, hypertension and diarrhoea.
- v) Algae has been surveyed for anticancer compounds with several cyanobacteria appearing to contain promising candidates.

#### 8 CHLAMYDOMONAS

Chlamydomonas represents the unicellular and motile forms of green algae. 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, mitochondria, stigma (eyespot), cup-shaped chloroplasts, pyrenoid, etc.

The nucleus carries the genetic programme of the cell.

The stigma is for photo-reception.

The mitochondria mediate the elaboration of energy molecules.

Manufactured sugar is processed into starch in the pyrenoid.

4 Chlamydomonas undergoes vegetative or sexual reproduction.

**VEGETATIVE REPRODUCTION:** The cell undergoes mitotic division leading to two nuclei, cell walls are elaborated which delimit cytoplasm around each nucleus i.e. two daughter cells.

Colonies are released. Increase in the population, of cells in a colony is achieved by repeated mitotic division.

v) **SEXUAL REPRODUCTION:** Instead of forming into spores, the haploid

daughter cells form gametes that have two different mating strains which are structurally similar and are positive and negative strains.

Opposite mating strains fuse in a process called **ISOGAMY** to form a diploid zygote which contains two sets of chromosomes.

Sometimes after a period of dormancy, the zygote undergoes meiosis, a type of cell division that reduces the genetic content of a cell by half. This cell division (i.e. meiosis) produces four genetically unique haploid cells that eventually grow into mature cells.

VOLVOX  
 The number of cells in the colony may run into thousands and continue with the cytoplasmic strands that run through the cells. Sexual reproduction is oogamous. Not all the cells form new colonies.

- 5 PANDORINA
- b) The colony consists of 16 cells attached to one another.
  - 2 Sexual reproduction is thysogamous.
  - 3 All the cells form new colonies.

6 Fucus  
 A genus of brown algae whose species are often found on rocks in the intertidal zone of the sea shores.  
 The plant body is flattened, dichotomously branched thallus with a mid rib, a vegetative apex, a reproductive apex at maturity. A multi-cellular 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. Various species of fucus exist, vary in size from a few centimetres to about 2 metres in length.