

### ASSIGNMENT

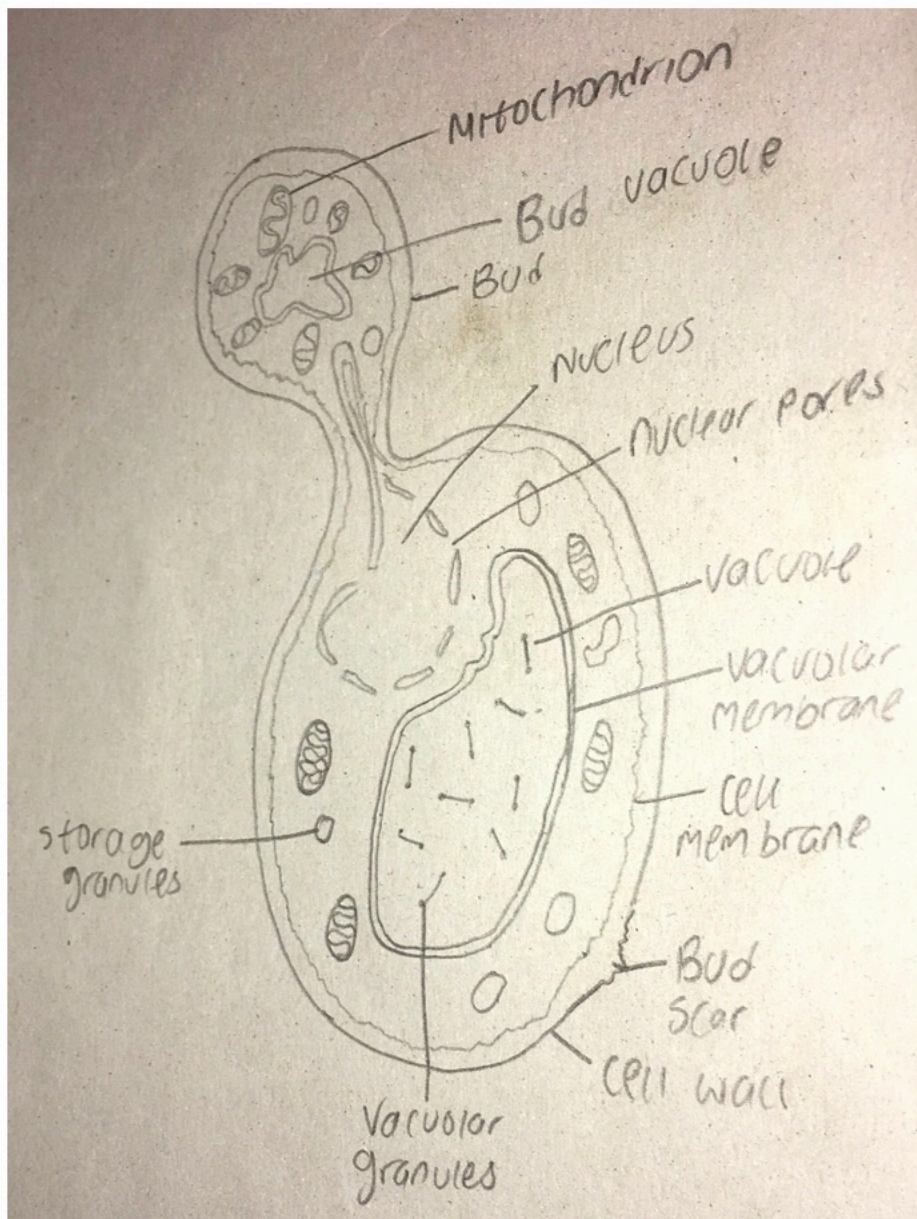
#### 1. How are fungi important to mankind?

- I. They are responsible for the mediation of decay of organic matter. This is because without fungi and all other microbes, the surface of the earth would have been filled with dead matters with all forms of elements locked in them, instead of returning into various cycles.
- II. They are important in food industries. Mushrooms are eaten by the human societies
- III. Species of fungi eg. Penicillin notatum produces important antibiotics
- IV. Some fungi are parasites to certain horrible pests such as grasshoppers, house flies and therefore constitutes important biological control agents in regard to such pests

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

Brewers yeast is one of the best known unicellular forms in fungi, known as *Saccharomyces cerevisiae* which causes bread to rise by releasing CO<sub>2</sub> which gets trapped in the dough.

The cell structure is quite simple, as the cell particle size is typically of



5x10micrometre. Each yeast cell has a distinct cell wall enclosing granular cytoplasm, within which we can see a large vacuole and a nucleus. The vacuole varies in size according to the activity of the cell.

The cell wall contains protein and lipid and immediately below the cell wall is the cytoplasmic membrane. Within the cytoplasm are nucleus, Golgi apparatus, vacuole, mitochondria, endoplasmic reticulum and reserves of fat and glycogen. There are no chloroplasts in yeast cells.

