

# Ecology Job Interview Questions And Answers



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## Ecology Interview Questions And Answers Guide.

### Question - 1:

What is global warming?

#### Ans:

Global warming is the increase in the temperature of the planet due to accumulation of some gases in the atmosphere, especially gases that retain the solar energy reflected by the planet surface. The main gas that causes the global warming is carbon dioxide, CO<sub>2</sub>, but other gases act as "warming gases" too, like methane, CH<sub>4</sub>, and nitrous oxide, N<sub>2</sub>O. The exaggerated increase of carbon dioxide in the atmosphere has been caused by the burning of fossil fuels (mainly oil and coal) in industrial and urban societies and by forest fires. (It is important to note that the natural warming provided by gases of the atmosphere is fundamental for the maintenance of the planet temperature.)

Predictions of studies sponsored by the United Nations stated that the global warming might cause in the near future life-threatening transformations in the planet. Countries that are the biggest emitters of carbon dioxide, like the United States and China, however, systematically ignore the warnings and continue, largely contribute to the danger.

Global warming is one of the most polemic environmental issues today.

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### Question - 2:

What is bioremediation?

#### Ans:

Bioremediation is the use of microorganisms, like bacteria, protists and fungi, to degrade noxious substances turning them into non toxic or less toxic substances. Bioremediation employs microorganisms whose metabolism uses contaminants as reagents.

Bioremediation is used, for example, in the decontamination of environments polluted by oil spill. In this process, bacteria that use hydrocarbons as substrate for their cellular respiration are employed.

Environmental Issues: bioremediation

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### Question - 3:

What is biologic control?

#### Ans:

Biological control is a natural method to control the size of animal, microorganism or plant populations. Biological control is based on the knowledge of inharmonious (negative) ecological interactions between species. Using such knowledge a parasite, competitor or predator species is introduced in an ecosystem in order to attain reduction of the population of another species with which it has inharmonious ecological interaction. The biological control presents the advantage of substituting the use of pesticides and other toxic chemical products in the control of plagues and diseases. It however should be employed with caution under serious previous study to avoid harmful ecological disequilibrium.

A kind of biological control of some species can be done by the introduction of previously sterilized males that do not generate offspring.

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### Question - 4:

Why transgenics are considered a threat to the environmental safety?

#### Ans:

Transgenic can be dangerous to the entire biosphere since the transfer of genes between species may have immediate and long-term unpredictable consequences. The creation of new species by nature is a slow process, dependent on causal mutations and natural selection, a relatively safe process for the ecological equilibrium. It is impossible to know how the fast and artificial introduction of transgenic beings in nature affects ecosystems. Pathogenic agents may be involuntarily created in laboratories, spreading unknown diseases; transgenic species may uncontrollably proliferate destroying ecological interactions that have taken thousands of years to be established; the ingestion of transgenic food also has unpredictable effects.

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### Question - 5:

What is transgenic food?

#### Ans:

Transgenic beings are animals, microorganisms and plants that contain recombinant DNA, i.e., genes from other plants, microorganisms or animals artificially



inserted into their genetic material. Transgenic beings are made for scientific and economic purposes, in this last case with the intention of improving their commercial features. For example, bacteria that produce human insulin are transgenic beings made by biotechnology. The main targets of the transgenic technology are the eatable vegetables, like soy, corn, potato, and tomato.

Environmental Issues: transgenic beings

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### Question - 6:

What is plutonium reprocessing? Why is it a big environmental issue?

#### Ans:

Plutonium is the highly radioactive chemical element produced from uranium by nuclear plants. Plutonium can be reprocessed and used again in nuclear plants or in other destinations, like the making of nuclear bombs. Plutonium reprocessing nowadays, however, is done only in some countries like France, Russia and Britain and the countries that have nuclear plants, like Japan, Australia, etc., send their atomic waste by ship to those plutonium reprocessing centers. Besides the inherent risks of the storage of nuclear waste, plutonium reprocessing brings the risks of the transport of radioactive material across the oceans. The "nuclear ships" often travel near the coast of many countries posing danger to their populations.

Environmental Issues: plutonium reprocessing

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### Question - 7:

What is nuclear pollution?

#### Ans:

Nuclear pollution consists in radiations emanated from atomic nuclei, these radiations are high injurious for the living beings. They can be originated from the extraction of radioactive minerals, nuclear plant reactors, nuclear research centers, hospitals, and medical centers that use radioisotopes, nuclear bomb explosions, or accidents with transportation, handling, or storage of nuclear material. Nuclear materials remain dangerous for many years, contaminating the environment with radiation that can cause cancer, immune impairment, congenital deficiencies, burns, and even death. The damage is proportional to the intensity of the exposition to the radiation.

Its persistent feature and high aggression power make nuclear pollution one of the major environmental problems of our time.

[View All Answers](#)

### Question - 8:

What are the main chemical compounds that destroy the ozone layer?

#### Ans:

The mains chemical compounds that destroy the ozone layer are the CFCs, chlorofluorocarbons, or freons, substances used in the past in refrigerators, airconditioners and spray cans.

Chlorofluorocarbons react with ozone in the high atmosphere releasing molecular oxygen and therefore the amount of ozone in the atmosphere is reduced.

Other substance that destroys the ozone layer is methyl bromide, used in agricultural insecticides.

[View All Answers](#)

### Question - 9:

What is the role of the ozone layer for the living beings?

#### Ans:

Ozone, O<sub>3</sub>, is a gas of the atmosphere that filters ultraviolet radiation from the sun disallowing most of that radiation of reaching the surface of the planet. Ultraviolet radiation is harmful for living beings because it is a mutagen and can cause cancer (mainly skin cancer), other DNA mutations, and even burns.

Environmental Issues: ozone layer

[View All Answers](#)

### Question - 10:

Why does thermal inversion increases air pollution? Which harms can thermal inversion cause to humans?

#### Ans:

Thermal inversion confines at low altitude, layer of pollutants that would have been dispersed by the natural upward move of warm air. The solid particles present in the atmosphere cause health problems, like the exacerbation of asthma and other pulmonary diseases, cough, respiratory unease and ocular discharges; later the pollution can also trigger the appearing of cardiovascular and neoplastic diseases.

[View All Answers](#)

### Question - 11:

Does thermal inversion occur in the winter or in the summer?

#### Ans:

Pollutant low altitude thermal inversion occurs in the winter. In this period of the year, the sun heats the soil less and the natural upward move of warm air decreases. Therefore, the pollutants form a low altitude layer between the cold air layer near the ground and another layer of warmer air above. The pollutant layer over industrial areas or big urban concentrations reduces the penetration of the sun energy and the air bellow takes an even longer time to warm.

Environmental Issues: thermal inversion

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### Question - 12:

Is the upward move of the warm air good or bad for the dispersion of pollutants?

