

\* Classification with reasons.

Division - Lepidophyta 1) Leaves are microphyllous.  
2) sporangia borne singly on adaxial surface of sporophyll.

Class - <sup>Ligulopsida</sup> ~~Lycopodiinae~~ - 1) presence of ligulate leaves.  
2) Heterospory is observed.

order - Selaginellales 1) Roots develop from rhizophores.  
2) Microsporophyll & megasporophylls are aggregated to form strobili.

family - Selaginellaceae - 1) sporophyte is with herbaceous dorsiventral & creeping or erect stem.

2) Gametophytes are reduced  
Genus - Selaginella - 1) sporophyte differentiated into stem, leaves & roots.  
2) endodermis is trabaculated  
3) Leaves are small, simple & lanceolate

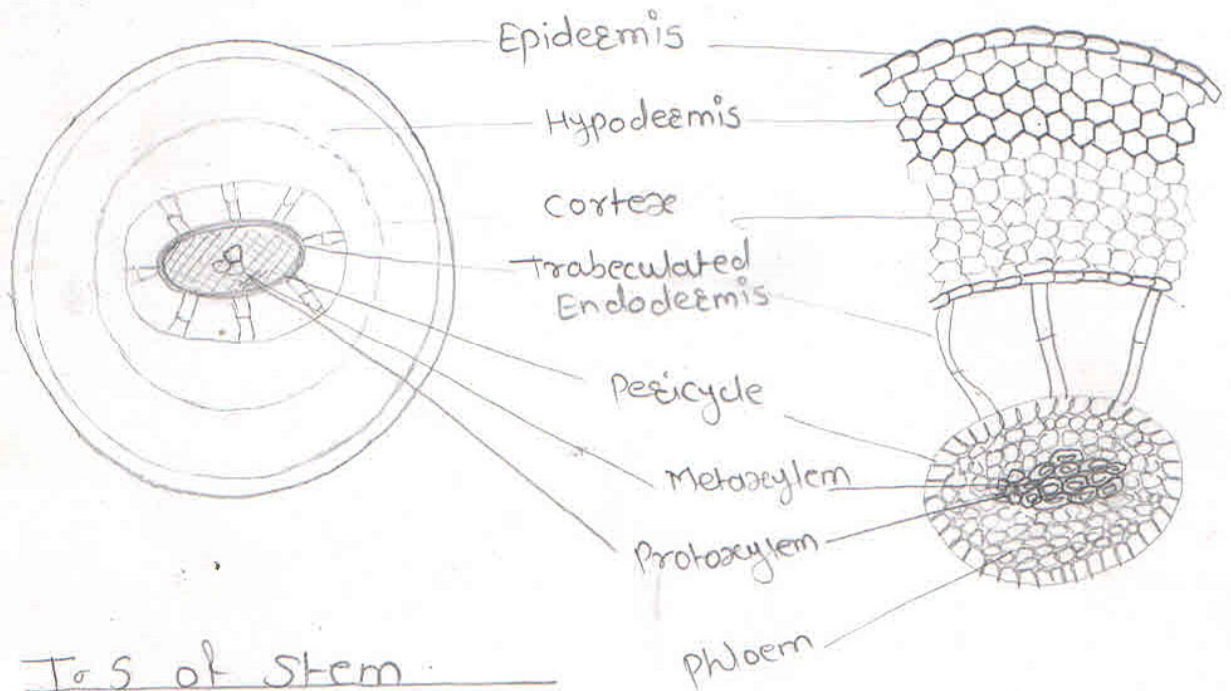
\* External characters.

- 1) Plant body sporophyte is differentiated into stem, leaves & roots.
- 2) It is prostrate & creeping on the surface of ground or may be suberect.
- 3) stem is branched & covered with four rows of small leaves of which two rows are of small size & two rows are of larger size. ~~leaves~~.
- 4) Leaves are simple, small, lanceolate to ovate, cordate at base, ligulate with unbranched vein.
- 5) Rhizophores are present arising from the stem. They are leafless, colourless growing downwards in soil & producing small tuft of adventitious roots at tips.
- 6) Spikes are produced at the end of branches.