The nucleus is surrounded by a double unit membrane (nuclear membrane) perforated by pores.



### 3. Outline the sexual reproduction in a typical filamentous form of fungi

Sexual reproduction occurs in a typical filamentous form of fungi known as *Rhizopus stolonifer* when two mating types of hyphae induces growths perpendicular to the hyphae in the opposite directions. However, this growth are delimited by a wall such that many nuclei are isolated in what is known as gametangium.

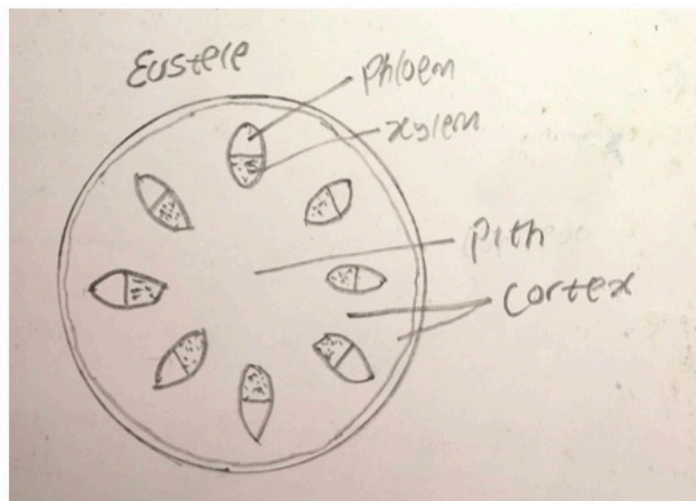
The two gametangia fuse through a process known as plasmogamy and a zygote is formed, which may undergo a prolonged dormancy or resting stage. The nucleus in the zygote fuses in twos and undergoes meiosis independently. The zygote then germinates under favourable conditions in order to produce a fruiting which are maturity liberates the haploid spores.

### 4. How do Bryophytes adapt to their environment

- Bryophytes have definite structures for water and nutrient absorption from the soil. This means that the plant body is divided into two, an aerial portion and a subterranean portion. The subterranean portion is the rhizoid, and is no a true root compared to land plants tha are advanced.
- The aerial portion of bryophytes which is exposed to the atmosphere, demands some modifications tha prevents the excessive loss of water via the body surface (desiccation)
- There are other modifications present in bryophytes that permits the elimination of excess water from the plant body therefore opening are available on the aerial parts of the plants

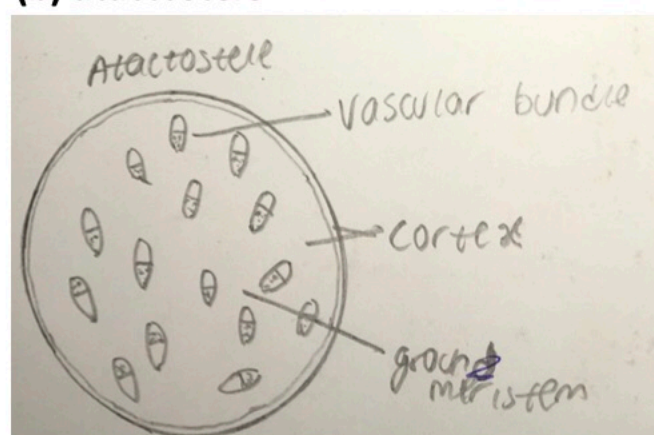
### 5. Describe with illustration the following terminologies:

#### (a) eusteles



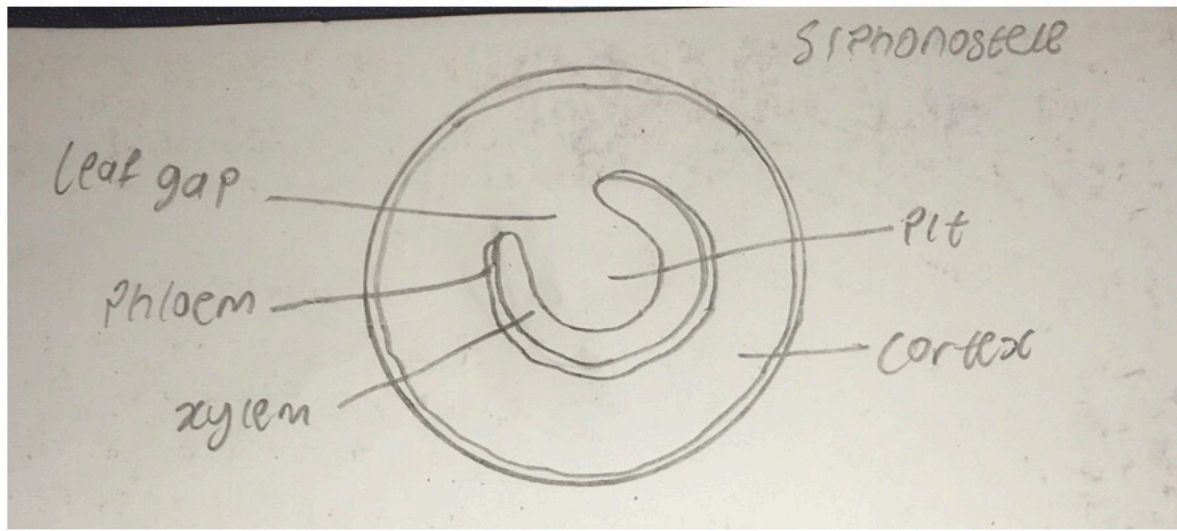
Eustele is a type of siphonostele in which the vascular tissue in the stem forms a central ring of bundles around a pith.

