Ecosystem

1. **What is Ecosystem?**
   Ans. The sum of total organisms, environment and the interaction between them is called the Ecosystem.

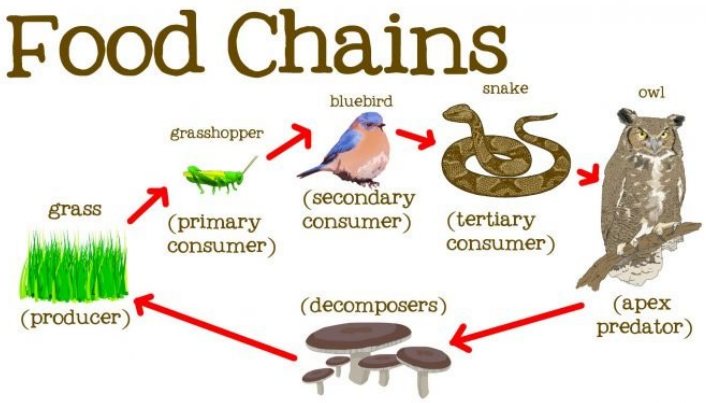
2. **What are the components of an Ecosystem?**
   Ans. An Ecosystem is made up of two kinds of components:
   a. Biotic Components: Biotic or Living Components include all kinds of organisms; plants, and animals or Microorganisms
   b. Abiotic Components: Abiotic or Non-Living Components are including
      i. Climatic Factors such as light, temperature, humidity and wind, and
      ii. Environmental factors such as air, soil and water.

3. **What is Biotic Component?**
   Ans. Biotic components, or biotic factors, can be described as any living component that affects another organism or shapes the ecosystem.
   This includes both animals that consume other organisms within their ecosystem, and the organism that is being consumed.
   Biotic components are typically sorted into three main categories:

a. **Producers:** These components can trap solar energy and manufacture their own food and are known as autotrophs.
   These include green plants, trees, grasses etc.
b. **Consumers:** They are unable to synthesize food. They depend on producers for their nutrition and are called heterotrophs.
   Consumers are three types:
   i. **Primary Components:** They eat the plants or plant parts and also called Herbivorous.
      Ex: Rats, they feed crops (Producers)
   ii. **Secondary Components:** They are also known as Carnivorous and depends on Herbivores.
      Ex: Snakes, they feed rats (Primary Consumers)
   iii. **Tertiary Components:** These are also called Carnivores which feed both Primary and secondary consumers.
      Ex: Peacock, they feed both rats (Primary Consumer) , Snakes (Secondary Consumer)
c. **Reducers:** These includes are also called saprotrophs, feed on dead and decaying organic matter. They breakdown complex organic compounds, absorb some of the products and release remaining nutrients in the environment. These include microorganisms such as bacteria and fungi.

4. **What is Food Chain?**
   Ans. A food chain describes how energy and nutrients move through an ecosystem.
   At the basic level there are plants that produce the energy, then it moves up to higher-level organisms like herbivores. After that when carnivores eat the herbivores, energy is transferred from one to the other.

5. **What are parts of Food chain?**
Ans. Food Chain is made up of certain levels, each level is termed as tropic level.
   a. First Tropic Level: The plants are producers and synthesize food for other organisms.
   b. Second Tropic Level: It is occupied by the herbivores.
   c. Third Tropic Level: The primary carnivores feeding upon herbivores from the third tropic level.



   d. Fourth Tropic Level: The bigger carnivores which eat upon small carnivorous.

6. **What is Food Web?**
Ans. A food web is similar to a food chain but larger. The diagram combines many food chains into energy relationships among organisms.
Food webs show how plants and animals are connected in many ways. The arrow points from the organism being eaten to the organism that eats it.
A food web (or food cycle) is a natural interconnection of food chains. The two extreme categories (trophic levels) are:
   a. The autotrophs, and
   b. The heterotrophs.

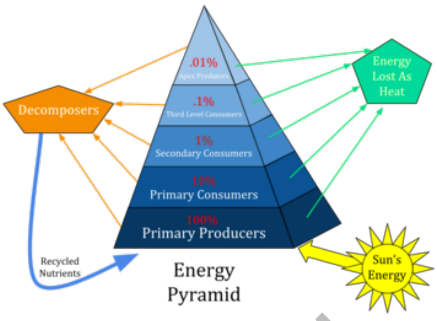
7. **Write the Difference between Food Wave and Food Chain?**
Ans.

