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Class : Deg. I (Hons.)
Paper : II (Pteridophytes)
Topic : Pteridophyta (Contd.)
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Life Cycle of Pteridophytes:

- The life-cycle of pteridophyte comprises of two distinct phases or generations, each of which produces other.
  One generation which is the sporophyte, is the diploid and dominant part of the life-cycle.
- It is organised into roots, stem and leaves.
  It is the part of the life cycle in which vascular tissue is developed.
- The sporophyte plant develops sporangia within which are diploid cells called spore mother cells or sporocytes.
  Each spore mother cell or sporocyte divides by meiotic or reduction division.
- As a result of meiosis, spores are produced, which are, therefore, haploid.
  In some members all spores produced by the sporangia are of one type.
  Such plant is called homosporous.
  Eg. Lycopodium.
- These spores on germination produce the haploid or gametophytic generation.
  These gametophytes are of same kind.
  The gametophytic generation is always small, inconspicuous and bears male and female gametes.
- The male gametes or sperms are produced in large number within the antheridium.

- The Female gamete or egg is generally borne singly within the archegonium.

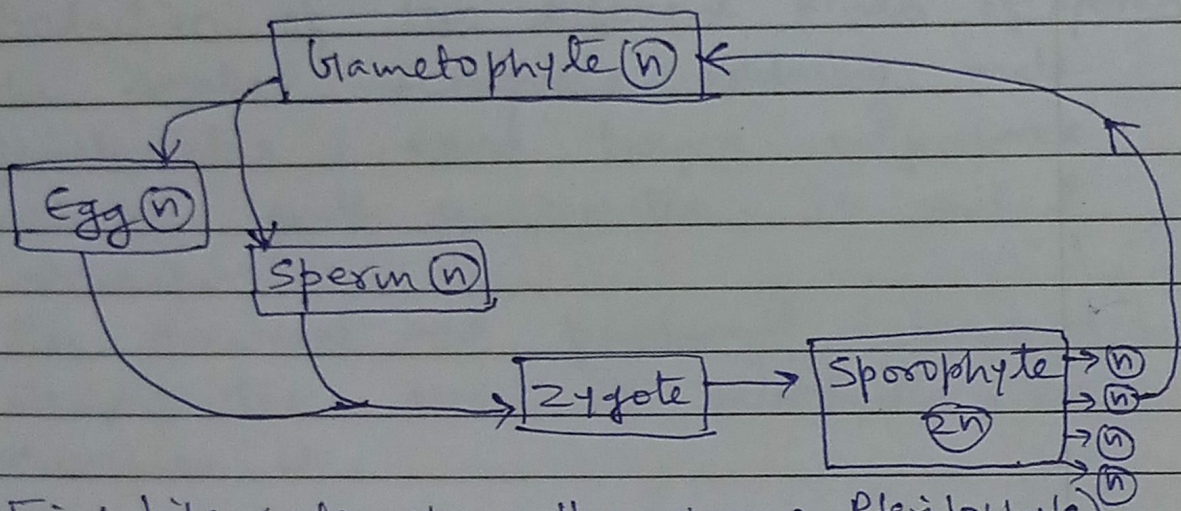
- Fertilization takes place in the presence of moisture, when a sperm cell fuses with egg to produce a diploid zygote.
- The zygote germinates to form the new sporophyte. This generation is called sporophytic generation.

- In heterosporous pteridophytes, e.g., Isoetes, Selaginella, Marsilea etc., the spores are of two kinds, the smaller spores are called microspores or male spores and are developed in microsporangia, while the larger spores are called megaspores or female spores and are formed in megasporangia.
- The microspores on germination produce the male gametophyte on which only male gametes or sperms are produced.
- The megaspores produce the female gametophyte on which only female gametes or eggs are produced.

- As in homosporous pteridophytes, the fertilization occurs in presence of water, resulting in the formation of diploid zygote, which develops into a new sporophyte generation.

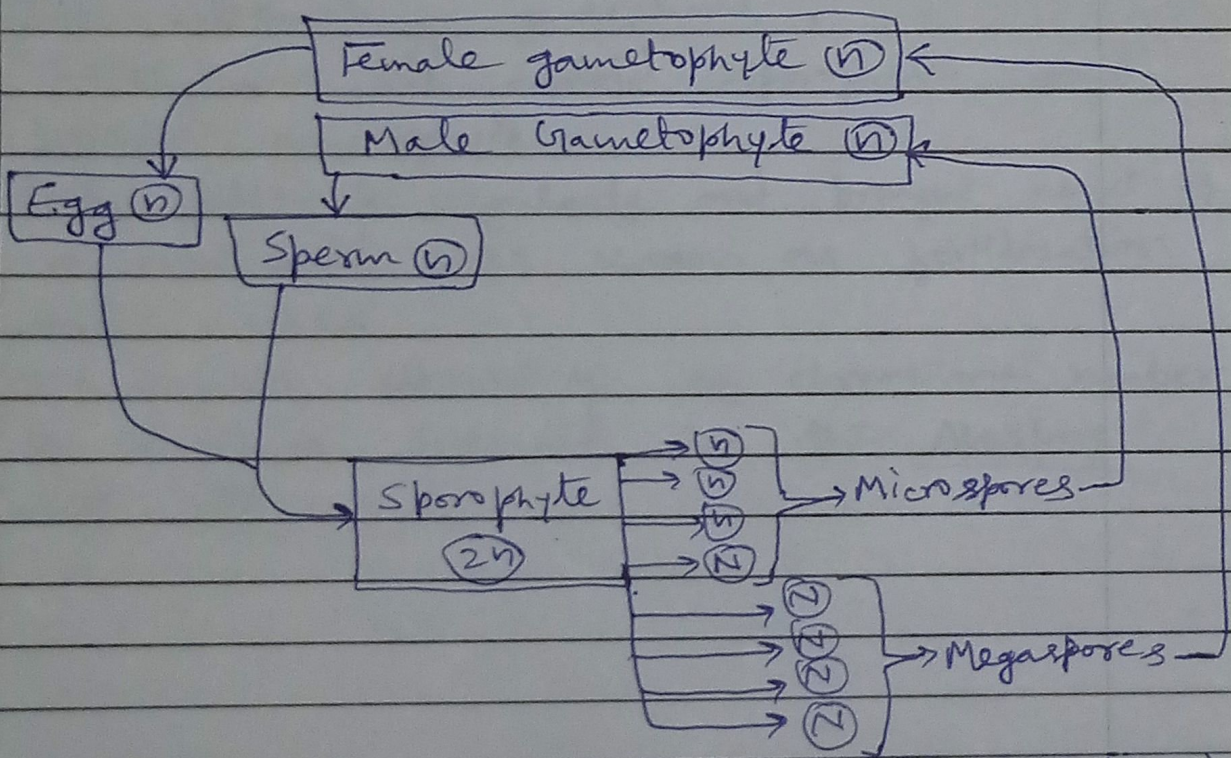
- Thus, the life-cycle of Pteridophytes consists of an alternate succession of sporophytic and gametophytic generation.

- Life-cycle of a Homosporous Pteridophytes:



(Fig: Life-cycle of a Homosporous Pteridophyte)

- ~~Life cycle~~
- Life-cycle of a Heterosporous Pteridophytes:



(Fig: Life-cycle of a Heterosporous Pteridophytes)