#### (b) atactostele



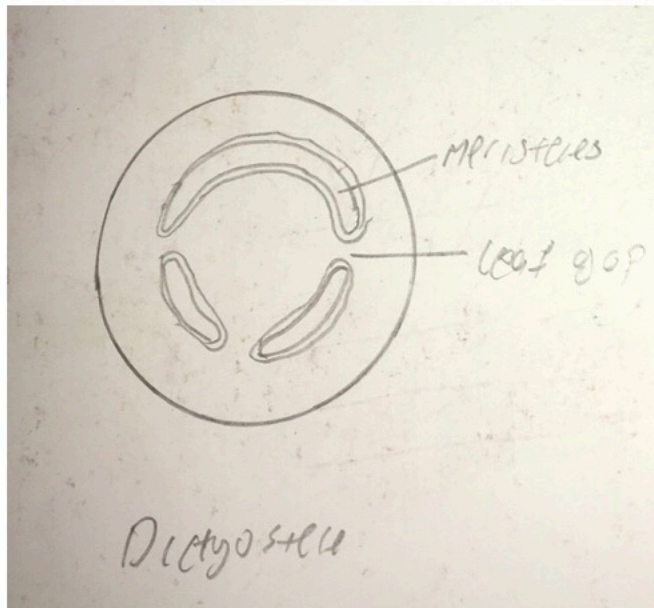
Atactostele is a type of eustele found in monocots , in which the vascular tissues in the stem excites are scattered bundles

**(C) siphonostele**



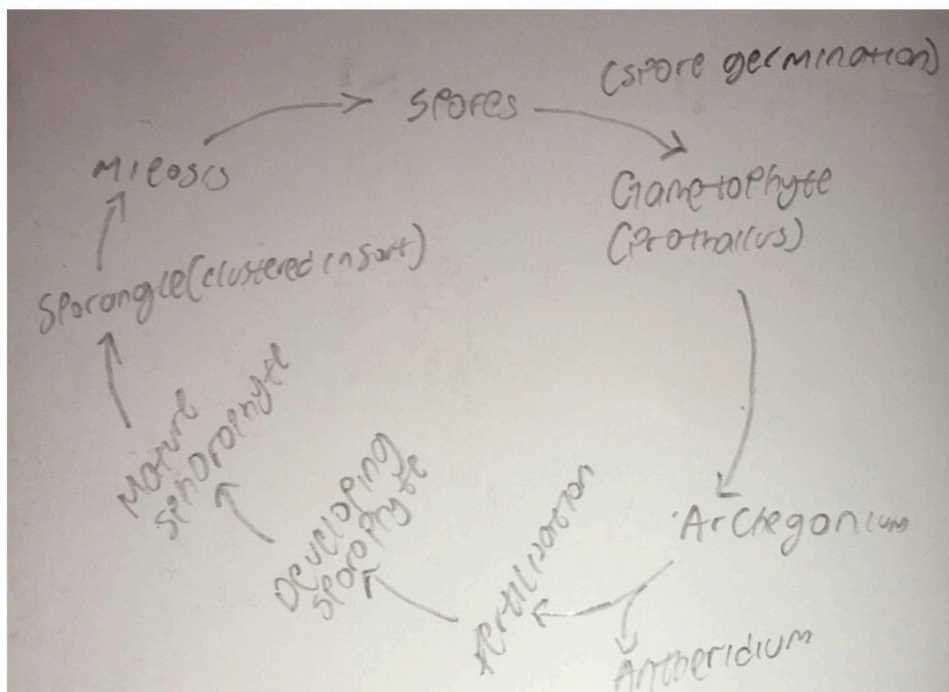
This is a stele consisting of a core of pith, which is surrounded by concentric layers of xylem and phloem

**(d) dictyostele**



This is a stele in which the vascular cylinder is broken up into a longitudinal series of network of vascular strands around a central pith

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



The diagram shows a real life cycle of Fern, in which the the sporophyte is the conspicuous generation and it germinates from the base of the prothallus. Meiosis then occurs within the sporangia