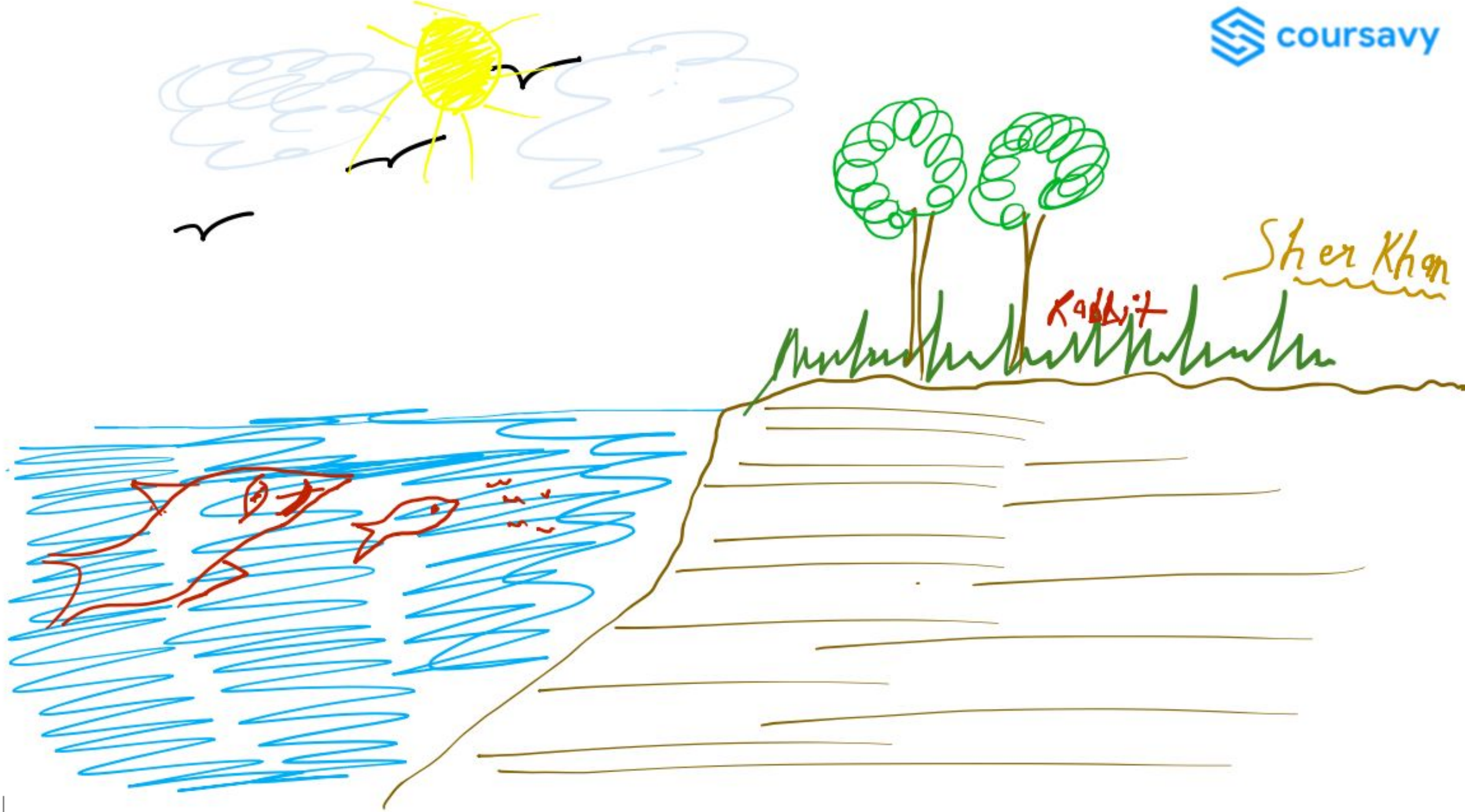




coursavy

Environment & Ecology

Population Interactions



Coursavy Pledge

100% Environment & Ecology

Static / Basic Concepts

Detailed Solution of Previous Year Questions

Current Issues of past one year

Session Notes - t.me/coursavy

Session is LIVE at [Coursavy Youtube](#)

let's both of us take [PLEDGE](#) to finish it :)

Reading Notes without watching the Session can be injurious ;)

Ecological Hierarchy

1. Organism
2. Population (Species)
3. Community

4. Ecosystem
5. Biome
6. Biosphere

Questions

Why is a plant called *Prosopis juliflora* often mentioned in news?

