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Unit-I

Multidisciplinary nature of Environmental

Q) What are the objectives of Environmental sciences. Science?)

combination of cultural, social and.

Environment →

1) Scientific assessment
2) Risk Analysis (like Heavy metal accumulation more then analyses)
3) Public education and involvement
4) Political action
5) Evaluation

Objective →

- To have an awareness.
- knowledge
- Attitude change.
- Skill
- Participation

Application of EVS

- To conserve the natural environment & resources by controlling the -ve impact of human involvement.

- Continuous process of development of material & method for energy production to give non-toxic product.

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Ecosystem

Interaction b/w biotic and abiotic component.

Abiotic

- organic
- Inorganic
- Climate
  - Atmosphere
  - Lithosphere
  - Hydrosphere

Biotic

1) Producer → Photoautrophs, Chemoautrophs
2) Consumer →
   - herbivore
   - top Carnivore
   - carnivore
   - omnivore.
3) Decomposer → Saptrophs
   - detritus → decomposed/decaying material
   - detrivores → feed on detritus

- A community made up of biotic & abiotic components.
- It is very fragile/mature. (disturbs easily.

Components

- Biotic
  - Producer
  - consumer
  - decomposer
- Abiotic
  - Organic
  - Inorganic
  - climatic

Autotrophs Heterotrophs

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Producer
- Phototrophs
- Chemotrophs.

Consumer
- Herbivores
- Carnivores
- Top carnivores
- omnivores

Decomposer
- Saprotrophs
- Detrivores

Energy flow

→ leaves, twigs .....

Sun → Producer → Consumer → Decomposer

Nutrients.

Ecological succession →

Over a period of time, the change in structure of species as a result of change in environment

~~The type of the~~

Existence of the carnivores will be governed by herbivores.

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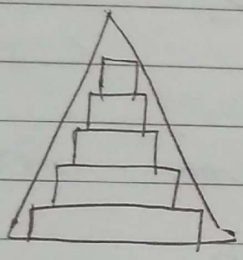
Food chain	Food Webs

Ecological Pyramids

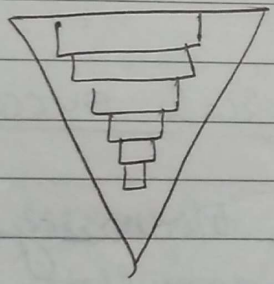
Whenever energy is passed from one tropic level to another tropic level, then 10% law is applied.

Biomass → solid mass of the body

Pyramids of no.

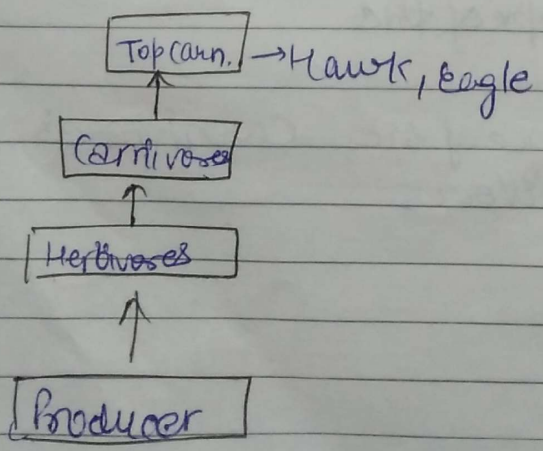


Upright → Grassland, forest.



