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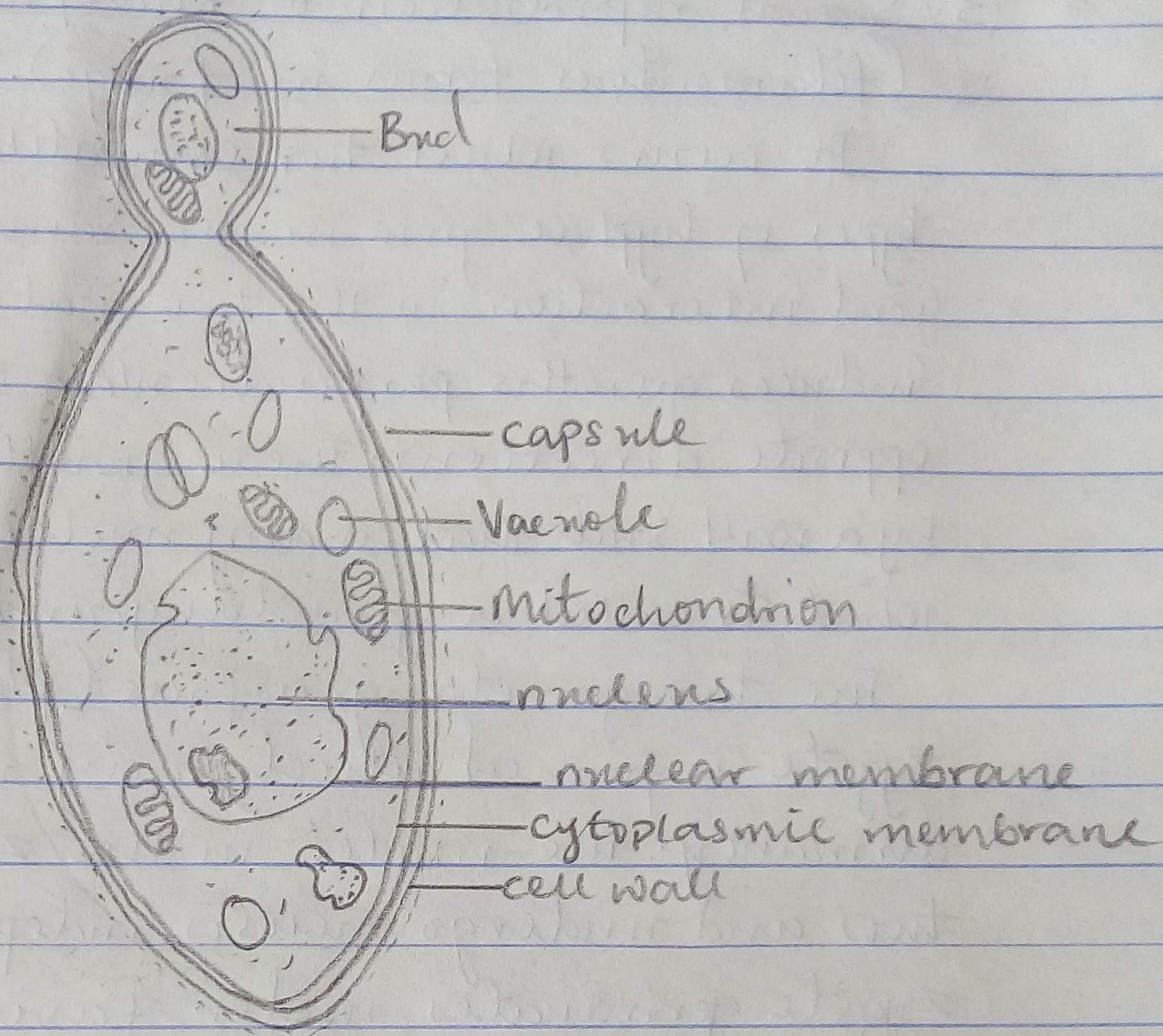
100 LEVEL

