

3. Ecosystem and Biodiversity

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Ecosystem:

It consists of biotic component that is plant, animal, humans & bacteria etc. And abiotic component that is sunlight, soil, water, air, rocks etc.

or

It consists of all living organisms by the formation of non-living things. This is known as Ecosystem.

The E.A. Transley Scientist defined as whole system of the environment it consists of not only organism complex but also physical factors forming of them.

Classification of Ecosystem:

- 1] Aquatic
- 2] Terrestrial

Aquatic: lake, ocean, reservoir, sea

Terrestrial: forest, desert, grassland, cropland

Properties:

It is based on two components.

- 1] Biotic
- 2] Abiotic

- | | | |
|--------------|---|----------------|
| Biotic | ↔ | Autotrophous |
| - Producer | ↔ | Heterotrophous |
| - Consumer | | |
| - Decomposes | | |

① Biotic Component

It includes all living organisms plants, animal & Human.

It is categorized into three main groups.

① Producer

It synthesizes their own food so it is known as producer or Autotrophous.

Ex: Plants

② Consumer

It does not synthesize their own food so it is known as consumer or Heterotrophous.

Ex: Animals

③ Decomposer

The death of producer & consumer becomes a food that is organic matter.

Ex: Bacteria, Fungi

② Abiotic Component

These are include Non-living things that is water, Soil, Rocks Sunlight etc.

The main three groups are

1] Climate factor

It is include temperature, Sunlight, wind of the environment.

2] organic Substances

which is include protein and carbohydrate

3] Inorganic Substances

In which water Carbon Nitrogen, Phosphorus and all the gaseous of the Environment.

* Functions of ecosystem.

There are four functions of ecosystem.

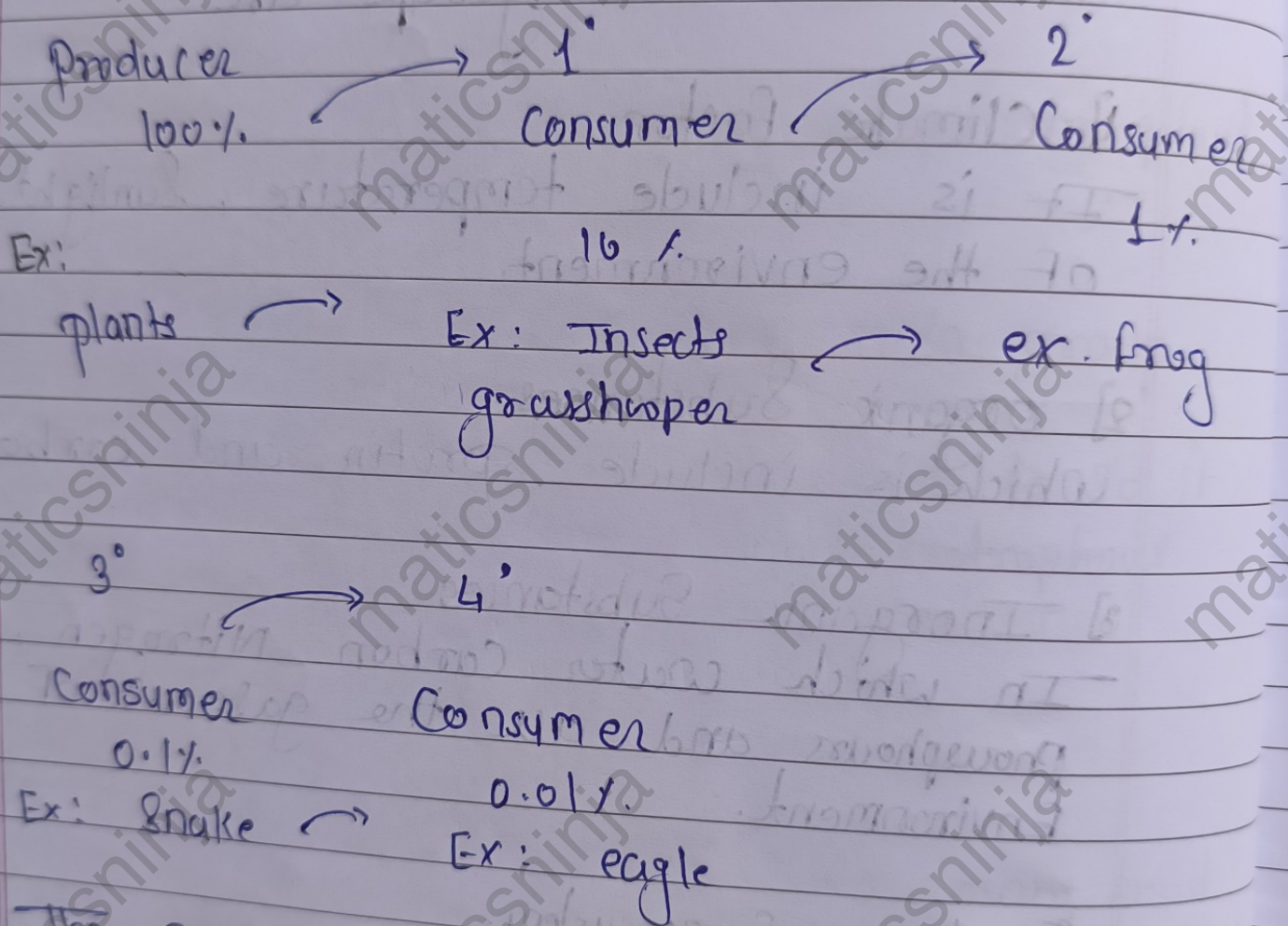
1] primary production:

The production of organic matter by using inorganic substances like Carbon, nitrogen, phosphorus etc.