downward → Pond

Grassland Pyramid



Pyramid — no.
— Biomass
— Energy

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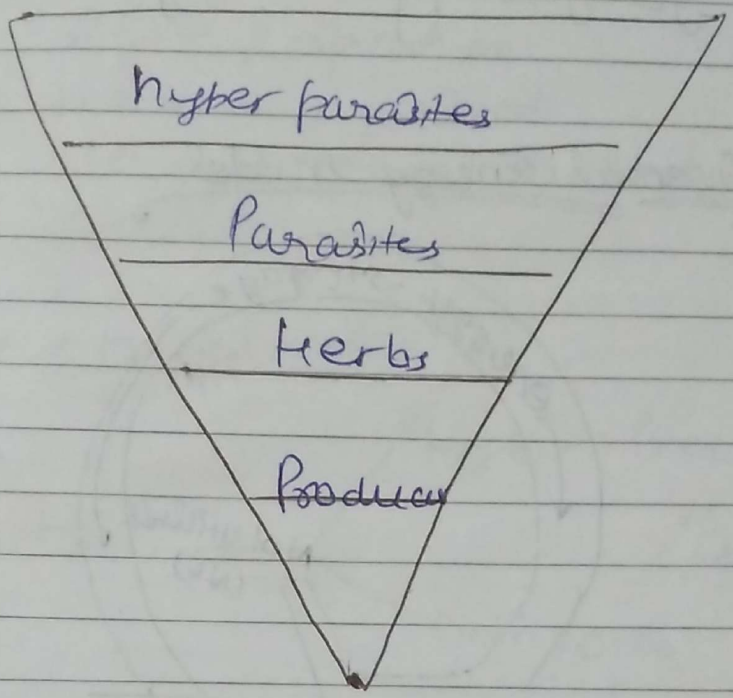
Pond Pyramid



1) Graphical Representation to show biomass productivity at each trophic level in a given ecosystem.

2) Relationship b/w different trophic levels is explained in terms of no., energy/biomass.

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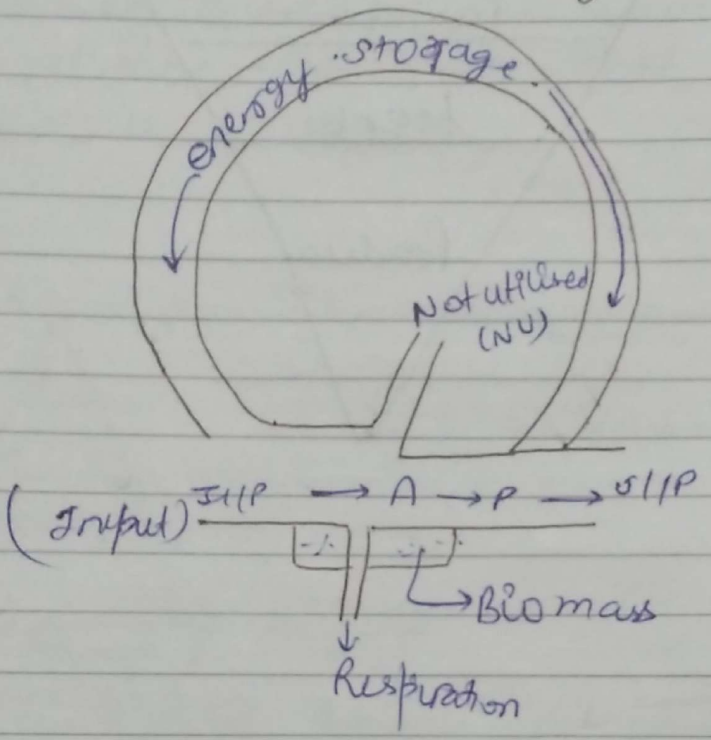
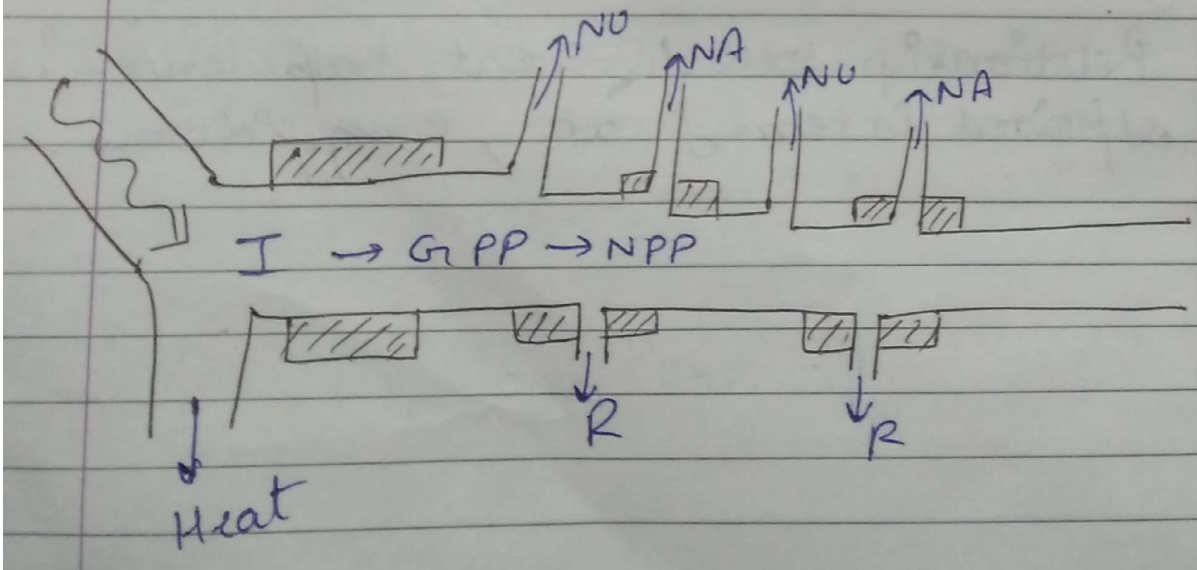
Q: What are the different models/representation for flow of energy

