

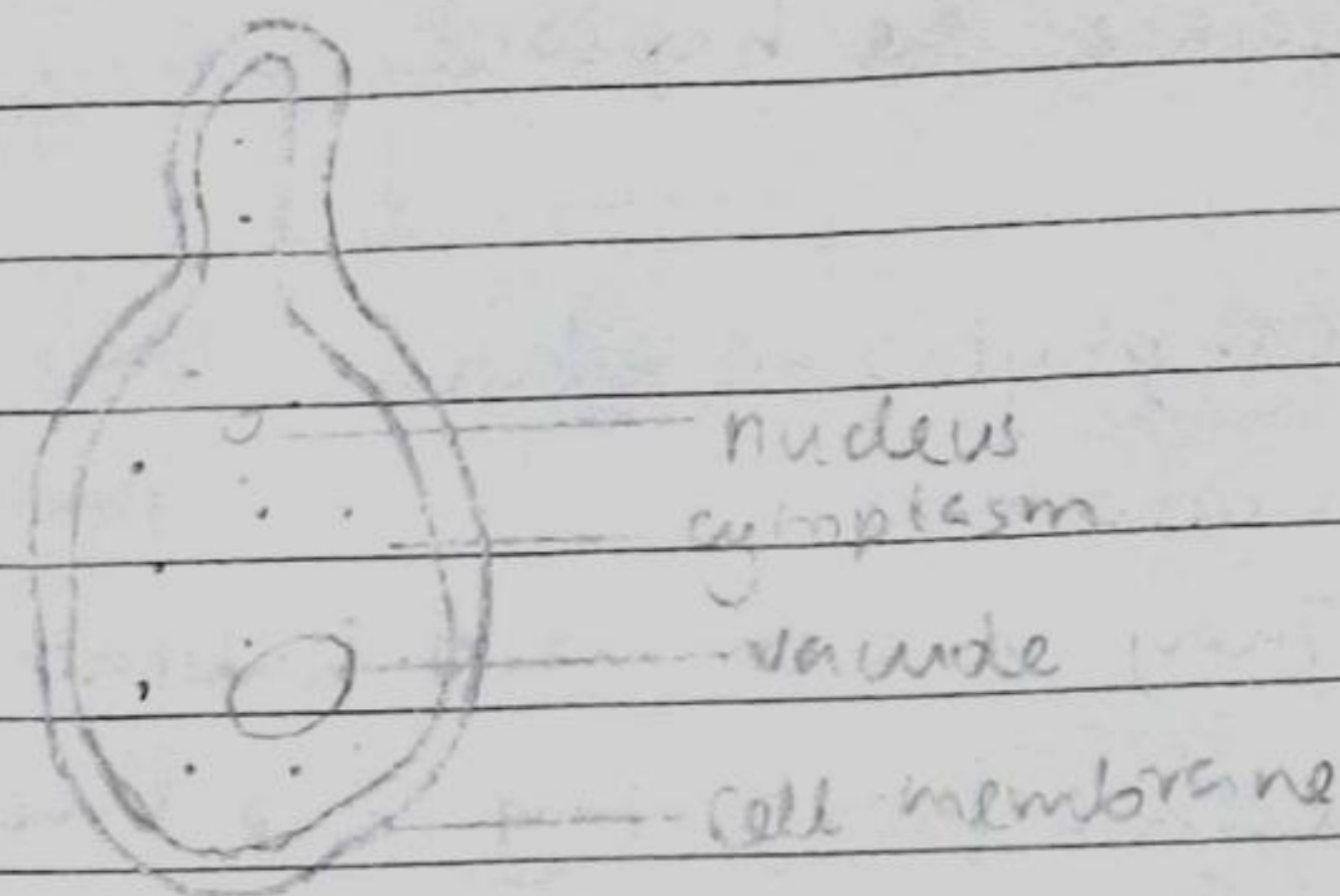
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100 LEVEL

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BIOLOGY 102 ASSIGNMENT

2.) Cell structure of unicellular fungus.



Solutions.

1. Fungi are important to mankind for the following reasons;

a) They aid in decomposing and so are important in the ecosystem for recycling of nutrients.

b) Fungi like yeast Saccharomyces cerevisiae, are used in baking and in the breweries for fermentation.

c) Fungi like mushrooms are nutritious, especially the cream layer.

d) Antibiotics are derived from a fungus species called Penicillium notatum.

e) Help in the study of diseases in animals and plants.

Labelled Diagram of Unicellular Fungus (Yeast cells)

3) Sexual reproduction of hybrid filamentous fungi form:

Filamentous fungi - Rhizopus stolonifer.

