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Assignment

1. Classify plants according to Eichler’s grouping in 1883.

Answer

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| Division | Class |
| 1. Thallophyta | Phycotinae(Algae)  Mycotinae (fungi) |
| 2. Bryophyta | Hepaticae (liver wort)  Musci(mosses) |
| 3. Pteridophyta | Pulotinate (pillotum)  Eycopodinea (lycopodium,seluginella)  Equisetinae (Horsetails)  Filicinae (Ferns) |
| 4.spermatophyta | Gymnospermae (Gymnosperm)  Angiospermae (Angiosperm) |

2. How are algae of importance to man.

Answer

Algae are important as food for fish. Certain species aee harvested for food and cosmetics in the far east. It serve as food for livestock and people. It serves as thickening agrnts in ice-cream and shampoo. It serves as drugs to ward off diseases. In forensic medicine as their presence in the lungs can indicste a person died due to drowning. They are indicators of environmental problem in aquatic ecosystem.

3. Describe a unicellular form of algae.

Answer

Chlamydomonas represent the unicellular mobile forms of green algae. Found in stagnant water usually along with other forms. Flagella are the structure for mobility. The cell is bounded by a cellulose cell wall;contains organelle. The nucleus carries the genetic programme of the cell;the stigma is for photoreceptors. The mitrochondria mediate the elaboration of energy molecules.Manufactured sugar is processed into starch on the pyrenoid.

4. How does this unicellular alga described in question 3 carry out reproduction?

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a) Vegetative reproduction:This result in the 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. Thus,if the amount of genetic material in the mother cell nucleus is n,the daugther 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 division. It is responsible for increase in number of cells in unicellular organism and for increase in size in multicellular organism. In chlamydomonas, a cell about to divide loses its flagella. The cell undergoes mitotic division leading to two nuclei, cell walls are elaborated which De- limit cytoplasm around each nucleus that is two daughter cells (zoospores) are released. Increase in the population of the cells in a colony is achieved by repeated mitotic division.

b) Sexual reproduction:Certain environmental conditions e.g lack of nutrients or moisture may trigger the haploid daugther cells to undergo sexual reoroduction. Instead of forming spores,the haploid daugther cells form gametes that have different mating strain which are structurally similar and are positive and negative strains. Opposite mating strains fuse in a process called isogamy to form diploid zygote,which contains two sets of chromosomes. After a period of dormancy,the zygote undergoes meiosis, a type of division thst reduce the genetic content of a cell to half. The cell dividion that is meiosis produces four genetically unique haploid cells that eventually grow into mature cells.

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

Answer

1. Pandorina

Usually occur in water boom. The colony consists of 16 cells attached to one another. Each cell has many attributes or features in common with Chlamydomonas e.g nucleus, large chloroplast, pyrenoid, flagella and stigma.

2. Volvox

The genus volvex (also green colonial form) shows more complex form than pandorina. There are more cells in the colony, number may runs into thousands and connected with cytoplasmic strains that run through the cells. Not all cells form new colonies but the larger cells are posterior ends(gonidia)are the only ones that divide to form new colonies. Other cells remains vegetative throughout the life of the colony.

6. Describe a named complex form of alga.

Answer

FUCUS:

A genus of brown algae whose species are often found on rocks in the intertidal zones of the sea shores. The plant body is plattened, dichotomously-branched thallus with a mid rib, a vegetative apex, a reproductive apex at maturity and multicellular disk (hold fast)with which the plant is attached to rock surfaces. The plant body also has air bladders that aid the plant to float on the water. Sexual reproduction is oogamous, sex cells are produced in conceptacles which have openings (ostioles)on the surface of the thallus.

In the male conceptacles,one of the diploid cells form outgrowth of the wall of the conceptacles undergoes meiosis,the meiotic product undergo many mitotic division to produce an theridium having 64 cells of which each cell develops into a biflagellate sperm that swims out of the conceptacle thtoungh the ostiole.

In the female conceptacles,similar to the situation in the male conceptacles. Leads to the production of an 8 celled organism. Each becomes an egg which is the female sex cell.

Motile sperm cell form an theridium and move through the ostiole into the female conceptacle where the eggs are fertilized and diploid zygote are produced.The diploid zygote germinate into a new diploid fucus plant making the diploid the dominant generation.