#### Ans:

The upward move of warm air is a natural method of dispersion of pollutants. The air near the ground is hotter because the sun heats the soil and the soil heats the air



nearby. Since it is less dense, the warm air tends to move towards higher and colder strata of the atmosphere. Such movement helps the dispersion of pollutants.

[View All Answers](#)

### Question - 13:

What are persistent organic pollutants (POPs)?

#### Ans:

POPs, or persistent organic pollutants, are toxic substances formed from organic compounds. POPs are made in several industrial processes, like the production of PVC, paper whitened by chlorine, herbicides, insecticides and fungicides, and in the incineration of waste. Examples of POPs are dioxins, furanes, chlordane, DDT, dieldrin, heptachloride, toxaphen and hexachlorbenzene.

POPs are toxic and highly harmful since, likewise the heavy metals, they are bioaccumulative, i.e., they are not degraded by the body and accumulate even more in each following trophic level of the food chains. In humans, POPs can cause cancer and nervous, immune, and reproductive impairments.

Environmental Issues: persistent organic pollutants

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### Question - 14:

Besides mercury which other heavy metals cause toxic pollution?

#### Ans:

Examples of other heavy metals that cause toxic pollution are lead, cadmium, and chromium.

[View All Answers](#)

### Question - 15:

What are the environmental harms caused by mercury pollution? What are the main sources of mercury pollution?

#### Ans:

Mercury is a metal that when present in the water of rivers, lakes, and seas contaminates fishes, crustaceans, molluscs and other living beings. The mercury accumulates along the food chain and in each following trophic level; the amount of the metal within the individuals is higher. When humans eat contaminated animals they also became contaminated and severe nervous system injuries may come out. The main sources of mercury pollution are gold mining and the use of derived substances in industry and agriculture.

Environmental Issues: mercury pollution

[View All Answers](#)

### Question - 16:

What is a biodigester?

#### Ans:

Biodigester is equipment that produces carbon dioxide, hydrogen sulfide, and fuel gases (biogases) like methane from organic material under decomposition (dung, food waste, sugar cane waste, etc.). The biogas is used in heating, as energy for motors and machines and it has even industrial uses. Biodigesters are widely used in public waste depositories and in rural areas. Besides producing biogas the organic waste can be turned into good quality fertilizer.

Environmental Issues: biodigester

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### Question - 17:

What is eutrophication?

#### Ans:

Eutrophication is the process of excessive increasing of nutrients, like phosphate and nitrate, in water due to direct deposition of non-treated sewage. The nutrients act as fertilizers leading to abnormal proliferation of aquatic algae. With the exaggerated growth of the alga population, the number of aerobic bacteria that make decomposition of organic material also increases. The proliferation of these bacteria depletes the dissolved oxygen killing fishes and other animals. Besides, the lack of oxygen causes the decomposition to be assumed by anaerobic bacteria. Anaerobes multiply and release hydrogen sulfide that makes water improper to other living beings and with a putrid smell.

Environmental Issues: eutrophication

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### Question - 18:

What is the cost-benefit relation regarding sewage treatment as a strategy to fight water pollution?

#### Ans:

To treat sewage is much cheaper for society. The non-treated sewage pollutes rivers, lakes and the sea, being a cause of diseases transmitted through water. For the society, the costs of these diseases are much higher than the cost of the sewage treatment.

One of the most economical systems to treat sewage is the aerobic treatment system, reservoirs kept much oxygenated for aerobic bacteria to decompose organic material.

Environmental Issues: sewage treatment

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### Question - 19:

What is selective waste collection?

#### Ans:

Recyclable waste is the waste that can be reprocessed and used again. Waste recycling depends on the separation of the recyclable residuals from non-recyclable ones and on the classification of the recyclable into plastics, metals, papers, etc. The function of the selective waste collection is to ease that separation for the waste to be sorted in the point of origin. Selective collection also helps the creation of environmental conscience in the people that produce the waste.



Environmental Issues: selective waste collection

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**Question - 20:**

What are the main types of waste?

**Ans:**

The waste can be classified into many types or fractions, each of them carrying its own different environmental problem: organic waste, recyclable waste, non-recyclable waste, toxic waste, nuclear toxic waste, and space waste.

The organic waste is easier resorbed by nature, but the speed and the geographical concentration of its production due to urbanization generate pollution of rivers, lakes, proliferation of disease vectors and environmental degradation of towns. The recyclable waste is composed of residuals that can be reprocessed, used again by humans, like plastics and metals. The problem regarding recyclable waste is that the separation of such material is not culturally diffused and there is not enough social organization to use them; so the recyclable waste is mixed to other wastes increasing even more the volume of waste depositories. The non-recyclable waste is formed of residuals that the technology cannot yet recycle, like ceramics, photographic paper, mirrors, cigarettes, plasticized papers, etc; this kind of waste in the future may become recyclable waste and should be separated.

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**Question - 21:**

Why waste is considered one of the major environmental issues?

**Ans:**

The environmental problem concerning waste worsens with the industrial development and the global growth of consumption societies in the XX and XXI centuries, factors that cause the immense volume of residuals produced by humankind in the last decades. The increased waste generation raises the issue about what to do with waste since nature is not able to degrade and resorb with adequate speed and efficiency most part of the residuals. Therefore, the several kinds of waste accumulate, polluting the environment and creating danger to humans and nature.

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**Question - 22:**

Is pollution always caused by humans?

**Ans:**

In most cases, pollution is caused by the human activity. Other species and some abiotic factors however can also pollute an ecosystem. For example, the red tide is created by proliferation of some algae and the volcano dust is a consequence of the internal activity of the planet.

[View All Answers](#)

**Question - 23:**

What is pollution?

**Ans:**

Pollution is the contamination of an ecosystem by factors that are harmful for the equilibrium of its biotic or abiotic constituents.  
Environmental Issues: pollution

[View All Answers](#)

**Question - 24:**

What is the typical conformation of the age pyramids of underdeveloped countries?

**Ans:**

The age pyramids of peripheral countries or underdeveloped countries have characteristics related to the poverty of such populations, with wider base and narrow apex. The base age range is much wider than the other levels showing high birth rate. The levels just above the base may present impressive reduction in poorer populations due to infant mortality. Ranges that represent the youth are also wide showing future pressure on job and habitation needs. The widths of the rectangles diminish as age increases to the apex that represents the elderly, demonstrating difficult life conditions, precarious health services, and low life expectancy.

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**Question - 25:**

What are the main characteristics of the age pyramids of developed countries?

**Ans:**

In a stabilized human population, the age pyramid has narrower base since the reproduction rate is not so high. The adult age ranges are generally wider than the infantile ranges showing that in practice there is no population growth. There is a proportionally high number of old individuals meaning that the life quality is elevated and the population has access to health services and good nutrition. These are features of the age pyramids of developed countries.