Sexual reproduction occurs when two mating ~~organisms~~ types of hyphae grow in the same medium. Chemical interaction in the two mating types of hyphae includes growths perpendicular to the hyphae in opposite directions. These growths are delimited by a wall such that many nuclei are isolated in what is called a gametangium.

The two gametangia fuse (plasmogamy) and a zygote is formed which may undergo prolonged dormancy or resting stage. The nuclei in the zygote fuse in twos and undergoes meiosis independently. The zygote germinates under



Favourable conditions to produce a fruiting which at maturity liberates the haploid spores.

4) Bryophytes adaptation to environment:

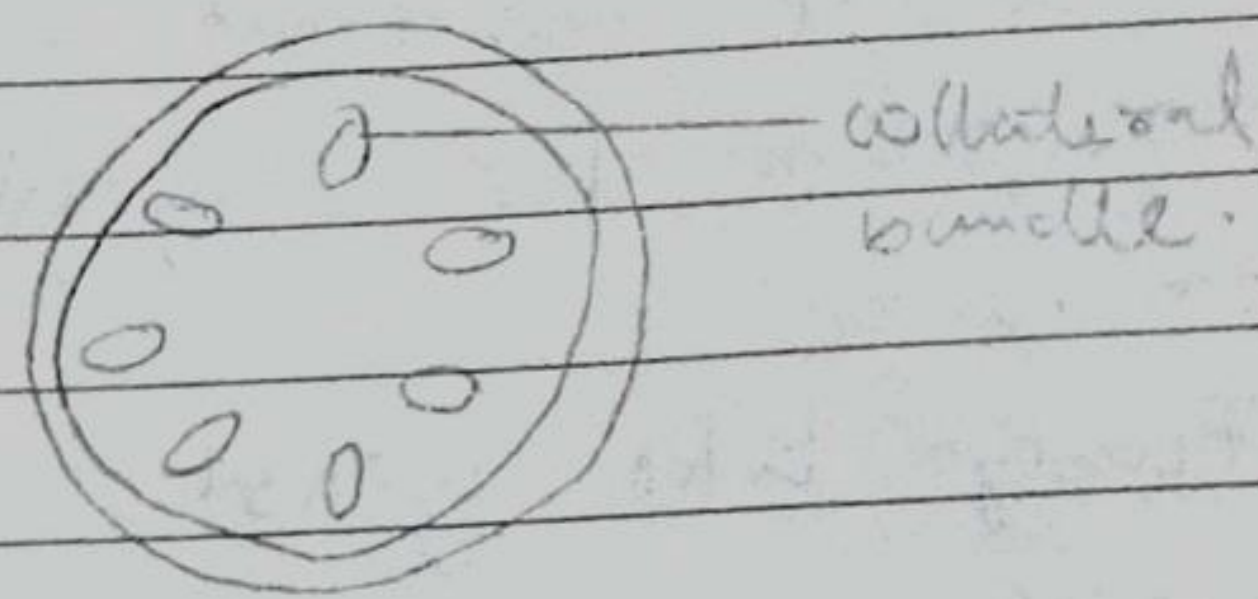
⇒ They live on moist habitats because though they are land plants, they need water for transport of male gametes to female gametes. They adapt to land in the following way;

a) 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 is not a true root as the case of land plants that are advanced.