1. Fungi, are important to mankind in the following ways;

- i) They are used in the entire terrestrial ecosystem in material cycling and to man.
- ii) They are responsible for the mediation of decay of organic matter.
- iii) They are used in food industries - i.e. yeast is used as a raising agent in most pastries.
- iv) They are used in the production of antibiotics and antifungal creams. e.g. penicil *Penicillium notatum*, is used in the production of Penicillin which is used for treatment of injuries.
- v) They mediate the spoilage of wood, food, clothes, and ⁱⁿ most plants, ^{they} are also diseases causing pathogens.
- vi) They are also parasites to some pests e.g. houseflies, grasshoppers etc.

N.B: They are also used to treatment most fungal infections, that is why they are used in Medical and Veterinary mycology.

2



The cell structure of a unicellular fungus
[Saccharomyces cerevisiae (Yeast)].

The cell exists in diploid/haploid states. Under favourable environmental condition, in both states, they multiply rapidly by simple mitotic cell divisions. Budding involves nuclear division, diploid cells arise from haploid cells by processes of plasmogamy and karyogamy. A diploid cell may undergo meiosis under certain conditions to produce 4 haploid spores - ascospores (contained in simple structure - an ascus), asci plural.

(3) Sexual reproduction in *Rhizopus stolonifer* (filamentous forms in fungi).

It occurs when two compatible mating types of hyphae grow in the same medium. Chemical interaction in the two mating types of hyphae induces 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.

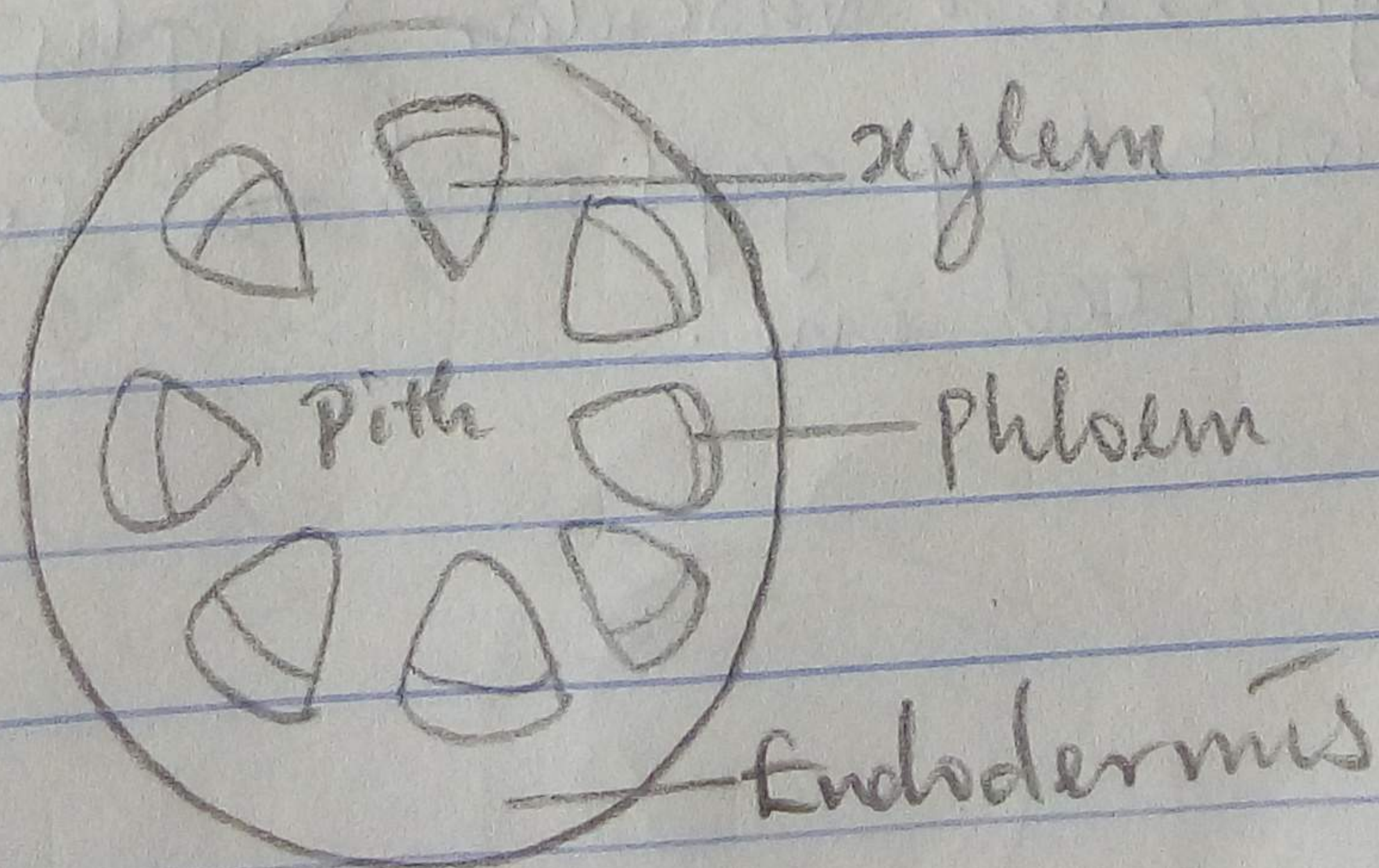
The two gametangia fuse (plasmogamy) and a zygote is formed which may undergo prolonged dormancy. The nuclei in the zygotes fuse in two and undergo meiosis independently. The zygote germinates under favourable conditions to produce a fruiting which at maturity liberates the haploid spores.