Population Ecology - Image Diversity: france age pyramid

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**Question - 26:**

What are the analyses provided by the study of human age pyramids?

**Ans:**

The study of human age pyramids can provide the following analysis:

Proportion of individuals in economically active age,

Proportion of elderly (indicating the quality of the pension and health systems), proportion of children and youth (indicates need for job generation and educational services), reproductive profile (shows the population growth tendency), and postnatal survival rate (indicates quality of the health system, hygiene conditions, nutrition, and poverty), longevity profile etc...

It is possible to suppose whether a population belongs to a rich and industrialized society or to a poor country since the patterns of the age pyramids differ according



to these conditions.

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### Question - 27:

What are age pyramids?

#### Ans:

Age pyramids are graphical representations in form of superposed rectangles each representing the number of individuals included in age ranges into which a population is divided. Generally, the lower age ranges are represented more to the bottom of the pyramid, always below higher ranges, and the variable dimension that represents the number of individuals is the width (there are age pyramids however, in which the variable dimension is the height).

Population Ecology - Image Diversity: age pyramids

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### Question - 28:

How different is the growth according to the biotic potential of a viral population from the growth according to the biotic potential of a bacterial population?

#### Ans:

The growth curve according to the biotic potential of virus and bacteria both present positive exponential pattern. The difference between them is that in each time period bacteria double their population while the viral population multiplies dozen or hundred times. The viral population growth curve thus has more intense growth. This happens because bacteria reproduce by binary division, each cell generating two daughter cells, while each virus replicate generating dozens or even hundreds of new virus.

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### Question - 29:

What is the relation between environmental resistance and the population growth according to the biotic potential curve and the real population growth curve?

#### Ans:

The difference between the real population growth curve (number of individuals x time) and the population growth according to the biotic potential curve of a given population is a result of the environmental resistance.

[View All Answers](#)

### Question - 30:

How do populations of predators and preys vary in predatism?

#### Ans:

Whenever a predator population increases at the first moment, the prey population tends to decrease. At a second moment, the decrease of the prey population and the bigger population density of predators make the predator population to decrease. The prey population then revert the tendency to decrease and begins to grow.

If variations in the size of the populations occur in an unexpected intensity, for example, due to ecological accidents killing many preys, the prey-predator equilibrium is disturbed and both species can be harmed. The existence of the predator sometimes is fundamental for the survival of the prey population, since the absence of predatism favors the proliferation of the preys and, in some cases, when the excessive proliferation creates a population size over the sustenance capacity of the ecosystem, environmental degradation occurs and the entire prey population is destroyed.

Population Ecology - Image Diversity: predator x prey curve

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### Question - 31:

How do the availability of water and light and the climate affect the growth of a population?

#### Ans:

The availability of water and light and the climate are abiotic factors that limit the growth of a population. Since the producers are the responsible for the synthesis of organic material transferred along the food chains of an ecosystem, water and light affect the availability of food and a population cannot grow beyond the number of individuals the environment is able to feed. For example, in the desert, the biomass is relatively small and populations that live in this ecosystem are smaller (comparing to same species in environments with large available biomass). The climate, including the temperature, affects the population growth because excessive change in this factor, as the occurrence of droughts or floods, may cause significant population decline; small climatic changes can also alter the photosynthesis rate and reduce the availability of food in the ecosystem.

[View All Answers](#)

### Question - 32:

What are the main limiting factors for the growth of a population?

#### Ans:

The factors that limit the growth of a population can be divided into biotic factors and abiotic factors. The main abiotic limiting factors are availability of water and light, availability of shelter. The main limiting biotic factors are population density and inharmonious (negative) ecological interactions (competition, predatism, parasitism, ammensalism).

[View All Answers](#)

### Question - 33:

What is environmental resistance?

#### Ans:

Environmental resistance is the action of limiting abiotic and biotic factors that disallow the growth of a population, as it would grow according to its biotic potential. Actually, each ecosystem is able to sustain a limited number of individuals of a given species.

The environmental resistance is an important concept of population ecology.

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**Question - 34:**

What is the typical shape of a population growth curve? How the biotic potential can be represented in the same graphic?

**Ans:**

A typical population growth curve (number of individuals x time, linear scale) has sigmoidal shape. There is a short and slow initial growth followed by a fast and longer growth and again a decrease in growth preceding the stabilization or equilibrium stage.

The population growth according to the biotic potential curve however is not sigmoidal, it is only crescent and points up to the infinite of the scale (there is not a decreasing stage in any equilibrium).

Population Ecology - Image Diversity: population growth curve

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**Question - 35:**

What is biotic potential?

**Ans:**

Biotic potential is the capability of growth of a given population under hypothetical optimum conditions, i.e., in an environment without limiting factors to such growth. Under such conditions, the population tends to grow indefinitely.

Population Ecology - Image Diversity: biotic potential curve

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**Question - 36:**

What are some examples of migratory animals?

**Ans:**

Examples of migratory animals are: southern right whales from Antarctica, that procreate in the Brazilian coast; migratory salmon that are born in the river, go to the sea and return to the river to reproduce and die; migratory birds from cold regions that spend the winter in tropical regions; etc.

Population Ecology - Image Diversity: migratory animals

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**Question - 37:**

What are the main factors that affect the growth of a population?

**Ans:**

The main factors that make populations grow are births and immigration. The main factors that make populations decrease are deaths and emigration.

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**Question - 38:**

How different are the concepts of migration, emigration, and immigration

**Ans:**

Migration is the moving of individuals of a species from one place to other. Emigration is the migration seen as exit of individuals from one region (to other where they will settle permanently or temporarily). Immigration is the migration seen as the settling in one region (permanently or temporarily) of individuals coming from other region. Therefore, individuals emigrate "from" and immigrate "to".

[View All Answers](#)

**Question - 39:**

What is population growth rate?

**Ans:**

Population growth rate (PGR) is the percent variation between the numbers of individuals in a population in two different times. Therefore, the population growth rate can be positive or negative.

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**Question - 40:**

What is population density?

**Ans:**

Population density is the relation between the number of individuals of a population and the area or volume they occupy. For example, in 2001 the human population density of the United States (according to the World Bank) was 29,71 inhabitants per square kilometer and China had a population density of 135,41 humans per square kilometer.

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**Question - 41:**

What is a population?

**Ans:**

In Biology population is a set of individuals of the same species living in a given place and in a given time.

Population Ecology - Image Diversity: world human population

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**Question - 42:**

How do biodiversity, the total number of living beings, and the biomass respectively vary during the ecological succession?





**Ans:**

Biodiversity, the number of living beings, and the biomass of an ecosystem tend to increase as the succession progresses and they stabilize when the climax stage is reached.

