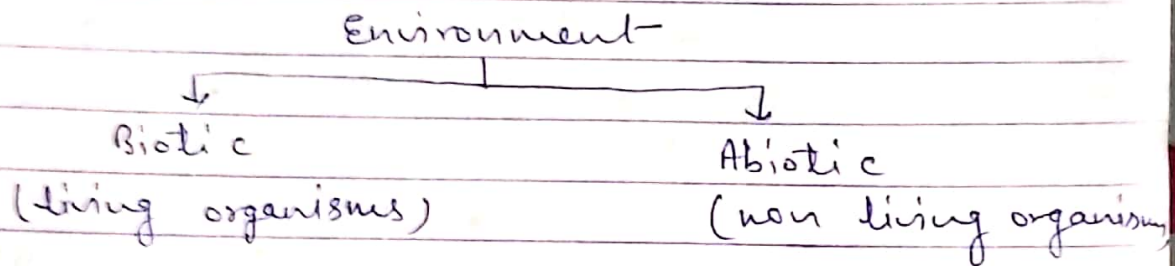


Ecology

Ecology is the science of environment.
'oikos' — a house to live in.

Economics of nature is ecology.



Interrelationship betⁿ biotic & Abiotic factors is called ecosystem.

Ecosystem is a unit (structural & functional) of our system.

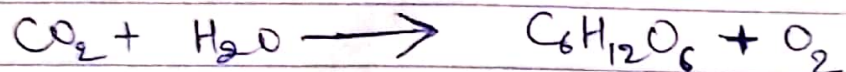
Functions of Ecosystem : —

- (1) Energy flow
- (2) Nutrient recycling.

Biotic components : —

- (a) Producers (Autotrophs).
- (b) Consumers (Heterotrophs).
- (c) Decomposers (Bacteria, fungi).

~~Chemical equation~~



Producers are basically transformers but it is called as producers.

Chemosynthetic bact. is also producer, it converts $\text{SO}_4 \longrightarrow \text{SO}_2 + \text{O}_2 \uparrow$.

② Consumers ? — Animals are consumers.
They are dependent upon
the producers.

Only the genetic material is immor-
tal in our body or life.

Primary function is decomposition
is of fungi then followed by
bact.

Lysis by fungi forms
macromolecules. Then mineralisa-
tion by bact. breaks macro-
molecules to ions & micro-
molecules.

Heat is the most random form
of energy.

Chemical form of energy is the
most non-random form of energy.

Physico-chemical characteristics :-

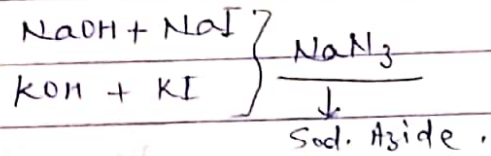
Winkler Method for determining BOD. :-



BOD Bottle

1. $MnSO_4$ solⁿ (2ml)

2. Alkaline. Sodium Azide solⁿ (2ml)



3. Add 2ml. Conc. H_2SO_4 .

4. Titrate 50ml. of solⁿ

against $N/40$ Sodium thiosulphate solⁿ.
(thio). using starch as indicator.

Optimum Temp. for ideal growth of Bact. = $20.5^\circ C$

Eutrophication :- Nutrient enrichment.



Nitrate, Phosphate, Sulphate Silicate

Plecoptera (Stone fly larvae) - 10ppm. O_2 content
is required for the survival.

A particular temp., pH & Turbidity is required for
the egg laying of fishes.

Turbidity generates impulse which induced
the fish to spawning.

Producers $\left\{ \begin{array}{l} \text{phytoplanktons (Algae mainly filamentous)} \\ \text{Macrophytes (growing in shallow water body)} \end{array} \right.$

Cormorant - (A type of birds)

Darton $\cup$ It is also dive in water upto
300m. and catch the fishes
for feeding.

Crocodialis gangeticus

Crocodialis - fish eating crocodile.

found in Indus, Pakistan, etc.

Periphyton - A community consist of both

Algae and protozoa. develops
on the surface of the water. grows
on the surface of macrophytes.

It provides shelter to macrophytes,
molluscs, birds, fishes etc.