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MBBS - 100 LEVEL

BIO 102 ASSIGNMENT

1. How are fungi important to man?

Fungi are responsible for the decay of organic matter, aiding essential element cycles.

Fungi like yeast are important in the food and beverage industries.

Fungi like mushrooms, are edible and key in human diet, while some species provide medicine for man.

Fungi are parasitic in man and other animals and cause various fungal infections.

Fungi lead to spoilage of wood material, paper material as well as clothes.

2. Illustrate the cell structure of a unicellular fungus with a well labelled diagram.



WELL LABELLED DIAGRAM OF A UNICELLULAR FUNGUS (YEAST)

3. Outline the sexual reproduction in a typical filamentous fungus.

#### SEXUAL REPRODUCTION IN *Rhizopus stolonifer*

Sexual reproduction in *Rhizopus stolonifer* occurs when two mating types of hyphae grow in the same medium. There is chemical interaction between them, which triggers the growth of perpendicular (relative to the hyphae) protuberances (towards each other). The protuberances are delimited by a wall such that many nuclei are isolated in a gametangium (individually). The two gametangia fuse (plasmogamy), forming a zygote. The zygote may undergo prolonged dormancy or resting stage. Nuclei within the zygotes fuse in twos and undergo meiosis independently. Under favourable conditions, zygote germinates to produce a fruiting. The fruiting when mature liberates haploid spores.

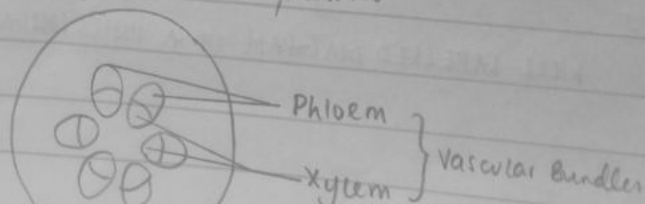
4. How do Bryophytes adapt to their environment?

- i. They have definite structures for water and nutrient absorption from the soil. This is why the plant body is divided into two - aerial portion and the subterranean portion (rhizoid which is NOT a true root).
- ii. The aerial portion is modified so as to avoid excessive water loss from the plant body or drying up of (desiccation) the plant body. These also act as aid for gaseous exchange within the plant and to the environment; they occur as openings.

5. Describe with illustration, the following  
terminologies; (i) Eustele (ii) Atactostele (c) Siphonostele  
(a) Dictyostele.

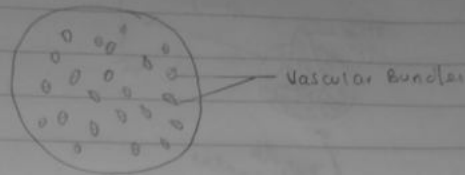
(1) EUSTELE

These are steles in which the vascular bundles are seen as discrete, concentric, collateral bundles of xylem and phloem. They are found in herbaceous dicotyledonous plants.



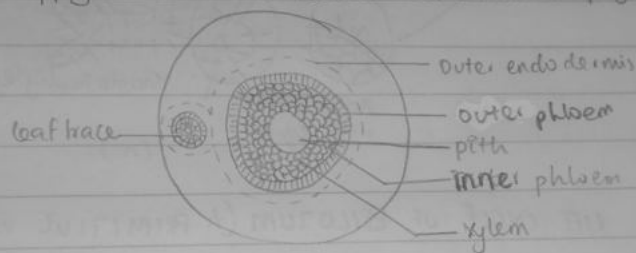
### ii ATACTOSTELE

This stele is common place in many monocotyledonous plants, especially in grasses. It is characterised by its scattered appearance.



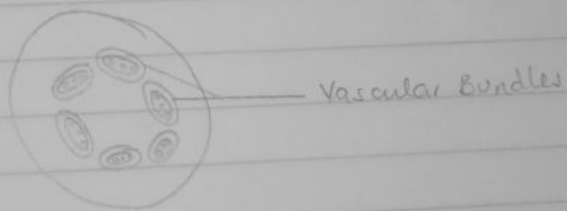
### iii SIPHONSTELE

This stele is the umbrella for steles in more advanced vascular systems. The stele is cylindrical, enclosing a parenchymatous pith. Here, vascular supply to leaves is associated with leaf gaps.