At the initial stage of the succession the use of carbon dioxide and the fixation of carbon into the biomass are high, since the total number of living beings in the ecosystem is increasing. At the climax stage, the use of carbon dioxide by photosynthesis equals the production by cellular respiration and the fixation of carbon into the biomass tends to zero.

[View All Answers](#)

**Question - 43:**

What is the climax stage of an ecological succession?

**Ans:**

The climax stage is the stage of the ecological succession in which the community of an ecosystem becomes stable and does not undergo significant changes. In the climax community practically all ecological niches are explored and the biodiversity is the greater possible. In this stage the biomass, the photosynthesis rate and the cellular respiration reach their maximum levels and thus the net primary production (NPP = organic material made by the producers - organic material consumed in the cellular respiration of the producers) tends to zero. At the climax, the amount of oxygen released by photosynthesis is practically equal to the oxygen consumed by respiration. (This is one more reason why it is wrong to say that the Amazon Rainforest, an ecosystem at climax stage, is "the lung" of the earth. Other reasons are lungs are not producers of oxygen; the algae and cyanobacteria of the phytoplankton are the main producers of the molecular oxygen of the planet.)

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**Question - 44:**

What is the difference between primary ecological succession and secondary ecological succession?

**Ans:**

Primary ecological succession is the changing sequence of communities from the first biological occupation of a place where previously there were no living beings. For example, the colonization and the following succession of communities are in a bare rock.

Secondary ecological succession is the changing sequence of communities from the substitution of a community by a new one in a given place. For example, the ecological succession from the invasion of plants and animals are in an abandoned crop or land.

[View All Answers](#)

**Question - 45:**

What are pioneer species? What is the role of the pioneer species?

**Ans:**

Pioneer species are those first species that colonize places where previously there were no living beings, like, for example, algae that colonize bare rocks. In general, pioneers species are autotrophs or maintain harmonious ecological interaction with autotrophic beings (like autotrophic bacteria, herbaceous plants, lichens).

The pioneer community is formed of species able to survive under hostile environments. The presence of these species modifies the microenvironment generating changes in abiotic and biotic factors of the ecosystem undergoing formation. Therefore, they open way to other species to establish in the place by the creation of new potential ecological niches.

[View All Answers](#)

**Question - 46:**

What is ecological succession?

**Ans:**

Ecological succession is the changing sequence of communities that live in an ecosystem during a given time period.

Image Diversity: ecological succession

[View All Answers](#)

**Question - 47:**

What is ammensalism?

**Ans:**

Ammensalism is the ecological interaction in which an individual harms other without obtaining benefit. Ammensalism is an inharmonious (negative) ecological interaction since one participant is harmed.

(Sometimes it is wrongly said that ammensalism is a form of ecological interaction in which an organism releases in the environment substances that harm another species; this situation is indeed an example of ammensalisms but the concept is not restricted to it.)

One of the best examples of ammensalism is the one established between humans and other species under extinction due to human actions like habitat devastation by fires, ecological accidents, leisure hunting, etc. Other example is the red tide, proliferation of algae that by intoxication can lead to death of fishes and other animals.

[View All Answers](#)

**Question - 48:**

Is herbivorism a form of predatism?

**Ans:**

Herbivorism is the form of predatism in which first order consumers feed from producers (plants or algae). For example, birds and fruits, humans and eatable vegetable, etc. (There are proposals to consider the herbivorism of leaves a form of parasitism and the herbivorism of entire plants and seeds a form of predatism).

[View All Answers](#)

**Question - 49:**

What is predatism?

**Ans:**



Predatism is the ecological interaction in which one individual mutilates or kills other to get food. Predatism is an inharmonious (negative) ecological interaction since one participant is harmed.

Symbiosis and Other Interactions - Image Diversity: predatism

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### **Question - 50:**

What are some examples of parasitism?

#### **Ans:**

Classical examples are the parasites of humans (host), like the trypanosome that causes Chagas' disease, the HIV virus (AIDS), the bacteria that causes tuberculosis, the schistosome that causes schistosomiasis, the hookworms, etc. Other examples are tree (host) and parasitic helminths (parasite), dog (host) and lice (parasite), cattle (host) and tick (parasite), etc.

[View All Answers](#)

### **Question - 51:**

What is parasitism?

#### **Ans:**

Parasitism is the ecological interaction in which a being lives at the expense of other. The parasite often does not cause immediate death of the host since it needs the host alive to survive.

Parasitism is an inharmonious (negative) interspecific ecological interaction, since although one participant benefit the other is harmed.

Symbiosis and Other Interactions - Image Diversity: parasitism

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### **Question - 52:**

What are some examples of interspecific competition?

#### **Ans:**

Examples of interspecific competition are the dispute among vultures, worms, flies, and microorganisms for carrions and the competition between snakes and eagles for rodents.

Symbiosis and Other Interactions - Image Diversity: interspecific competition

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### **Question - 53:**

What benefits can commensalism offer to a species?

#### **Ans:**

Commensalism may involve obtention of food (for example, the innocuous bacteria of the human guts), shelter or support (epiphytes on trees) and transportation (pollen carried by insects or birds). The commensalism that involves obtention of shelter is also called inquilinism.

[View All Answers](#)

### **Question - 54:**

What is commensalism?

#### **Ans:**

Commensalism is the ecological interaction in which one individual benefit while the other is not benefited neither harmed. Commensalism is a harmonious (positive) ecological interaction, since none of the participants is harmed. Example of commensalism are the numerous bacteria that live in the skin and in the digestive tube of humans without being pathogenic neither beneficial. They are innocuous bacteria living in commensalism with humans.

Symbiosis and Other Interactions - Image Diversity: commensalism

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### **Question - 55:**

What is mutualism?

#### **Ans:**

Mutualism is the ecological interaction in which both participants benefit and that is obligatory for their survival. Mutualism is a harmonious (positive) ecological interaction. Mutualism is also known as symbiosis. Examples of mutualism are: the association between microorganisms that digest cellulose and the ruminants or insects within which they live; the lichens, formed by algae or cyanobacteria that make organic material for the fungi and absorb water with their help; nitrifying bacteria of the genus *Rhizobium* that associated to leguminous offer nitrogen to these plants.

Symbiosis and Other Interactions - Image Diversity: mutualism

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### **Question - 56:**

What is proto cooperation?

#### **Ans:**

Proto cooperation is the ecological interaction in which both participants benefit and that is not obligatory for their survival. Proto cooperation is a harmonious (positive) interspecific ecological interaction. Examples of proto cooperation are: the action of the spur-winged plover that using its beak eats residuals from crocodile teeth; the removal of ectoparasites from the back of bovines by some birds that eat the parasites; the hermit crab that live inside shells over which sea anemones live (these offer protection to the crab and gain mobility to obtain food).