(4) How do Bryophytes adapt to their environment?
These are a group of non-vascular land plants occupying the ~~amphibiotic~~ amphibious zone (where water and land meet). They are the amphibians of the plant kingdom. They are plants of decidedly moist habitats because though they are land plants, need water for the transport of male gametes to female gametes.

Continuation of no. 4:

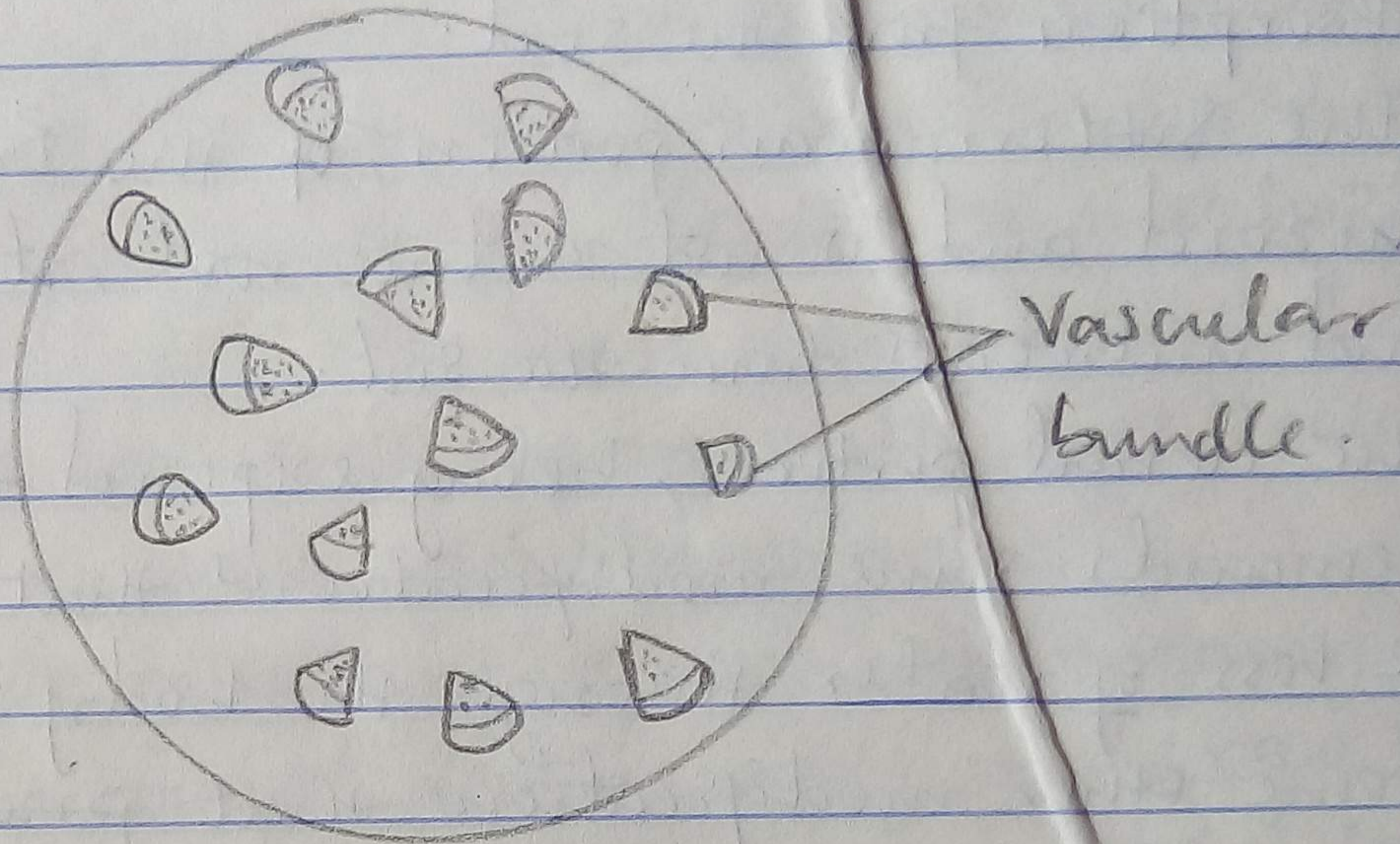
- They adapt to land habitat in the following ways;
- i) They have definite structures for water and nutrient absorption from the soil.
 - ii) The Subterranean portion, of the Bryophytes, is the rhizoid and is not a true root, it absorbs water and nutrients from the soil.
 - iii) The aerial portion, being exposed to the atmosphere demands some modifications that prevents excessive loss of water through the body surface.
 - iv) Some other modifications that prevents permits elimination of excess water from the plant body and not only exchange of gases between the external parts of the plant and the atmosphere, the pore openings are available on the aerial parts of the plant.

5) a) Tracheles: The vascular bundles are discrete, concentric collateral bundles of xylem and phloem.



Continuation of no. 5:

