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MATRIC NUMBER: 19/MHS01/155

DPARTMENT: MEDICINE AND SURGERY

COURSE CODE: BIO 102

1. Importance of fungi to mankind:

- i) Responsible for decay of organic matter.
- ii) As biological control agents to pests.
- iii) Fungi can be used as food e.g mushrooms.
- iv) Important in the food industry as yeast.
- v) Fungi helps recycle dead materials into various cycles.

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



3. Sexual reproduction in a typical filamentous form of fungi:

Sexual reproduction in *Rhizopus stolonifer*. This occurs when two mating type of hyphae grown in the same medium and then due to chemical interaction in the two mating types of hyphae which limits growth perpendicular to the hyphae in opposite directions paving way for the gametangia to form. These growths are delimited by a barrier (cell) such that many nuclei are isolated in what is called a gametangium.

The two gametangia fuse and a zygote is formed which may undergo prolonged dormancy after. The zygote germinates in favourable conditions to then produce fruiting which at maturity liberates the haploid spores.

4. How do Bryophytes adapt to their environment:

They have definite structures for water and nutrient absorption from the soil. The plant body is divided into two: the aerial and subterranean portion. The aerial portion being exposed to air demands modifications to prevent excess loss of water through the body surface while the subterranean portion is the rhizoid which is not a true root.

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5. Describe with illustration the following terminologies: i. EUSTELE, ATACTOSTELE, SIPHONSTELE, DICTYOSTELE.

- i) Eustele: steles found in herbaceous dicotyledonous plants. Their vascular bundles are discrete, concentric collateral bundles of xylem and phloem e.g flowering plants.

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- i) Eustele: steles found in herbaceous dicotyledonous plants. Their vascular bundles are discrete, concentric collateral bundles of xylem and phloem e.g flowering plants.
- ii) Atactostele: Have their vascular bundles scattered. The nature of vascular supply to leaves is a note worthy element of the vascular system e.g in grasses and many monocotyledonous plants.
- iii) Siphonstele: found in more advanced vascular systems. The stele is a cylinder enclosing a parenchymous pith. E.g stems of ferns and higher vascular plant.
- iv) Dictyostele: it has a dissected conducting cylinder. A stele in which the vascular cylinder is broken up into a longitudinal series or network of vascular strands around a central pith.

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

*Psilotum* as an example of a primitive vascular plant is a genus of fern like vascular plant commonly known as whisk. They lack true roots and leaves, the stem been the organs containing conducting tissues. Whisk ferns lack true roots but are anchored by creeping rhizomes. The stems have many branches with paired enations with no vascular tissue. Above these enations, synangia are formed by the fusion of three sporangia which produce the spores. When mature, the synangia release spores which develops into a gametophyte less than 2mm. the gametophyte lives underground as a sporophyte. When the gametophyte is mature, it produces both egg and sperm cells. The sperm cells swim using several flagella and when they reach an egg cell, unite with it and form a young sporophyte.

