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B16102  
19/11/2012 88 MBB  
ASSIGNMENT

- Question 1
- I) How are Fungi important to mankind
  - 1 Fungi is responsible for the mediation of organic matter
  - II Fungi e.g. Yeast (*Saccharomyces cerevisiae*) are important in food industry
  - III Mushrooms are eaten by many human species
  - IV Species like *penicillium notatum* produce important antibiotic

Question 2

Illustrate the Cell Structure of a unicellular Fungus, with a labeled diagram.

\* Bread Yeast, *Saccharomyces cerevisiae*

- Cell structure is very simple, though the organism is one of the more advanced fungal forms from the point of view of its sporoproducing structures.

Yeast cells are found on exposed sugary fluids e.g. Palm Wine and sugary fruits where fermentation processes are mediated.

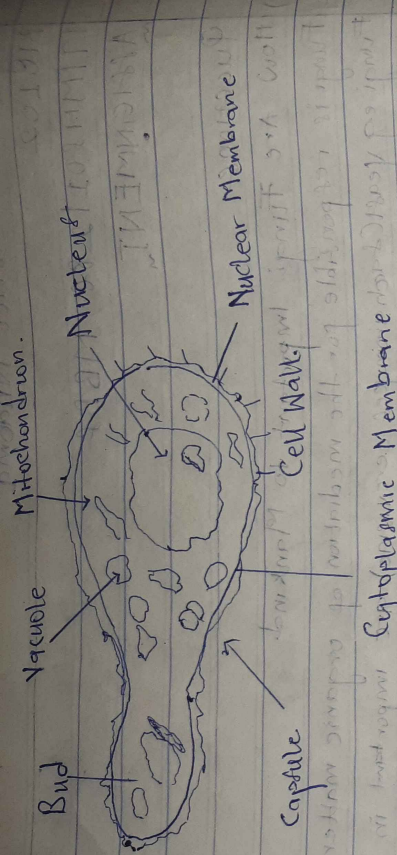
Cell exists in diploid/haploid states under favourable environmental conditions.

In both states, they multiply rapidly by simple mitotic cell divisions - budding involving nuclear division and division of the cytoplasm in such a way that one segment of the constricted cytoplasm is smaller than the other.

Diploid cell arises from haploid cells by process of plasmogamy and karyogamy (some kind of fertilization).

A diploid cell may undergo meiosis under certain conditions to produce 4 haploid spores, each spore contained in simple structure - an ascus.





3) Outline the Sexual Reproduction in a typical filamentous form of Fungi

Rhizopus stolonifer

\* Sexual Reproduction.  
 Sexual reproduction occurs when two mating types of hyphae grow in the same medium. Chemical interaction in the two mating types of hyphae induces growth perpendicular to the hyphae in opposite directions. These growths are delimited by a wall such that many nuclei are retained in what is called a zygote.

The two gametangia (ascopores) and a zygote is formed which may undergo prolonged dormancy for a long time. The nuclei in the zygote fuse in twos and undergo meiosis independently. The zygote germinates under favourable conditions and produces a new sporangium.

- 4) How do fungi adapt to their environment. mention various adaptations.
- They have definite structures for water and nutrient absorption from the soil, therefore the plant body is divided into two an aerial portion and a subterranean portion. The subterranean portion is the rhizoid and it is not a true root as the case of land plants that are divided into rhizoids and true roots.
  - The aerial portion being exposed to the atmosphere is encased in a protective covering that prevents excessive loss of water through the body surface.



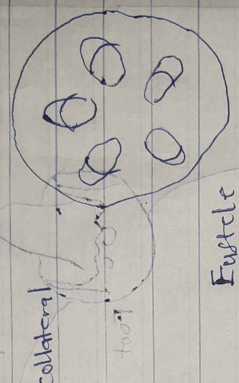
Q.1) Some other modifications that permit elimination of excess water from the plant body and not only exchange of gases between the internal parts of the plant and the atmosphere therefore openings are available on the aerial part of the plant.

5) Describe with illustration the following terminologies:

- (a) eustele, (b) atactostele, (c) siphonostele, (d) dictyostele.