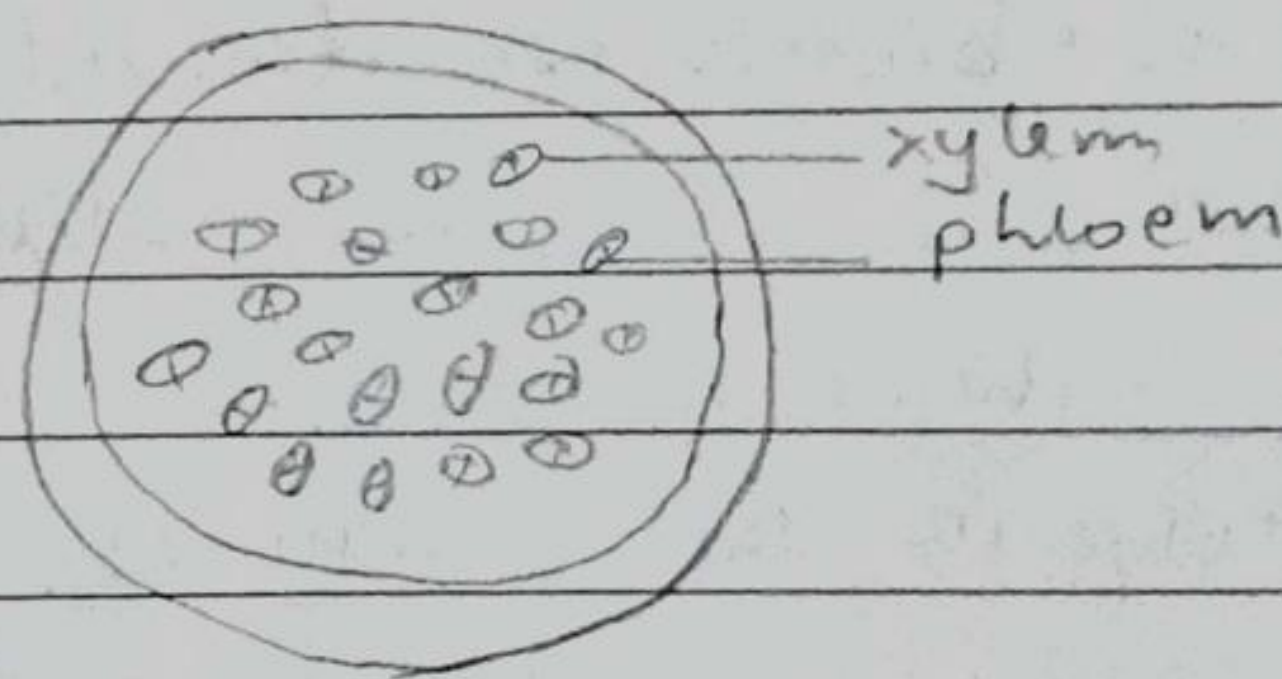
b) the aerial portion being exposed to the atmosphere demands some modifications that prevents excessive loss of water through the body surface (ie desiccation) and some other modification that prevents elimination of excess water from the plant body and not only exchange of gases between the

internal parts of the plant and the atmosphere therefore openings are available on the aerial parts of the plant.

5) a) Eustele: A eustele is a type of syphonostele in which the vascular tissues in the stem forms a circular ring of bundles around a pith.



b) Atactostele: It is characteristic of monocots. In this type of stele, vascular bundles lie scattered in the ground tissue. It is the highly evolved stellar organisation.



c) Syphonostele: It is a stele with central pith surrounded by vascular tissue or a medullated protostele. It could be of 2 types; Ectophloem and Amphiphloem.



③ Ectophloic siphonostele: Phloem is present only external to the xylem.

Amphiptelic siphonostele: Phloem is present on both external and internal to the xylem.