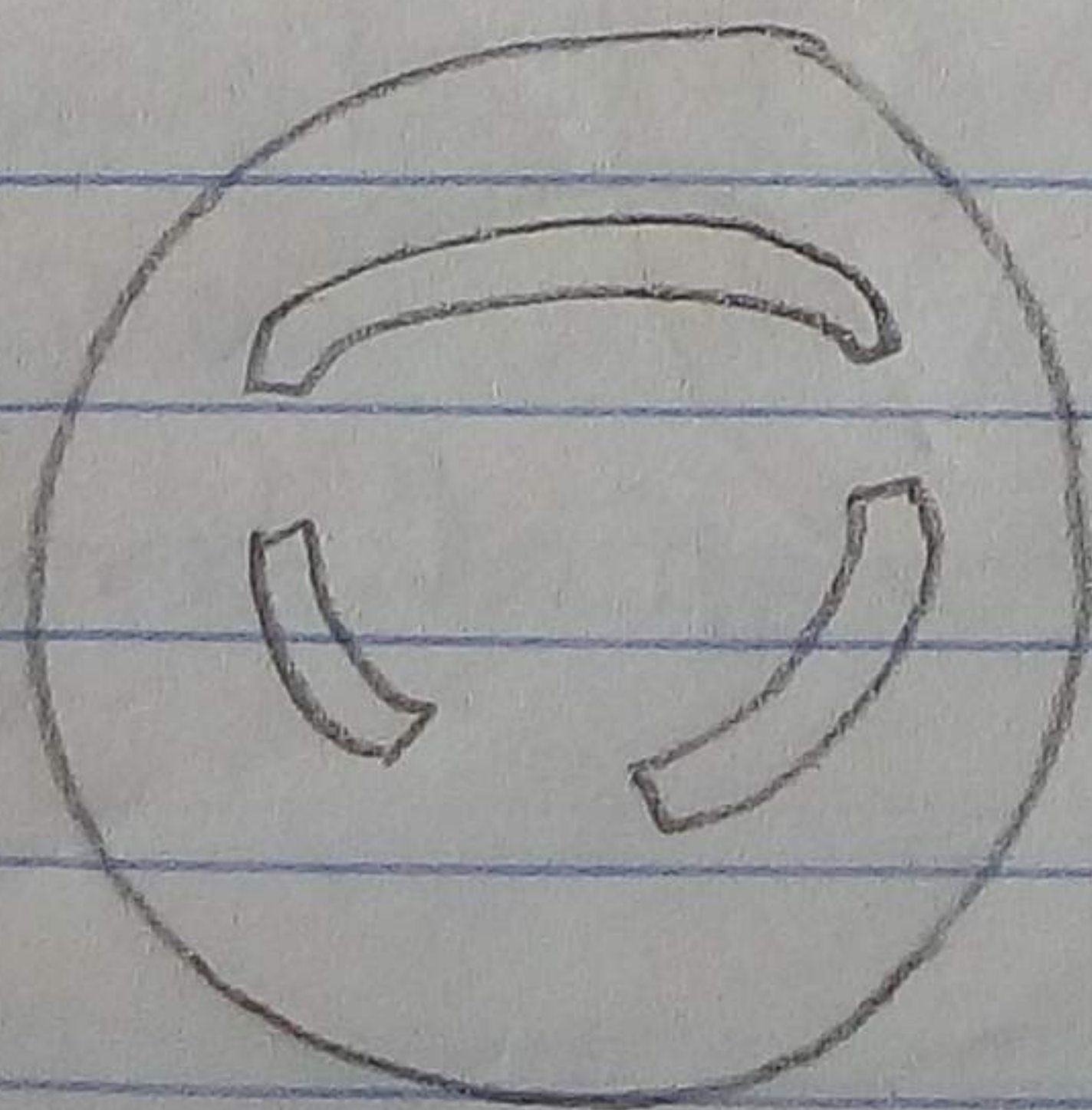
- (b) Atactostele: The vascular bundles are scattered.