- A. Its extract is widely used in cosmetics.
- B. It tends to reduce the biodiversity in the area in which it grows.
- C. Its extract is used in the synthesis of pesticides.
- D. None of the above

Questions

Lichens, which are capable of initiating ecological succession even on a bare rock, are actually a symbiotic association of:

- A. algae and bacteria
- B. algae and fungi
- C. bacteria and fungi
- D. fungi and mosses

Questions

Due to some reasons, if there is a huge fall in the population of species of butterflies, what could be its likely consequence/consequences?

1. Pollination of some plants could be adversely affected.
2. There could be a drastic increase in the fungal infections of some cultivated plants.
3. It could lead to a fall in the population of some species of wasps, spiders and birds.

Select the correct answer using the code given below:

- (a) 1 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Population Interaction

Intraspecific Interaction - Interaction among different individuals of the same species.

Interspecific Interaction - Interaction among individuals of different species in a community.

Neutralism - Relationship between two species which do interact but do not affect each other.

True neutralism is rare or non-existent.

Population Interaction

Intraspecific Interactions is the most strongest and severe type of interaction because members of the same species have same requirement such as food, shelter and same structural, functional and behavioural adaptations.

Helps in maintaining the Ecological Balance

Mutualism

Association between two species in which both the species benefit

- Mycorrhizae and roots of higher plants.
- Lichen is mutual benefit association between algae and fungi, where fungus absorbs nutrition and algae does photosynthesis.

Obligate Mutualism - Some mutualisms are so intimate that the interacting species can no longer live without each other. They are permanent.

Termites cannot digest cellulose, this is done by *Trichonympha* that lives in termite's intestine.

Both cant live without other.

Commensalism

One benefits, the other is unaffected

- Sucker fish (Remora) and Shark
- Cattle egret and Cattle
- An orchid growing as an epiphyte on a mango branch mango tree

Amensalism

In this interaction one species is inhibited by toxic secretion of another species

Inhibitor species is neither benefited or harmed

Types of Amensalism – Allelopathy and Antibiosis

1 Antibiosis: Secretion of Antibiotics

Penicillium Fungi secretes penicillin which inhibit the growth of *Staphylococcus* Bacteria

2 Allelopathy: Secretion of Toxic Chemicals (Allochemics)

- Parthenium – Transcinnamic Acid is secreted by Parthenium which inhibit the growth of some plants
- Sunflower, Barley, Sorghum, *Occimum sanctum*
- Silver Oak – Autopathy – destroy its own seeds

Amensalism - Allochemics

Chemicals secreted by species are known as Allochemics

Types of **Allochemics** – Allamon, Depressants, Kairmons

1. Allamon – Chemical which repel other enemies are called Allamon
2. Depressants – Chemical which kill or inhibit the growth of other animal eg. Penicillin
3. Kairmons – Chemicals secreted by one organism which benefit the another organism eg.
Nematodes in soil – stimulate the growth of Fungi.

Predation

Predator kills and eats another species called the prey

Defence mechanisms of preys:

- i) Camouflage
- ii) Monarch butterfly is extremely distasteful
- iii) Cactus, Acacia develops spines to protect against *Phytophagus* insects (plant eating)
- iv) Calotropis produces cardiac glycosides (Toxic)
- v) Allochemicals

Parasitism

One species is harmed and the other benefits

- Ectoparasites
- Endoparasites
- Brood Parasites

Competition

Both species are harmed to some extent

It can be Interspecific or Intraspecific

Intraspecific is more intense

Flamingos and Fish competing for Zooplanktons (Inter)

Some other terms

Scavenging – Association in which one partner is called Scavenger or Saprobiont, eats the dead bodies of other animals, which have died naturally or killed by another animal.

- Jackal, Vultures, Ants, Crow

Helotism – Association in between two organism, when one behaves as a master and another as slave.

- Lichen

Interaction	Species A	Species B
Mutualism		
Competition		
Predation		
Parasitism		
Commensalism		
Amensalism		