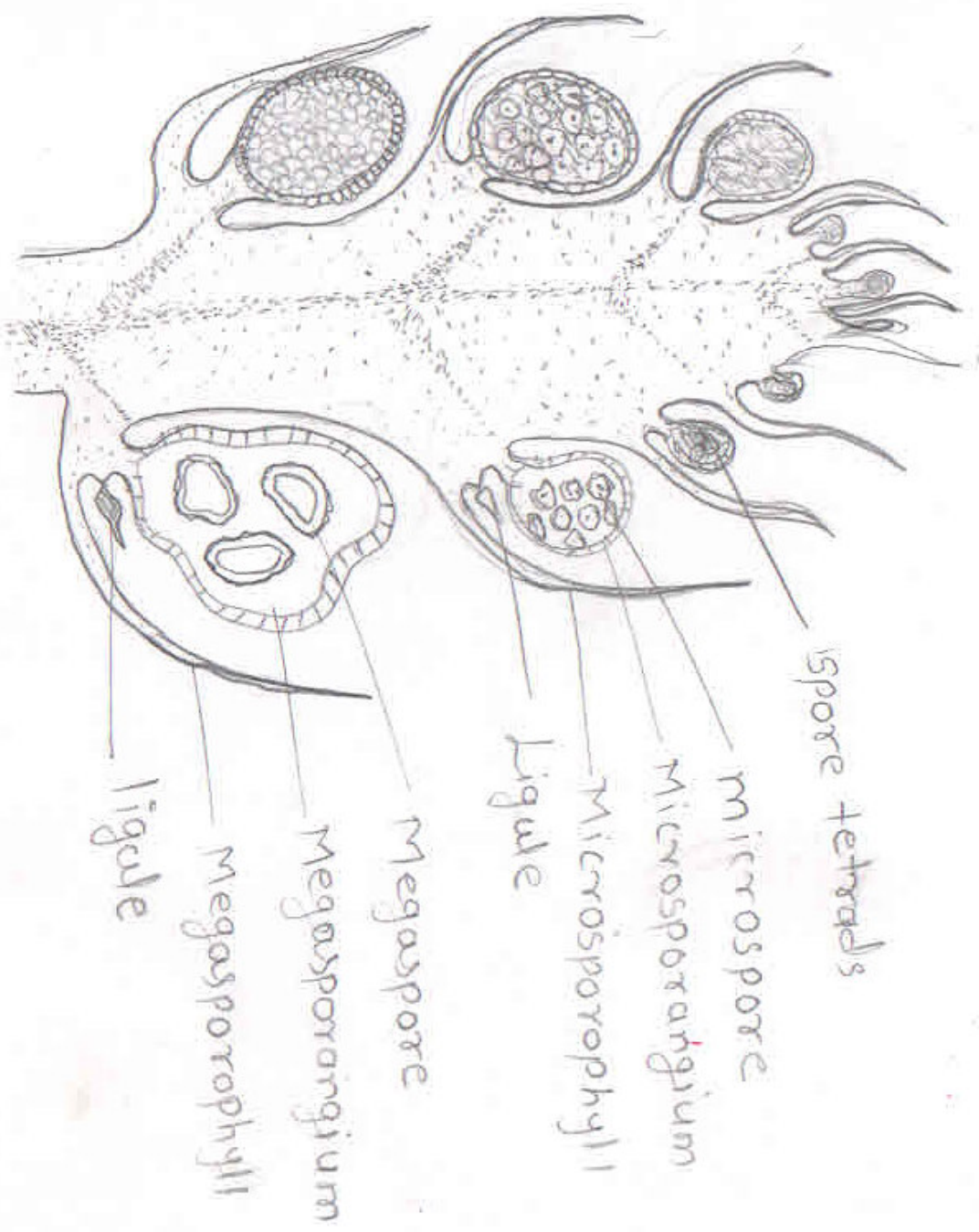
External character of Sporophyte

- \* Internal Structure - T.S of stem → It shows an outer epidermis, middle cortex & central stele.
- 1) The epidermis is made up of single layer of closely packed cells. It is cuticularised. Cells are elongated & pointed.
  - 2) The cortex lies below the epidermis. It is many layered. It shows two parts outer thick walled lignified sclerenchymatous hypodermis & inner thin walled parenchymatous cells with intercellular spaces.
  - 3) The central stele shows endodermis, interrupted by large air spaces & is called as trabeculated endodermis.
  - 4) Many protosteles are seen making the stele polystelic, usually xylem is somewhat flat exarch with middle metaxylem & two protoxylem pointing towards the margin. ~~Protoxylem is surrounded by the xylem.~~



\* V. S of strobilus.

- 1) Strobilus is compact & develops at terminal portion of branches.
- 2) The sporophylls are arranged alternately on axis & in a clusters. Each sporophyll bears on upper side a ligule & a short stalked sporangium at its base. The sporangia are of two types.
- 3) Megasporeangia are present at base bearing four large megaspore. The sporophyll bearing megasporeangium is called megasporophyll.
- 4) Microsporeangia are present at the apex, spores present in it are called microspores, many in number, haploid. The sporophyll bearing microsporeangium is called the microsporophyll. This dimorphic condition of spores is known as heterospory.



Los of Strobilus