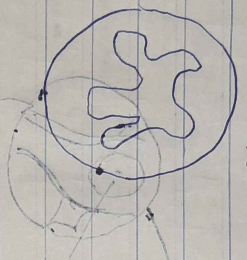
(a) Eustele -

Vascular bundles are discrete, concentric collateral bundles of xylem and phloem.



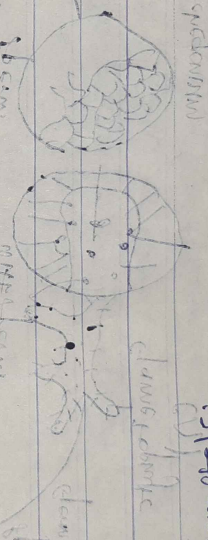
(b) Atactostele

Vascular bundles are scattered.



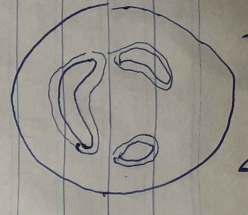
(c) Siphonostele.

The pith is a cylinder enclosing a parenchymatous pith. e.g. Any form of siphonostele.



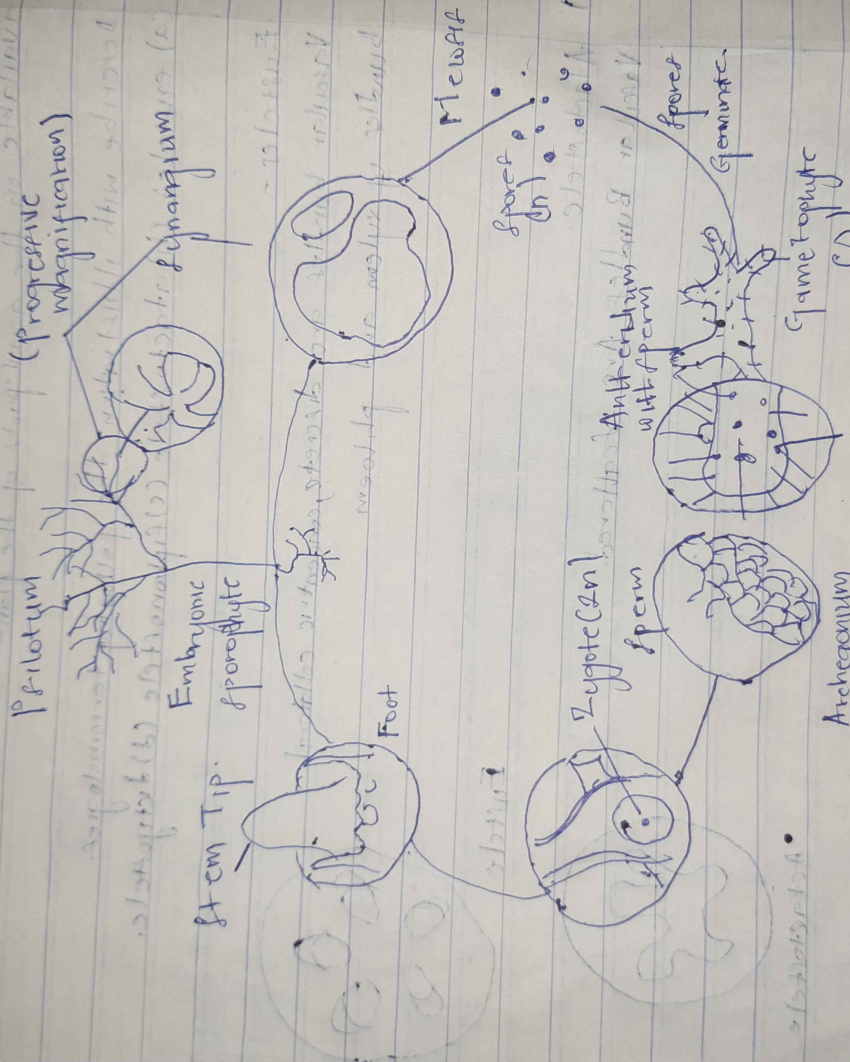
(d) Dictyostele

conducting cylinder is a dissected one.



6. Illustrate the life cycle of a primitive vascular plant.

Psilotum



A Real Life cycle of Psilotum

1) Psilotum  
 2) Psilotum  
 3) Psilotum  
 4) Psilotum  
 5) Psilotum