Symbiosis and Other Interactions - Image Diversity: proto cooperation

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**Question - 57:**

What are the main interspecific ecological interactions?

**Ans:**

The main harmonious interspecific ecological interactions are protocooperation, mutualism and commensalism. The main inharmonious interspecific ecological interactions are interspecific competition, parasitism, predatism and ammensalism.

[View All Answers](#)

**Question - 58:**

Why is cannibalism an inharmonious intraspecific ecological interaction?

**Ans:**

In cannibalism an individual eat other of the same species (occurs in some insects and arachnids). Since it is an interaction between beings of the same species and at least one of them is harmed (the other is benefited) the classification as inharmonious intraspecific ecological interaction is justified.

[View All Answers](#)

**Question - 59:**

What is an example of intraspecific competition?

**Ans:**

Intraspecific competition practically occurs in all species, for example, the competition of humans for a job.

[View All Answers](#)

**Question - 60:**

What is competition? Which type of ecological interaction is competition?

**Ans:**

Competition is the ecological interaction in which the individuals explore the same ecological niche or their ecological niches partially coincide and therefore competition for the same environmental resources takes place.

Competition is harmful for all participating beings and thus it is classified as an inharmonious (negative) ecological interaction.

Symbiosis and Other Interactions - Image Diversity: cannibalism

intraspecific competition

[View All Answers](#)

**Question - 61:**

What are colonies and societies?

**Ans:**

Colonies are functional integrated aggregates formed by individuals of the same species. Colonies are often confounded with a single individual. Examples are the coral reefs, by-the-wind sailors, and filamentous algae.

Societies are interactions for labor division and collaboration among individuals of the same species. Human societies are examples of ecological societies; other species, like bees, ants, termites, wolves and dolphins form societies.

[View All Answers](#)

**Question - 62:**

What are the main intraspecific ecological interactions?

**Ans:**

The main harmonious intraspecific ecological interactions are colonies and societies. The main inharmonious intraspecific ecological interactions are intraspecific competition and cannibalism.

Symbiosis and Other Interactions - Image Diversity: colonies animal societies

[View All Answers](#)

**Question - 63:**

What is harmonious ecological interaction?

**Ans:**

Harmonious, or positive, ecological interaction is that in which none of the participating beings is harmed.

[View All Answers](#)

**Question - 64:**

What are intraspecific and interspecific ecological interactions?

**Ans:**

Intraspecific ecological interactions are those between individuals of the same species. Interspecific ecological interactions are ecological interactions between individuals of different species.

[View All Answers](#)

**Question - 65:**

How are ecological interactions classified?



**Ans:**

Ecological interactions are classified as intraspecific or interspecific interactions and as harmonious or inharmonious interactions.

[View All Answers](#)

**Question - 66:**

What is inharmonious ecological interaction?

**Ans:**

Inharmonious, or negative, ecological interaction is that in which at least one of the participating beings is harmed.

[View All Answers](#)

**Question - 67:**

What are the main causes of the loss of the biological diversity nowadays?

**Ans:**

The biggest dangers to the biological diversity today are fruits of the human action. The main of them is the destruction of habitats caused by the growth of the cities, deforestation, pollution, and fires. The second is the invasion of ecosystems by nonnative species introduced by humans; these species change the equilibrium of ecosystems causing harm. Other big dangers are the predatory hunting and fishing and the global warming.

[View All Answers](#)

**Question - 68:**

What are some economic applications that can be generated by very biodiverse ecosystems?

**Ans:**

Very biodiverse areas present enormous economic potential. They can be source of raw material for the research and production of medicines, cosmetics, chemical products, and food. They are depository of genetic wealth that can be explored by biotechnology. They are source of species for agriculture. They can also be explored by the ecological tourism.

[View All Answers](#)

**Question - 69:**

Is monoculture a system that contributes to great biological diversity of an ecosystem?

**Ans:**

Monoculture means that in a large area a single crop (only one species of plant) is cultivated. Therefore, monoculture does not contribute to the formation of a community with great variety of species in the area. Since there is only a single type of producer the types of consumers that can live in the area are also restricted.

[View All Answers](#)

**Question - 70:**

How can a great biological diversity protect an ecosystem from environmental damages? Why are less biodiverse ecosystems under the risk of suffering deep biological harms if submitted to even small changes?

**Ans:**

In ecosystems with more biodiversity, the food webs and ecological interactions among living beings are more complex and diverse. In these ecosystems, environmental changes can easier be compensated by the multiplicity of available resources, foods, and survival options.

In ecosystems with less biodiversity, the individuals are more dependent on some beings that serve them as food and they interact with a small number of different species. In these ecosystems, generally, abiotic factors are restrictive and the species are more specialized to such conditions and more sensitive to environmental changes. Even small environmental harms can cause big disturbances in the equilibrium of the ecosystem.

[View All Answers](#)

**Question - 71:**

Despite having a great biodiversity why, is the Amazon Rainforest under risk of desertification?

**Ans:**

The natural soil of the Amazon Rainforest is not too fertile but it is enriched by the vegetal covering made of leaves and branches that fall from the trees. Deforestation reduces this enrichment. In deforestation zones, the rain falls directly on the ground causing erosion, "washing" large areas (leaching) and contributing to make the soil even less fertile. Besides that, the deforestation disallows the recycling of essential nutrients for plants, like nitrogen. In this manner, those regions and their neighboring regions undergo desertification.

Image Diversity: Amazon Rainforest

[View All Answers](#)

**Question - 72:**

How does the vegetal stratification of an ecosystem influence the biological diversity?

**Ans:**

The vegetal stratification of an ecosystem, like the strata of the Amazon Rainforest, creates vertical layers with peculiar abiotic and biotic factors, dividing the ecosystem into several different environments. Therefore, in the superior layer near the crowns of big trees, the exposition to light, rain, and wind is greater but moisture is lower comparing to the inferior layers. As one goes down the strata, the penetration of light diminishes and moisture increases. Regarding the biotic factors, communities of each stratum present composition, features, food habits, and reproduction strategies, etc., also different. Such variations in the abiotic and biotic factors make the selective pressure upon the living beings also diversified, there are more ecological niches to be explored and more varied beings emerge during the evolutionary process.

[View All Answers](#)

**Question - 73:**

How does biological diversity relate to the characteristics of the abiotic factors of an ecosystem?

**Ans:**

The availability of abiotic factors, like light, moisture, mineral salts, heat and carbon dioxide, conditions more or less biodiversity of an ecosystem. Photosynthesis depends on water and light, and plants need mineral salts, carbon dioxide, and adequate temperature for their cells to work. In environments where these factors are not restrictive, the synthesis of organic material (by photosynthesis) is maximum, plants and algae can reproduce easier, the population of these beings increases, potential ecological niches multiply and new species emerge. The large mass of producers makes viable the appearing of a diversity of consumers of several orders. In environments with restrictive abiotic factors, like deserts, the producers exist in little number and less diversity, a feature that thus extends to consumers and conditions fewer ecological niches to be explored.