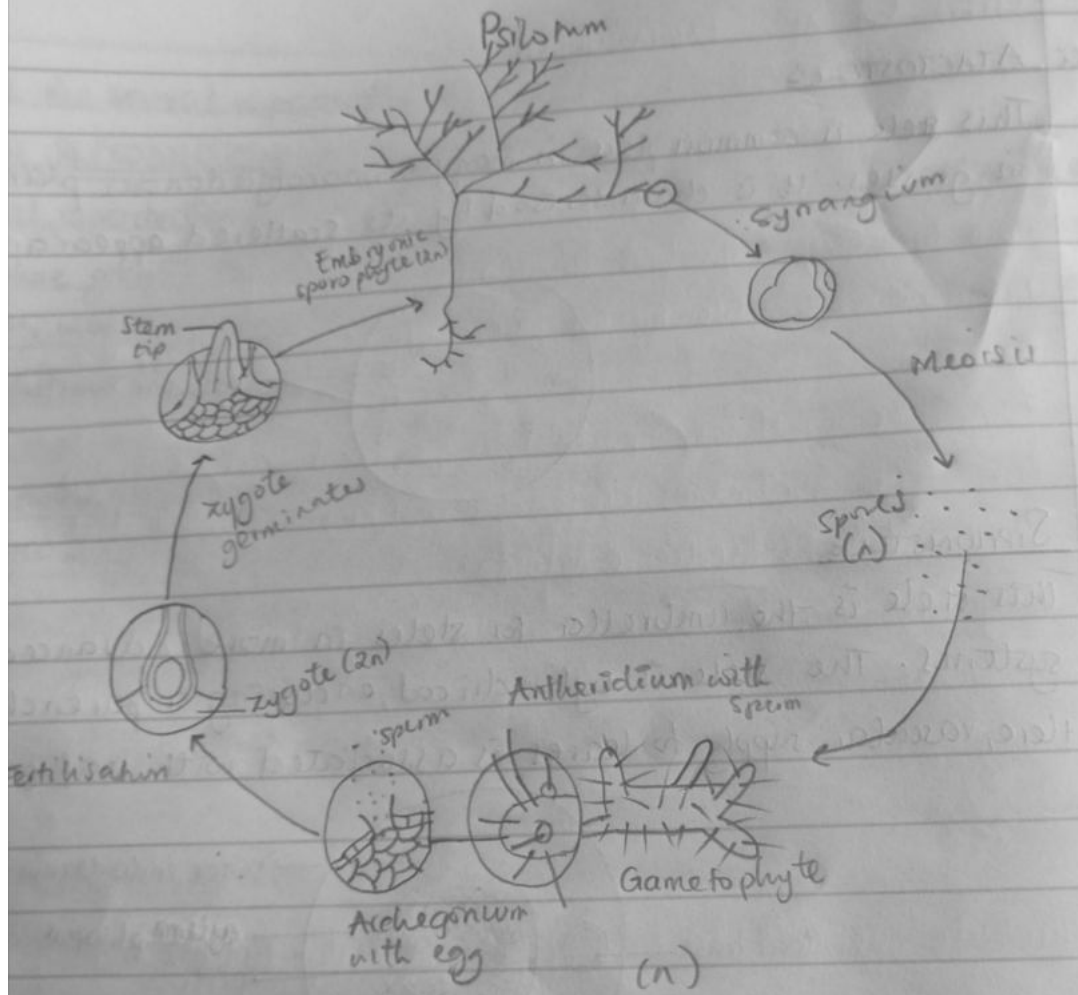


### iv DICTYOSTELE

The stele is another type of siphonstele, featuring a dissected conducting cylinder.



6 Illustrate the life cycle of a primitive vascular plant:



LIFE CYCLE OF *PSILOTUM* (A PRIMITIVE VASCULAR PLANT)