Universal Energy model



Single channel energy flow model



Forest Ecosystem → • Pyramid
• Food chain/web
• Energy flow
• biotic/abiotic
• Types of it - if any

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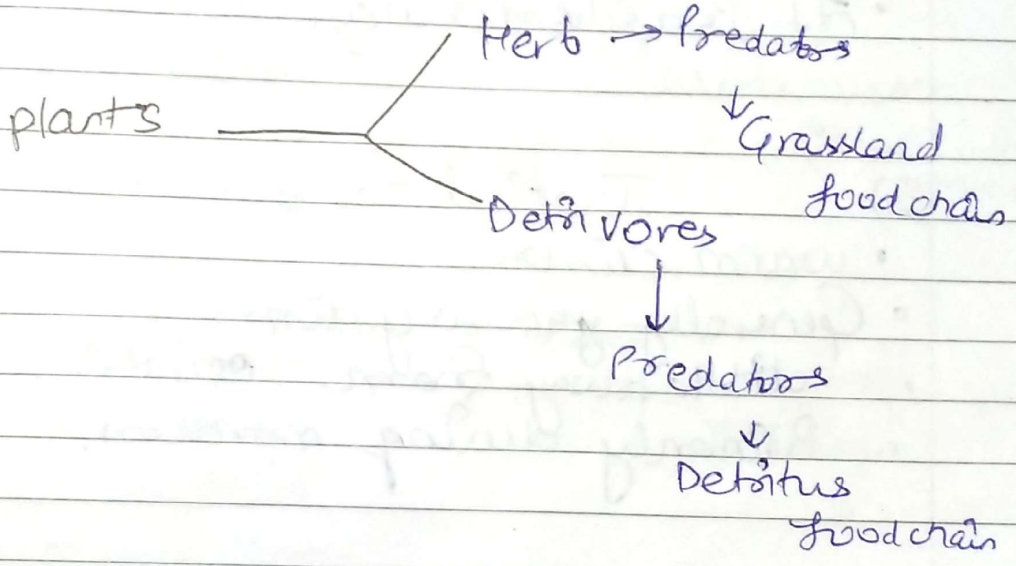
I → Input energy
GPP → Gross Primary production
NPP → Net "
R → Respiration
NU → Not utilised
NA → Not assimilated

Y shaped



Types of forests

1) Tropical Rain forest →

- High Rainfall, temp. & humidity.
- Richest biodiversity

- Canopy → It is umbrella like covered with small branched trees.

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- Woody climbers.
- Epiphytes → like orchid, are plants grown upon big ~~branches of trees~~.
- Shrubs → Shrub layer has even less sunlight.
- Darkest forest floor.
- Camileon, fungi, algae are present.
- It is a silent valley in Kerala.

2) Tropical Deciduous forest
- warm climate
- Generally ~~year~~ dry climate.
- little away from equator.
- Rainonly during monsoon.

3) Sub tropical forest

Dry season is even longer.

4) Temperate Rain forest

Adequate ~~rain fall~~ and evergreen trees.

5) Temperate deciduous forest → long summer

6) Evergreen coniferous forest

Artic tundra region.
long cold dry weather.
few species, poor soil & biodiversity.