[View All Answers](#)

**Question - 74:**

What is biodiversity?

**Ans:**

Biological diversity is the variety of species of living beings of an ecosystem. In ecosystems, more biodiverse, like tropical forests, a great variety of plants, microorganisms, and animals live; in ecosystems less biodiverse, like deserts, there are less variety of living beings.

Image Diversity: variety of life on Earth

[View All Answers](#)

**Question - 75:**

Why is leguminous crop rotation used in agriculture?

**Ans:**

Leguminous crop rotation and other crop rotations are used in agriculture because in these plants many bacteria important for the nitrogen cycle live. The leguminous crop rotation (or conjointly with the main crop) helps the soil to become rich in nitrates that then are absorbed by the plants.

Green manure, the covering of the soil with grass and leguminous, is a way to improve the fixation of nitrogen and it is an option to avoid chemical fertilizers.

[View All Answers](#)

**Question - 76:**

What is the nitrogen cycle?

**Ans:**

The nitrogen cycle represents the circulation and recycling of the chemical element nitrogen in nature.

The nitrogen cycle depends on the action of some specialized bacteria. Bacteria of the soil called nitrogen-fixing bacteria present in plant roots absorb molecular nitrogen from the air and liberate nitrogen under the form of ammonia. The decomposition of organic material also produces ammonia. In the soil and roots (mainly of leguminous), a first group of chemosynthetic bacteria called nitrifying bacteria, the nitrosomonas, produces energy consuming ammonia and releasing nitrite (NO<sub>2</sub>). The second group of nitrifying bacteria, the nitrobacteria, uses nitrite in chemosynthesis releasing nitrate (NO<sub>3</sub>). In the form of nitrate, nitrogen is then incorporated by the plants to be used as constituent of proteins and nucleic acids and the element then follows along the food chain. Nitrogen returns to the atmosphere by the action of denitrifying bacteria that use nitrogen-containing compounds from the soil and release nitrogen gas (molecular nitrogen).

Image Diversity: the nitrogen cycle

[View All Answers](#)

**Question - 77:**

Under which form is nitrogen fixed by the living beings.

**Ans:**

Most living beings cannot use molecular nitrogen to obtain nitrogen atoms. Producers fix nitrogen mainly from nitrate (NO<sub>3</sub><sup>-</sup>). Some plants also fix nitrogen from ammonia. Consumers and decomposers acquire nitrogen through digestion of mainly proteins and nucleic acids from the body of other living beings.

[View All Answers](#)

**Question - 78:**

What is the most abundant form under which nitrogen is found in nature?

**Ans:**

The most abundant nitrogen-containing molecule found in nature is molecular nitrogen (N<sub>2</sub>). The air is 80% constituted of molecular nitrogen.

[View All Answers](#)

**Question - 79:**

What are fossil fuels?

**Ans:**

Fossil fuels, like oil, gas, and coal, form when organic material is preserved from the complete action of decomposers, generally buried deep and under pressure during millions of years. Under such conditions, the organic material transforms into hydrocarbon fuels.

Fossil fuels are natural reservoir of carbon. When oxygen is present, these fuels can be burned and carbon dioxide and carbon monoxide are released to the atmosphere.

[View All Answers](#)

**Question - 80:**

How is carbon dioxide made by producers and consumers?

**Ans:**



Carbon dioxide is made by producers and consumers through cellular respiration.

[View All Answers](#)

**Question - 81:**

What is the main biological process that consumes carbon dioxide?

**Ans:**

The main biological process that consumes carbon dioxide is photosynthesis.

[View All Answers](#)

**Question - 82:**

What is the carbon cycle?

**Ans:**

The carbon cycle represents the circulation and recycling of the chemical element carbon in nature because of the action of living beings.

Photosynthetic beings absorb carbon as carbon dioxide available in the atmosphere and the carbon atoms become part of glucose molecules. During the cellular respiration of these beings, part of this organic material is consumed to generate ATP and in this process, carbon dioxide is returned to the atmosphere. Other part is incorporated by the photosynthetic organisms into the molecules that compose their structure. The carbon atoms incorporated into the producers are transferred to the next trophic level and again part is liberated by the cellular respiration of the consumers, part becomes constituent of the consumer body and part is excreted as uric acid or urea (excreted later recycled by decomposer bacteria). Therefore, carbon absorbed by the producers in photosynthesis returns to the atmosphere through cellular respiration along the food chain until the decomposers that also liberate carbon dioxide in their energetic metabolism. Under special conditions in a process, that takes millions of years carbon incorporated into organisms may also constitute fossil fuels stored in deposits under the surface of the planet as fossil fuels burn the carbon atoms return to the atmosphere as carbon dioxide or carbon monoxide. The burning of vegetable fuels, like wood, also returns carbon to the atmosphere.

[View All Answers](#)

**Question - 83:**

Why is the sun the "motor" of the water cycle?

**Ans:**

The sun can be considered the motor of the water cycle because upon its energy the transformation of liquid water into water vapor depends. Therefore, the sun is the energy source that makes water to circulate in nature.

[View All Answers](#)

**Question - 84:**

What is the water cycle?

**Ans:**

The water cycle represents the circulation and recycling of water in nature.

Liquid water on the planet surface is heated by the sun and turns into water vapor that gains the atmosphere. In the atmosphere large volumes of water vapor, form clouds that when cooled precipitate liquid water as rain. Therefore, water comes back to the planet surface and the cycle is completed. As possible steps of the cycle, water may still be stored in subterranean reservoir or under the form of ice in mountains and oceans and it may also be used in the metabolism of living beings, incorporated into the body of the individuals or excreted through urine, feces, and transpiration.

Image Diversity: the water cycle

[View All Answers](#)

**Question - 85:**

What is the respective importance of water, carbon, and nitrogen for the living beings?

**Ans:**

Water is the main solvent of the living beings and it is necessary practically for all biochemical reactions, including as reagent of photosynthesis. Many properties of water are very important for life.

Carbon is the main chemical element of organic molecules; carbon dioxide is also reagent of photosynthesis and product of the energetic metabolism of the living beings.

Nitrogen is a fundamental chemical element of amino acids, the building blocks of proteins that in their turn are the main functional molecules of the living beings; nitrogen is also part of the nucleic acid molecules, the basis of reproduction, heredity, and protein synthesis.

[View All Answers](#)

**Question - 86:**

What are biogeochemical cycles?

**Ans:**

Biogeochemical cycles are representations of the circulation and recycling of matter in nature.

The main biogeochemical cycles studied in Ecology are the water cycle, the carbon cycle, and the nitrogen cycle.

