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Course: BI0102 Assignment.

① Classify plants according to Eichler's grouping of 1883.

Eichler classified the plant kingdom into two sub kingdoms. They are cryptogamae and phanerogamae. The cryptogams are flowerless and seedless plants. They are simple plants like algae, mosses and ferns which do not produce flowers, fruits and seeds.

② How are algae of importance to man?

i) Mineral contents: High mineral content up to five percent of the wet material, in which all the mineral elements important in human and animal physiology are found, makes seaweeds a unique supplement for a well balanced diet. Potassium, sodium and chloride are found in the ionic form in sea weeds.

ii) Direct use of algae as food for man: Since the pre-historic times, several sea weeds have been used as direct source of food to human beings. Several fresh water algae have also been utilized in the preparation of various kinds of vitaminized food. As we know well, that the fundamental food of sea living stocks are algae and they are used as food by human beings.

iii) As source of vitamins: The vitamins A, B, and E are found abundantly in sea weeds. The vitamin B essentially required for the development of human body is found in great abundance in almost all Phaeophyceae. The cod liver oil is a rich source of Vitamin A which is acquired from sea weeds. Vitamin E is equally important for human beings which are found in many marine algae.

③ Describe a unicellular form of algae

Unicellular algae are plant-like autotrophs and contain chlorophyll. They are also referred to as acellular algae and they function as com

plate living organisms. They are either motile or non-motile. An example is phytoplankton.

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

Phytoplankton undergoes asexual reproduction. Fast growing dinoflagellates typically divide through binary fission. A parent cell divides into two identical cells that will divide again and again. Filaments can form if the cells do not separate completely during cell division.

⑤ Differentiate between the two types of colonial form of algae

Colonial algae are algae in which cells resembling free-swimming unicells form groups. They may be large and elaborately interconnected as in *Volvox* or smaller and relatively simple as in *Spirula*. *Volvox* is a polytyletic genus of chlorophyte green algae in the family Volvocaceae. It forms spherical colonies of up to 50,000 cells. They live in a variety of freshwater habitats. *Spirula* are small balloon- or pear-shaped choanoflagellate cells, each with two golden chloroplasts packed together in roundish motile colonies. Each cell has two flagella projecting outwards from the colony and a stalk directed inward towards the colony centre.

⑥ Describe a named complex form of algae.

The largest and most complex marine algae are called seaweeds. Seaweed is a chock-full of vitamins, minerals and fiber and can be eaten. No seaweeds have roots, and even though they look like plants, they don't have flowers either. Some varieties such as sea lettuce have fronds that wave with the tides, while others have branches with air bladders at the tips to keep the branches near the surface, where sunlight is plentiful. They are known to be divided into three color groups which are green seaweed, brown seaweed and red seaweed.