Ex: photosynthesis process

This organic matter support life or living organism.

2) Energy Flow:



The energy is transferred from producer to quaternary Consumer.

3) Decomposition:

The death cause of producer & consumer to formation of food & organic matter & it is used to growth of plants.

4] Nutrient Cycle :

The process of nutrient cycle is continuously repeat again & again

Ex: water cycle, Carbon cycle etc.

*

Biodiversity :

It is defined as the biological variety or variability of all living organism.

ex: plants, Animals, microorganism etc.

The study of in whole system only organism complex. This is known as biodiversity.

The study of biotic components.

*

level of biodiversity

There are three level of biodiversity.

i] Genetic level :

- All living organism they are different genes
- Genes it is the basic unit of life on earth

The Variation in all living organism is responsible for different types of genes.

1] Species level:

In particular area found as different types of species.

Ex: Desert, Forest, etc.

2] Ecological diversity level:

It is the Community of living organism.

Ex: Forest - how much percent different type species present.

* Indicator to measure biodiversity.

There are three types of indicator.

1] Alpha (α):

This is used to only one Community measure of biodiversity.

2] Beta (β):

It is measure two Communities of the species.

3] Gamma (γ):

It is measure overall region or all Communities of the environment by using MBI (Mean Abundance Index) method.

Value of Biodiversity

In agriculture use of biodiversity for the production of crop yield

Higher the agriculture than reduces the various diseases of the environment.

It is used in Industries for the preparation of medicine, purification and quantity and quality of the water.

Biodiversity it is maintain the human health that is organic & inorganic substances. It is used in Ecological survives that is maintain the atmosphere of the environment and support to the nutrient cycle: water cycle, carbon cycle.

Loss of Biodiversity

1) habitat destruction: the change in Ecosystem that is deforestation desertification, urbanization for this region disturbed the human life & lack of biodiversity

2) Climate change:

The enhancement of green house gases that is CH_4 , N_2O , CO_2 , CFCs to disturb the rainfall pattern and loss of biodiversity

3] pollution :

Automobile, deforestation & chemical causes various types of pollution in the Environment.

4] Food Insecure:

By using fertilizer & chemical of the production of crop yield & spread various types of diseases to cause loss of biodiversity.

5] Zoonotic diseases :

From the wild animals cause this type of diseases & it is affect ~ 60 to 75 % of human health these are losses of biodiversity.

Hotspot of Biodiversity :

- ① The western ghats
- ② The Eastern Himalays
- ③ The Indo Burmese region.

In which high temperatures high rainfall occur of the particular area.

- 1] The western Ghats
The include states are Kerala, Karnataka, Goa & Gujarat etc.

In which the species occur are 77%.

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amphibian, 62%. Reptiles that is Snake,
Purple Frog & Lizard.

- 2] The Eastern Himalays
The Location are Himachal Pradesh,
Jammu & Kashmir and Arunachal
Pradesh

The different types of species are occurred
that that is 50 mammals, 45 birds,
36 plants, 170 Reptiles, 12 amphibian
and 3 are invertebrates. Present in
particular area.

- 3] The Indo Burma region
The location are Assam, Arunachal
Pradesh and Andaman Island.

Some mammals species & Rock Eats
are present in Indo Burma region.

- Conservation of Biodiversity

• Conservation of Biodiversity

- 1] In-situ Conservation of biodiversity
- 2] Ex-situ Conservation of biodiversity

The Conservation of population on that Environment is based on following two ways

- ① In-situ Conservation of biodiversity
The Conservation of population is based on in their natural habitat or original position

Ex: national park, wild life sanctuary, Nature reserve, Biosphere reserve, natural monument etc.

- ② Ex-situ Conservation of biodiversity
The protection of the population is based on away from the natural habitat or away from the original position or in artificial way

Ex: Zoological parks, Botanical garden and Genes bank etc.

• Laws of Conservation of Biodiversity

Various laws of Conservation of Biodiversity

The various types of laws are applicable for maintain the environment and protect the ecosystem the laws are

- ① wildlife Animal biodiversity Act - 1950
- ② Pollution Control Act - 1981
- ③ Environment Protection Act - 1986
- ④ Conservation of biodiversity Act - 2002

The India has the first nation of the world which is applicable laws for Conservation for biodiversity in 1976

MCO

1. How many types of Conservation of biodiversity?
- a] 1 b] 2 c] 3 d] 4

2. National Park & wild life Sanctuary is the example of
- a] In-situ conservation of biodiversity
b] Ex-situ conservation of biodiversity
c] None
d] Both
- a] In-situ conservation of biodiversity

3] Zoological parks & Botanical Parks are the examples of _____

- a] In-situ conservation of biodiversity
- ☒ b] Ex-situ conservation of biodiversity
- c] Both
- d] None

→ ☒ b] Ex-situ conservation of biodiversity

4] Wildlife Animal biodiversity Act come in _____

- a] 1981
- ☒ c] 1950
- b] 1986
- d] 2002

→ ☒ c] 1950

5] which nation is the first nation of the world which is applicable Law for Conservation of biodiversity Act in 1976

- a] Japan
- ☒ b] India
- c] China
- d] America

→ ☒ b] India