[View All Answers](#)

**Question - 87:**

What is the formula of the net primary production (NPP)? How does NPP relate to the energy pyramids?

**Ans:**

Net primary production is the gross primary productivity less the organic material consumed as energy source in the metabolism of the producers:  $NPP = GPP -$  (organic material spent in aerobic respiration). It represents the organic material available in the first trophic level. </FONT >

The base of the energy pyramids must represent the NPP and not the GPP since the idea of these pyramids is to show the available energy in each trophic level of the food chain.



[View All Answers](#)

**Question - 88:**

What are the destinations of the organic material fabricated by the producers?

**Ans:**

Part of the organic material synthesized by the producers is consumed as energy source for the metabolism of the own producer individual. Other part is incorporated (into the body) and become available to heterotrophic beings of the ecosystem. In each following tropic level part of the organic material is used in the metabolism of the individuals of the level, other part is eliminated as waste and only a fraction is incorporated and become available as food for the following level.

[View All Answers](#)

**Question - 89:**

What are the factors that for influencing photosynthesis also interfere with the gross primary productivity?

**Ans:**

Mainly water and light, but also mineral salts, temperature, and carbon dioxide are factors that interfere with the gross primary productivity.

[View All Answers](#)

**Question - 90:**

What is the gross primary production of an ecosystem? How does GPP relate to photosynthesis?

**Ans:**

Gross primary production of an ecosystem, or GPP, is the quantity of organic material found in a given area in a given period. Since only autotrophs produce organic material and photosynthesis is the main production process, GPP is a result of the photosynthesis.

[View All Answers](#)

**Question - 91:**

Can the amount of available energy in a given tropic level to be larger than the available energy in inferior tropic levels? What does that condition means to the conformation of the energy pyramids?

**Ans:**

A superior tropic level always has less available energy than inferior tropic levels. This is because in each tropic level only a fraction of the organic material of the level below is incorporated into the consumers (into their bodies), the other part is eliminated as waste or is used in the metabolism as energy source. Therefore it is never possible to have energy pyramids with inverted conformation, i.e., with the tip to the bottom and the base to the top. It is also not possible to have superior tropic levels with variable dimension larger than inferior ones. In every energy pyramid, from the base to the top, the size of the variable dimension decreases.

[View All Answers](#)

**Question - 92:**

Into which type of energy is the light used in photosynthesis transformed.

**Ans:**

The luminous energy used in photosynthesis is transformed into chemical energy.

[View All Answers](#)

**Question - 93:**

What do energy pyramids represent?

**Ans:**

Energy pyramids represent the amount of available energy in each tropic level of the food chain.  
Image Diversity: energy pyramids

[View All Answers](#)

**Question - 94:**

What is dry mass?

**Ans:**

When biomasses are compared often, the concept of dry mass is used. The dry mass is the total mass less the water mass of an individual. The total mass is also called fresh mass. To use dry mass instead of fresh mass is utile because among living beings, there are differences related to the proportion of water within their body and such differences can distort the quantitative analysis of incorporated organic material.

[View All Answers](#)

**Question - 95:**

What do biomass pyramids represent?

**Ans:**

Biomass pyramids represent the sum of the masses of the individuals that participate in each tropic level of a food chain.  
Image Diversity: biomass pyramids

[View All Answers](#)

**Question - 96:**

In the short range what will happen to the levels above and below a population of secondary consumers of a numeric pyramid if a large number of individuals from





this population dies?

**Ans:**

If an intermediate level of a numeric pyramid has its variable dimension decreased, i.e., if the number of individuals of such level is reduced, the number of individuals of the level below will increase and the number of individuals of the level above will be reduced. That happens because the individuals of the level below will face less predators and the individuals of the level above will have less available food.

[View All Answers](#)

**Question - 97:**

In a numeric pyramid, is it possible the base to be smaller than the other levels?

**Ans:**

Since the numeric pyramid represents the quantity of individuals in each trophic level of the food chain, inferior trophic levels with fewer individuals than the superior trophic levels may exist. For example, a single tree can serve as food to millions of insects.

[View All Answers](#)

**Question - 98:**

In a numeric pyramid to which trophic level does the base always refer?

**Ans:**

In a numeric pyramid the base corresponds to the first trophic level, i.e., to the producers. The top level of the pyramid corresponds generally to the last consumer order of the food chain (since the number of individual decomposers, most of them microorganisms, is too large to be represented).

Image Diversity: decomposers

[View All Answers](#)

**Question - 99:**

What do numeric pyramids represent?

**Ans:**

Numeric pyramids represent the number of individuals in each trophic level of a food chain.

Image Diversity: numeric pyramids

[View All Answers](#)

**Question - 100:**

What are the three main types of trophic pyramids studied in Ecology?

**Ans:**

The three types of trophic pyramids studied in Ecology are the numeric pyramid, the biomass pyramid, and the energy pyramid.

Generally, the variable dimension of the pyramid is the width and the height is always the same for each represented strata of living beings. The width therefore represents the number of individuals, or the total mass of these individuals or the available energy in each trophic level.

Image Diversity: trophic pyramids

[View All Answers](#)

**Question - 101:**

What is the difference between the concepts of food chain and food web?

**Ans:**

The chain concept is a theoretical model to study the energy flux in ecosystems. Actually, in an ecosystem the organisms are part of several interconnected food chains, forming a food web. Therefore, the chain is a theoretical linear sequence and the web is a more realistic representation of nature in which the food chains interconnect forming a web.

Image Diversity: food web

[View All Answers](#)

**Question - 102:**

What are primary consumers? Can food chain present quaternary consumers without having secondary or tertiary consumers? Can a tertiary consumer of one chain be a primary or secondary consumer of another chain?

**Ans:**

Primary consumers are living beings that eat autotrophic beings, i.e., they eat the producers. Primary consumers always belong to the second trophic level of a chain.

A food chain cannot have consumers of superior orders without having the consumer of the inferior orders. A consumer however can participate in several different chains not always belonging to the same consumer order in each of them.

[View All Answers](#)

**Question - 103:**

What are trophic levels? How many trophic levels can a food chain have?

**Ans:**

Trophic levels correspond to positions on a food chain. Therefore, producers always belong to the first trophic level and decomposers to the last trophic level, consumers that eat directly the producers belong to the second trophic level and so on.

There is no limit regarding the number of trophic levels on a chain, since many orders of consumers can exist.

[View All Answers](#)



**Question - 104:**

How is energy transferred along a food chain?

**Ans:**

The energy flux along a food chain is always unidirectional, from the producers to the decomposers.

[View All Answers](#)

**Question - 105:**

What is a food chain?

**Ans:**

Food chain is the linear not branched sequence in which a living being serves as food for the other, from the producers until the decomposers.