Atactostele

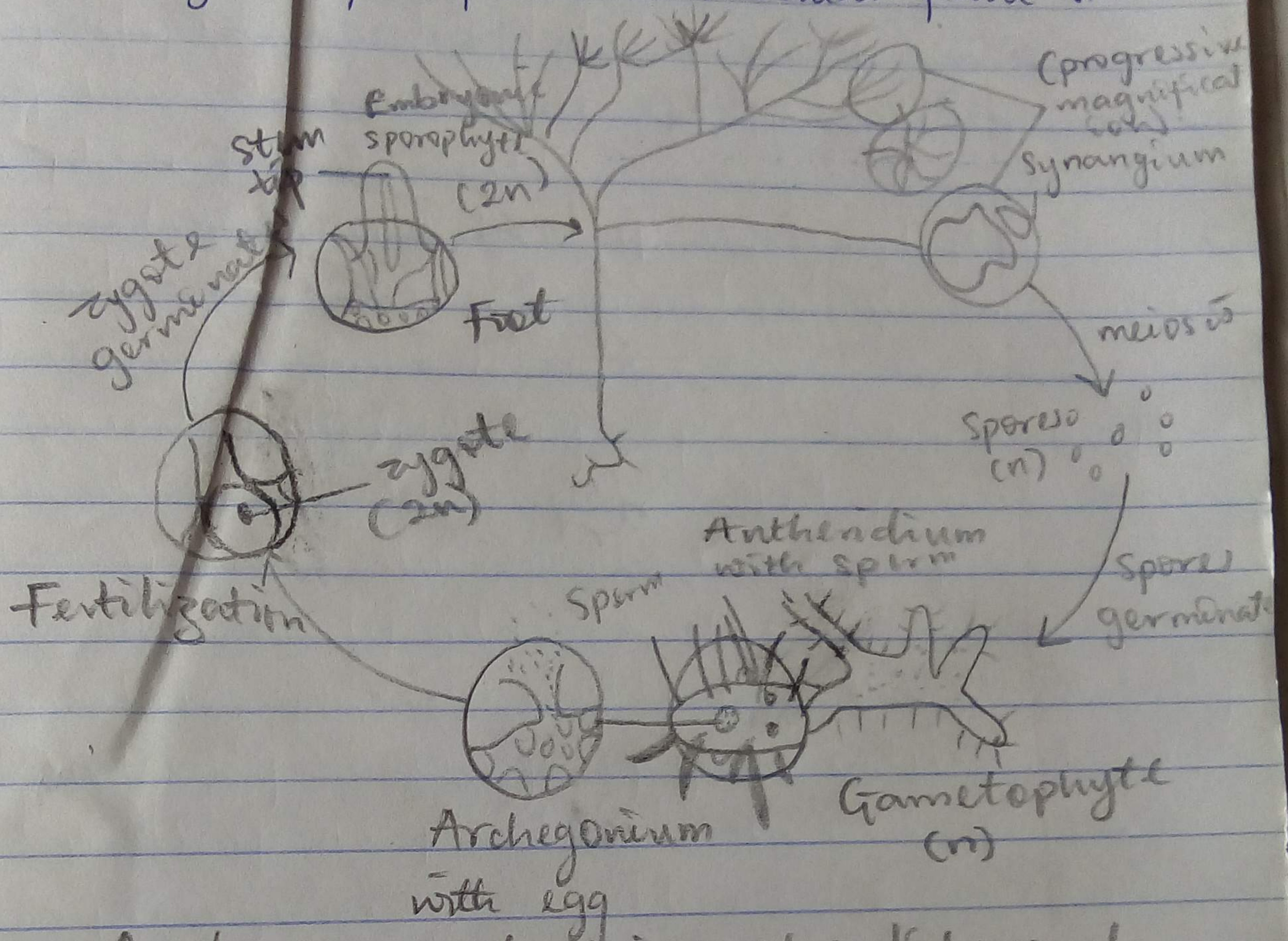
- (c) Siphonostele: The stele, is a cylinder enclosing a parenchymatous pith. This type of stele, comprises of other steles illustrated above and below. It includes eusteles, ~~atactosteles~~, dictyostele and selenostele.

- (d) Dictyostele: Vascular supply to leaves is associated with leaf gaps and the conducting cylinder is a dissected one.



Dictyostele

(6) The life cycle of a primitive vascular plant (Psilotum)



A diagram showing the life cycle of a Psilotum.

The sporophytes is the dominant generation among vascular plants. The sporangium contains haploid spores and originated from diploid cells of the stem. Sporangium develops into a globose structure inside which sporogenous cells undergo meiosis to produce haploid spores. Spores after liberation germinate into cylindrical, dichotomously branched gametophytes. At maturity, the terminal ends of the cylindrical branches, the archegonia and antheridia fuse to form a zygote, which subsequently develops to a sporophyte.