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COURSE NAME: GENERAL BIOLOGY

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

Answer: Plants are classified according to Eicher as follows:

Division Class

Thallophyta Phycotinae (Algae)

Mycoyinae (Fungi)

Bryophyta Hepaticae (Liver worts)

Musci (Mosses)

Pteridophyta Psilotinate (Psilotum)

Lycopodinae (Lycopodium, Selaginella)

Equisetinae (Horse tails)

Filicinae (Ferns)

Spermatophyta Gymnospermae (Gymnosperms)

Angiospermae (Angiosperms)

Question 2. How are algae of importance to man.

Answer: i) Serves as food for man and fishes

ii) Some of the species are used for cosmetics

iii) Brown algae produces alginic acid which is used as a stabilizer in emulsions

and suspensions

iv) The presence of iodine in algae helps to prevent goitre

v) It can be used as a thickening agent

Question 3. Describe a unicellular form of algae

Answer: The Chlamydomonas is a unicellular algae. It is motile and a member of the green algae. It is mostly found in stagnant water; it has flagella for movement. The cell has a cellulose cell wall and other organelles such as nucleus, mitochondria, chloroplast, eyespot, vacuole, etc. The nucleus bears the genetic programming of the cell, the eyespot is for photoreception, the mitochondria is in charge of respiration and energy distribution.

Question 4. How does the unicellular alga described in question 3 carry out its reproduction?

Answer: The unicellular alga (Chylmadomenas) can reproduce both sexually and asexually. It reproduces sexually through fusion of gametes, i.e. union of sex cells and asexually through division of cells.

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

Answer: The two types of colonial algea are: pandorina and volvox.

Pandorina Volvox

1. Consist of only 16 cells in the colony Upto thousands of cells in a colony

2. Cells show specialization More specialized than pandorina

3. The 16 cells divide to form daughter colonies Only the large cells(gonidia) divide to form

new colonies

Question 6. Describe a named complex form of alga.

Answer: An example of the complex algae is focus (brown algae). It is mostly found in rocks and sea shores. It has a flattened body, dichotornously-branched thallus with a mid-rib, a vegetative apex, a reproductive apex and a multicellular disk which holds the plant to the rock. The plant body also has air bladders which aid floating. Various species vary in size. Sexual reproduction is oogamous, sex cells are produced in conceptacles with ostioles on the surface of the thallus.

In the male conceptacles one of the diploid cells from the walls of the conceptacle undergo meiosis to produce antheridium having 64 cells which develop into a biflagellate sperm. The female conceptacle undergo similar division as the male to produce an 8-celled oogonium which becomes an egg.

Also, sterile, multicellular filaments (paraphyses) are produced in the conceptacles which are dispersed among the antheridial and oogonial outgrowths at the entrance of the conceptacle.