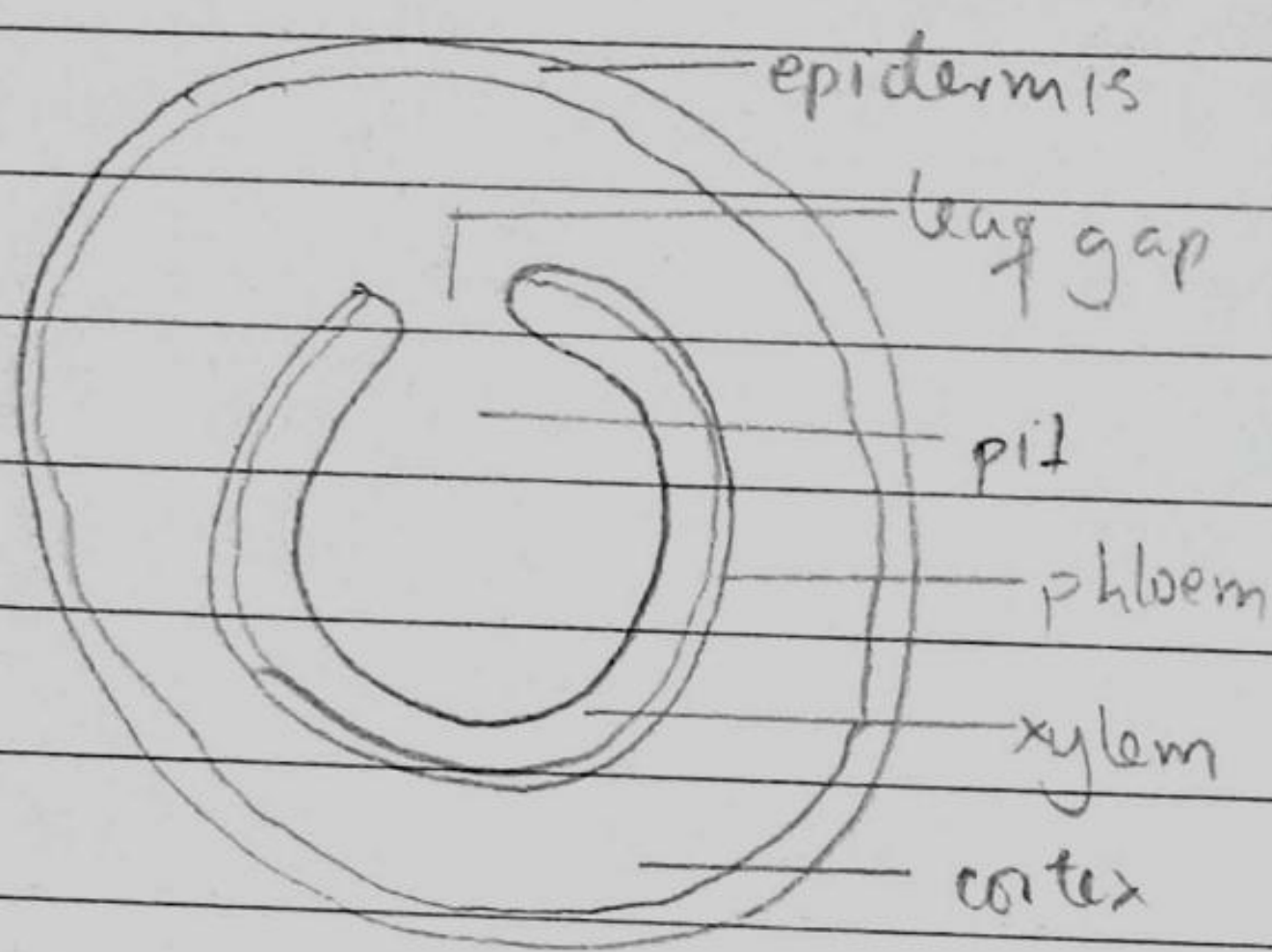
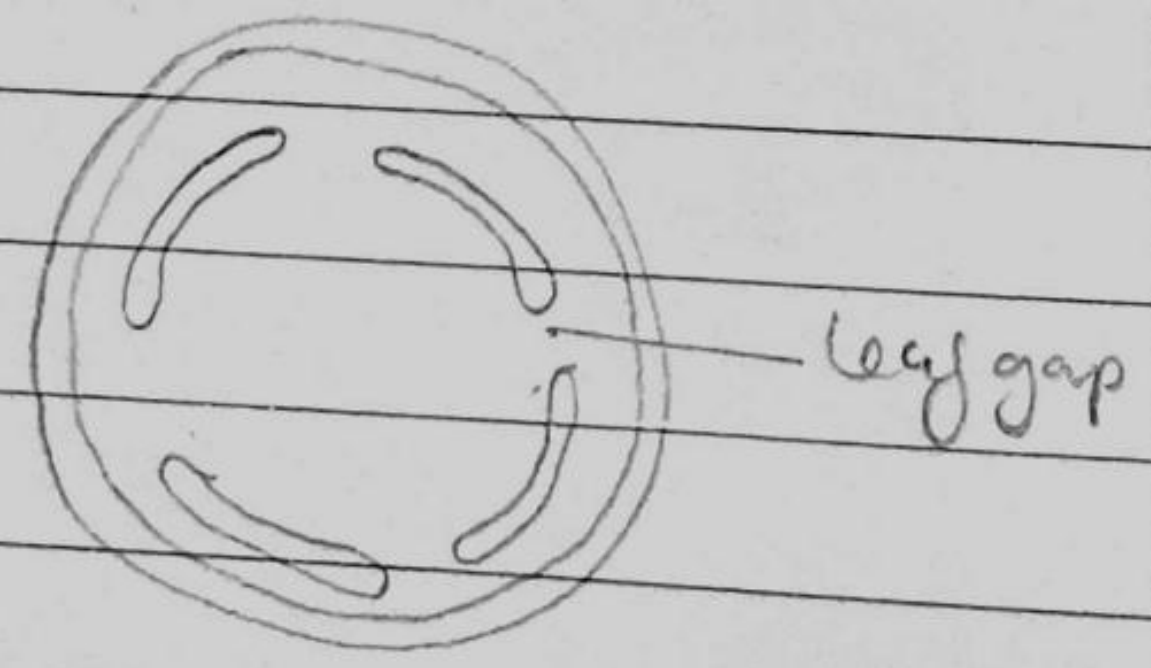
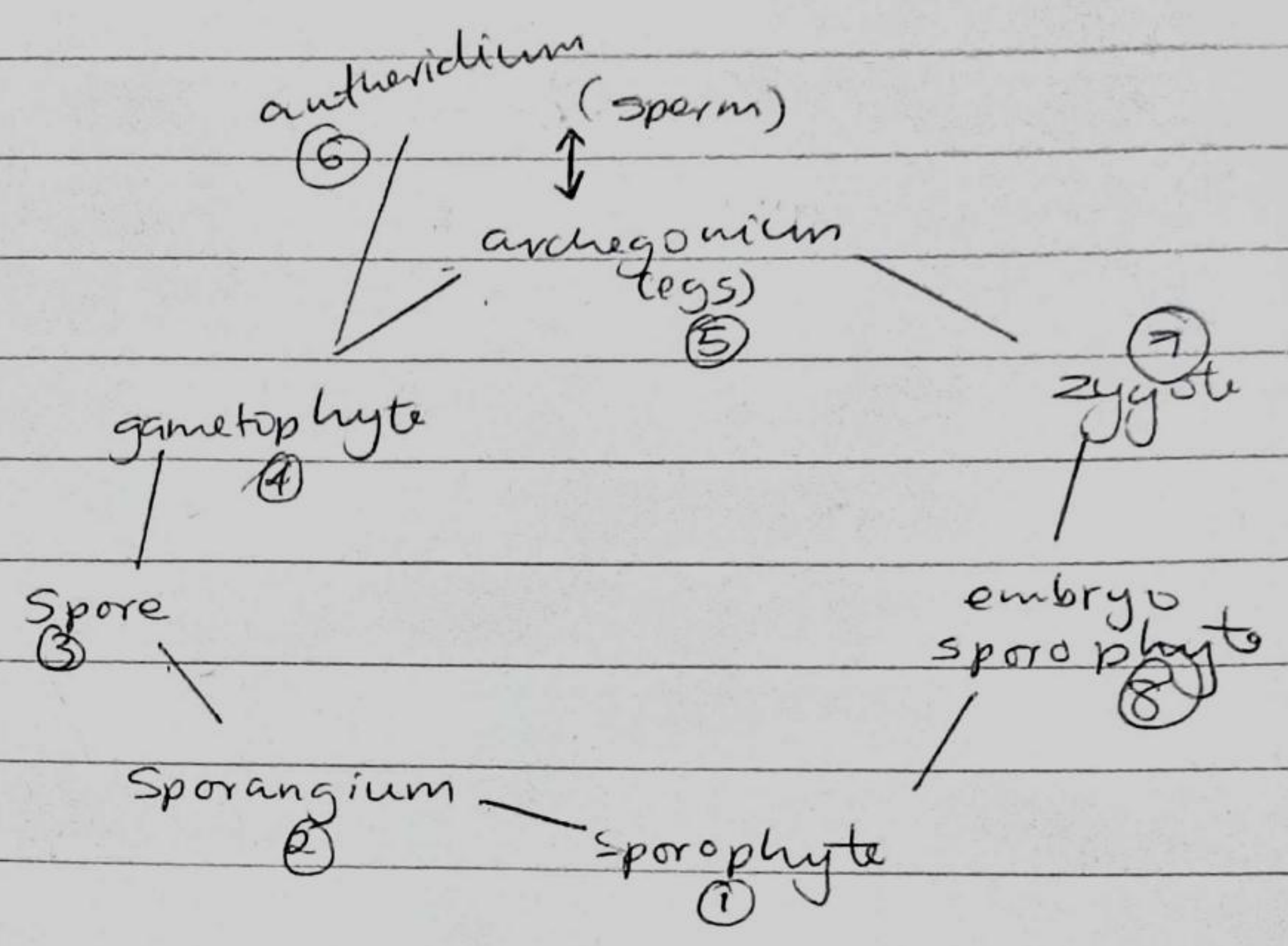


Diagram of a typical siphonostele.

d) Dictyostele: It is a siphonostele that has a dissected vascular cylinder.



b) Life cycle of vascular plant.



In the reproductive cycle, a dominant sporophyte plant (1) bearing trilobed sporangia (2), produces homosporous spores (3) which germinate into haploid gametophytes (4). The underground gametophyte forms mycorrhizal associations with fungi for nutrition and develops archegonia (5), each with 1 egg, and antheridia (6) with flagellated sperm. After fertilization a diploid zygote (7) forms and eventually develops into a sporophyte plant (8). Asexual reproduction can take place by means of gemmae.