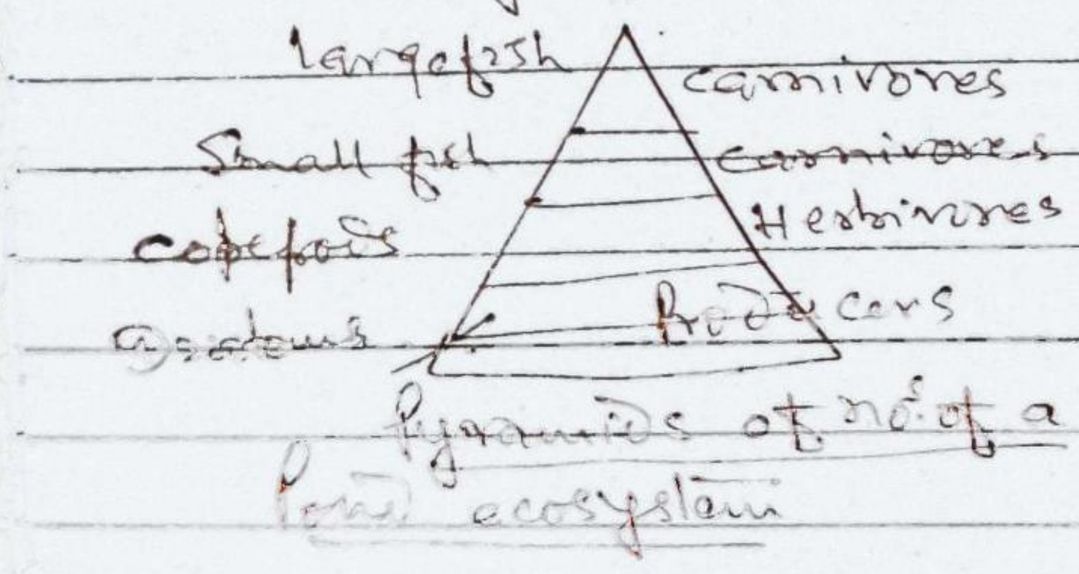
Ecological Pyramid or Trophic structure

Ecological pyramids are the diagrammatic representation showing the relationship between the nos. biomass and energy contents of the producers, consumers of I II orders upto top carnivores in any ecosystems

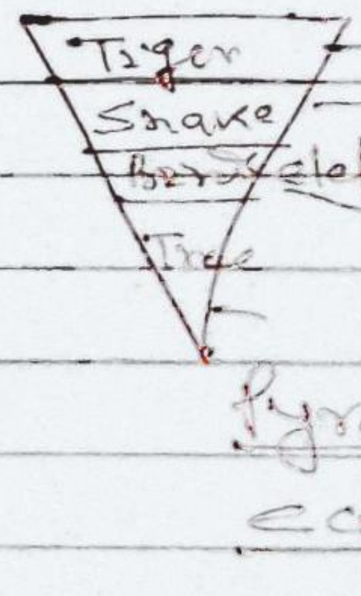
Ecological pyramids are of three types :—

1) Pyramid of number 2) Pyramid of biomass 3) Pyramid of energy.

1) Pyramid of number :- This deals with the relation ships between the nos. of primary producers and consumers of different orders. The base of such a figure is always the number of primary producers and consumers of different orders. The base of such a figure subsequent structures of consumers of successive levels. The top represents the number of top carnivores in an ecosystem.



Pyramids of no. of a pond ecosystem



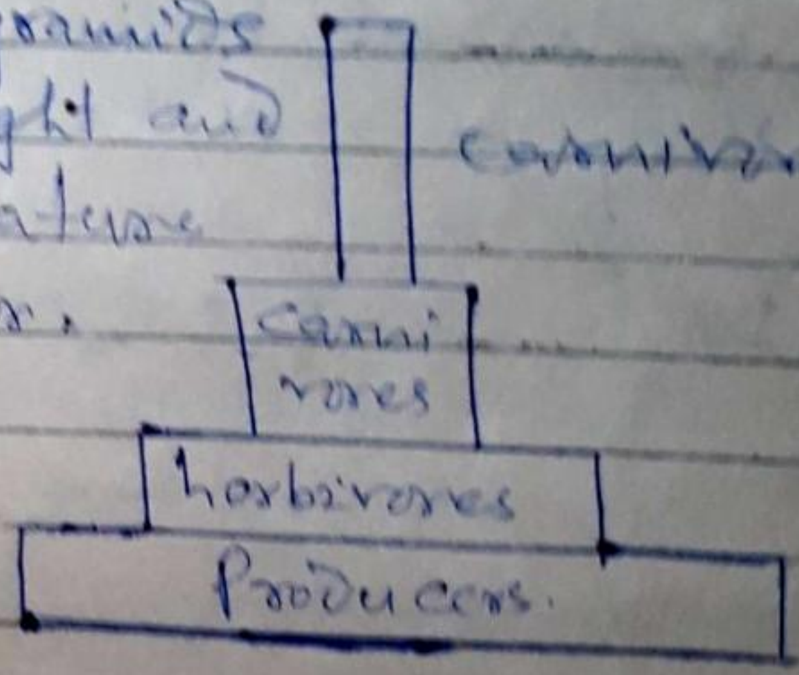
Pyramids of number of a forest ecosystem

2) Pyramid of Biomass :— In grassland and forest ecosystem there is generally a gradual decrease in biomass of organisms at successive level from the producers to the top carnivores. Thus pyramids are upright. However, in a pond the producers are small organisms their biomass is least and this value gradually

there is an increase towards the apex of the pyramid thus making the pyramid inverted in shape.

3) **Pyramid of energy** :- The pyramids of energy represents the total quantity of energy established by different trophic level organisms of an ecosystem in unit area over a set period of time. The pyramids of energy is a picture of the rate of passage of food mass through the food chain. In shape it is always upright. There is always a gradual decrease in the energy content at successive trophic levels from the producers to various consumers.

Thus we see that the Pyramids of nos & and biomass may upright and inverted depending upon the nature of food chain in a particular ecosystem but the pyramid of energy is always upright



AUTECOLOGY

Autecology is the study of environmental interrelationships of a species in a population & sets of populations at all stages of its life cycle. The main aim of autecological studies is to understand the natural distribution, adaptation, differentiation of population and species. In autecology the detailed ecological life history of a plant species is studied and requires the basic knowledge about (i) Taxonomy and nomenclature (ii) Morphology (iii) Cytology (iv) Physiology (v) Environmental complex and measurement of its components.

Agriculture, silviculture, horticulture are the disciplines of economic botany that are based on detailed autecology of a species (Sen Gupta).

Each step in the life cycle of a plant is greatly influenced by a no. of environmental factors. Plant populations also continuously modify the environment. The requirements of germination growth, flowering, pollination, fruiting, leaf fall etc. of the species are met with at the same place, but different times of year. There is so much synchronisation of the phenological behaviour of the species and the different factors of the environment that plants are spoken as ecological or biological clock. Biological clocks are said to be regulated by external signals from the environment and such clocks are ecologically much advantageous since these couple environmental and physiological rhythms and enable the organism to anticipate daily, second and other periodicities in light - temperature tides etc.