Food Chain	Food Web
1. It is a straight single pathway through which food energy travels in the ecosystems.	1. It consists of number of interconnected food chain through which food energy passes in the ecosystems.
2. Members of higher trophic level feed upon a single type of organisms of lower trophic level.	2. Members of higher trophic level can feed upon a number of alternative organisms of the lower trophic level.
3. Presence of separate or isolated food chains adds to the instability of the ecosystem.	3. Presence of food webs increases the stability of the ecosystem.
4. It does not add to adaptability and competitiveness of the organisms.	4. Food webs increase adaptability and competitiveness of the organisms.

8. **What is Ecological Pyramid?**
Ans. An ecological pyramid is a graphical representation designed to show the biomass or bio productivity at each trophic level in a given ecosystem.

9. **What are the functions of Ecological Pyramid?**
Ans. An ecological pyramid not only shows us the feeding patterns of organisms in different ecosystems, but can also give us an insight into how inefficient energy transfer is, and show the influence that a change in numbers at one trophic level can have on the trophic levels above and below it.

10. **How Ecological Pyramid was formed?**
Ans. The pyramid can be formed based on the number of individuals at different levels, their mass or energy. The ecological pyramid formed based on the numbers called pyramid of numbers. Products are always at the bottom of the pyramid of numbers and are largest in number in most of the ecosystem. The individuals in rest of the trophic levels are arranged in sequence above producers.



11. **What are called Predation?**
Ans. The praying of animals over other animals is called Predation.

12. **What is Symbiosis?**
Ans. In this mode of nutrition the two different organisms of different species live together. These interactions are sometimes beneficial or sometimes harmful.

13. **Define Mutualism.**
Ans. The interaction in which both organisms are beneficial is called Mutualism.
Ex: Lichen, where Alga and Fungus are living together. Alga is an autotroph. It manufactures food and supplies it to the fungi.
On the other hand, fungi are a saprophyte, which provides water, minerals and shelter to the alga.

14. **Define Parasitism.**
Ans. Parasitism, relationship between two species of plants or animals in which one benefits at the expense of the other, sometimes without killing the host organism.
Ex: Most common use of Parasitic Plant is Cuscuta or Dobber Plant or Amarbal.
It has yellow, thread like stems to climb over the stems and branches of other plants.
The parasitic roots, called haustoria pierce the host's body for drawing nutrition.

15. **What are the Abiotic Components of Ecosystem?**
Ans. The Abiotic components of Eco system are:
Sunlight
Temperature
Wind etc.

16. **What are the roles of Sunlight in ecosystem?**
Ans. Sun is the primary source of energy.
- Plants require light for photosynthesis without which life is impossible.
- Light determines the growth, development and distribution of plants.
- Light also affects growth, color behavior and reproduction of animals.

17. **What is the role of Temperature in Ecosystem?**
Ans. Temperature is an important abiotic factor which influences the distribution, activity, growth, reproduction and behavior of organisms.
It affects the germination of seeds, flowering and shedding of leaves.
Temperature also affects the activity and distribution of animals.
Most organisms cannot adopt themselves to extreme temperature. They undergo reduced activity in winters and in summers.

18. **What is the role of air in atmosphere?**
    Ans. Air is the mixture of gases that covers the whole earth like a thick blanket called Atmosphere.
    The atmospheric gases affect the life, are essential for the survival of all organisms and play an important role in ecosystem.
    Air maintain temperature of earth by absorbing heat and does not allow to escape the Earth's heat.
    Air also plays a major role in the distribution of rainfall over an area.

19. **What are the roles of water in the atmosphere?**
    Ans. Water is an important and essential component of the environment.
    All organisms contain large amount of water and thus, require it for survival.
    All metabolic activities of organisms such as digestion, respiration, circulation and exertion cannot take place in absence of water.
    Water is very essential for plant growth and digestion.
    Water also acts as a habitat for water living plants and animals, like fish, water lili etc.

20. **What are the roles of Soil in the atmosphere?**
    Ans. Soil is an abiotic component of an ecosystem. It is the uppermost layer of the earth crust. It is directly indirectly essential for all organisms
    a. Soil is the main source of nutrients and water for the plants.
    b. Soil binds the plants roots, and provides as medium for the growth of plant.
    c. It also inhabits diverse organisms, such as microbes, insects etc.
    d. Removal of top soil, soil erosion is the main cause of decrease in rainfall and other ill effects affecting the environment.

21. **Derive the Biotic Components of Forest Ecosystem.**
    Ans. The various biotic components present in the forest ecosystem are
    a. **Producers:** All the tall green trees and grasses, bushes.
    b. **Herbivorous or Primary Consumers:** Insects (Grasshopper, Butterfly etc.), Deer, Parrots etc.
    c. **Carnivorous or Secondary Consumers:** Foxes, Wolves, Jackals, Snakes etc.
    d. **Tertiary Consumers:** Lions, Tiger, Eagles etc.