The Sporophyte :-

⇒ The diploid zygote enlarges in size and almost fills the cavity of the venter

⇒ The first division of zygote is by a transiverse wall resulting in an outer epibasal cell and an inner hypobasal cell. and further develoment takes place.

⇒ The sporophyte of Marchentia is differentiated in to foot, seta and capsule.

⇒ Foot is the basal bulbous part which anchors the sporophyte to the disc of the archegoniophore and also absorbs nutrition from the gametophyte.

⇒ Seta is a short and stout stalk that connects foot to the capsule which made up of parenchymatous cells.

⇒ As the capsule matures, these cells undergo repeated transverse divisions and elongation and thus the seta increase in length and ultimately pushes the mature capsule out.

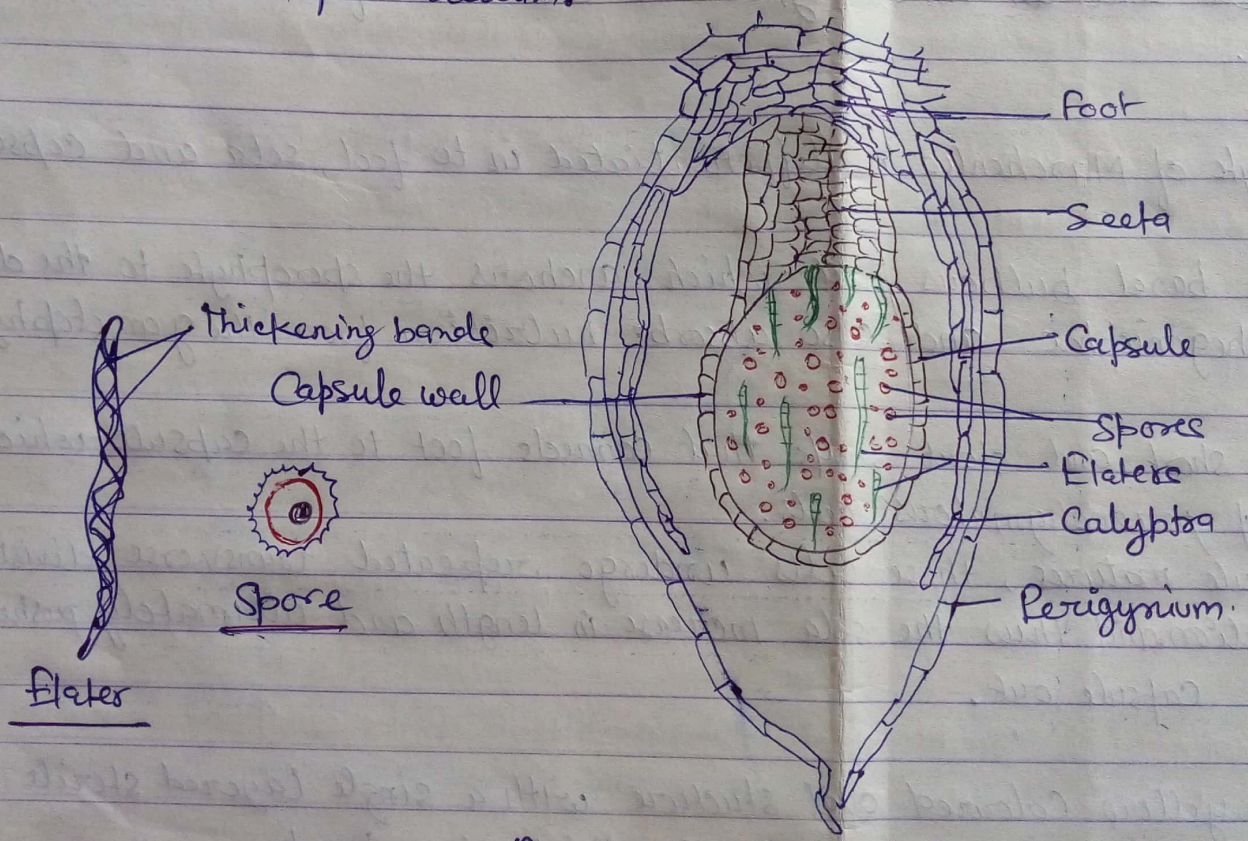
⇒ Capuse is yellow coloured oval structure with a single layered sterile jacket. where these cells have annular thickening bands.

⇒ The capsule contains numerous spores and elaters (nursing cells).

⇒ The spore contains vacuolated granular cytoplasm with a distinct haploid nucleus.

⇒ There is a very large number of spores in a capsule nearly 3,00,000 per capsule.

⇒ The capsule is enveloped by three protective coverings Calyptra, Perigynium and Perichaetium.



A mature sporophyte in longisection.

⇒ The seta ruptures the calyptra by self elongation and the single layered capsule wall splits into a variable number of longitudinal valves.

⇒ The thickening bands and jerky movements of the elaters due to their hygroscopic nature, assist in loosening up of the spore mass and scattering the spores in the air.

⇒ At the time of germination under favourable condition the spore absorb moisture and increase its size on the substratum. The chloroplast reappear at this stage

⇒ The first div. of the spore is transverse and two unequal cells formed where smaller cell produces rhizoids and larger undergoes to form 6-8 celled filamentous structure. and ferther develops a new thallus structure.