Image Diversity: food chain

[View All Answers](#)

**Question - 106:**

How are the heterotrophic beings divided in the ecological study of food interactions?

**Ans:**

Heterotrophs are divided into consumers and decomposers. An ecosystem can exist without consumers but it cannot be sustained without decomposers. Without the decomposers, the organic material would accumulate causing environmental degradation and later death of the living beings.

[View All Answers](#)

**Question - 107:**

In the ecological study of food interactions how are the autotrophic beings called?

**Ans:**

In Ecology, autotrophic beings are called producers because they synthesize the organic material consumed by the other living beings of an ecosystem. An ecosystem cannot exist without producers.

[View All Answers](#)

**Question - 108:**

Which is the autotrophic group responsible for the production of most part of the molecular oxygen of earth?

**Ans:**

Algae and cyanobacteria of the phytoplankton are the organisms that contribute most for the production of molecular oxygen.

Image Diversity: phytoplankton

[View All Answers](#)

**Question - 109:**

What is the main means by which autotrophic beings obtain energy?

**Ans:**

The main means by which autotrophs obtain energy is photosynthesis. (There are also chemosynthetic autotrophs.)

Image Diversity: photosynthesis

[View All Answers](#)

**Question - 110:**

What is the primary energy source for life on earth?

**Ans:**

The primary energy source for life on earth is the sun. The sun plays the important role of keeping the planet warmed and it is the source of the luminous energy used in photosynthesis. This energy is converted into organic material by the photosynthetic autotrophic beings and consumed by the other living beings.

Image Diversity: the sun

[View All Answers](#)

**Question - 111:**

What is the group of aquatic beings composed of large number of photosynthetic beings?

**Ans:**

A large number of photosynthetic beings is found in the plankton, i.e., in the surface of aquatic ecosystems. This is because light is abundant on the surface.

[View All Answers](#)

**Question - 112:**

What are the phytoplankton and the zooplankton?

**Ans:**

Phytoplankton and zooplankton are divisions of the plankton. The phytoplankton comprehends the autotrophic floating beings: algae and cyanobacteria. The zooplankton is formed by the heterotrophic planktonic beings: protozoans, small crustaceans, cnidarians, larvae, etc.

[View All Answers](#)

**Question - 113:**

What are plankton, nekton, and benthos?

**Ans:**

Plankton, nekton, and benthos are the three groups into which aquatic living beings may be divided.

The plankton is formed by the algae and small animals that float near the water surface carried by the stream. The nekton is composed of animals that actively swim and dive in water, like fishes, turtles, whales, sharks, etc. The benthos comprehends the animals ecologically linked to the bottom, including many echinoderms, benthonic fishes, crustaceans, mollusks, poriferans and annelids.

Biomes - Image Diversity: plankton nekton benthos

[View All Answers](#)

**Question - 114:**

Which terrestrial vertebrate group is extremely rare in deserts?

**Ans:**

Amphibians are terrestrial vertebrates extremely rare in desertic environments (although there are few species adapted to this type of ecosystem). Amphibians are rare in deserts because they do not have permeable skin and so they easily lose water by evaporation and desiccate. They also need an aquatic environment to reproduce, since their fecundation is external and their larva is water-dependent.

[View All Answers](#)

**Question - 115:**

What are the typical vegetation and the typical fauna of the deserts?

**Ans:**

The predominant fauna of the desertic ecosystems is formed by reptiles, like lizards and snakes, terrestrial arthropods and small rodents. In these areas plants very adapted to dry climate may be found, like the cactus, that are plants that do not have real leaves and thus lose less water, along with grasses and bushes near places where water is available.

Biomes - Image Diversity: deserts

[View All Answers](#)

**Question - 116:**

How are grasslands classified?

**Ans:**

Grasslands may be classified into steppes and savannahs. In the steppes, the prevailing vegetation is grass, like in the pampas of South America and in the prairies of North America. The fauna is mainly formed by herbivores, like rodents and ungulates. The savannahs present small trees, like for example the Brazilian cerrado or the African savannahs. The fauna is diverse; in the Brazilian cerrado there are animals like emus, lizards, armadillos, jaguars, etc., and many types of insects; the African savannahs are the home of great herbivores and carnivores, like zebras, giraffes, antilopes, lions and leopards.

Biomes - Image Diversity: savannah

[View All Answers](#)

**Question - 117:**

How are the grasslands of North America and of South America respectively called?

**Ans:**

The steppe grasslands of North America are called prairies. The grasslands of South America are known as "pampas" (the steppe grassland) and "cerrado" (the savannah grassland).

[View All Answers](#)

**Question - 118:**

What is the typical vegetation of the grasslands?

**Ans:**

Grasslands are mainly formed of herbaceous (nonwoody) vegetation: grass, bushes, and small trees.

Biomes - Image Diversity: grasslands

[View All Answers](#)

**Question - 119:**

Why the tropical forests are also known as stratified forests?

**Ans:**

In tropical forests, tall trees of several species have their crowns forming a superior layer under which diverse other trees and plants develop forming other inferior layers. From the upper layer to the inferior layers the penetration of light lowers gradually and the exposition to wind and rain, the moisture and the temperature vary. Different compositions of abiotic factor condition the prevailing of different vegetation in each layer.

[View All Answers](#)

**Question - 120:**

How can the abundance and diversity of living beings in the tropical forests be explained?

**Ans:**

The biodiversity of these ecosystems can be explained by the great availability of the main abiotic factors for photosynthesis. Since these factors are abundant, plants can perform maximum photosynthetic activity, living and reproducing easily. With great amount and diversity of producers (autotrophs), the consumers (heterotrophic animals and microorganisms) also have abundant food and a complex food web emerges creating many different ecological niches to be explored. So it



is possible the appearing of varied living beings as well as the existence of large populations.

[View All Answers](#)

**Question - 121:**

What are the typical vegetation and the typical fauna of the tropical forests?

**Ans:**

In the vegetation of the tropical forests, broad-leafed evergreen trees predominate. On the top of the trees, epiphytes and lianas grow. Many varieties of pteridophytes can be found in these forests. Regarding the fauna, the abundance, and diversity is also great: there are monkeys, rodents, bats, insectivores, felines, reptiles, aves, amphibians, and invertebrates, mainly insects.

[View All Answers](#)

**Question - 122:**

What is the typical localization of the tropical forests regarding latitude?

**Ans:**

Tropical rain forests, like the Amazon forest and the Congo forest, are typically located in low latitude, i.e., in the equatorial and tropical zones.

Biomes - Image Diversity: tropical forests

[View All Answers](#)

**Question - 123:**

What are deciduous trees?

**Ans:**

Deciduous trees are plants that lose their leaves in a period of the year. In the case of the deciduous of the temperate forest, the fall of the leaves occurs in the autumn. The loss of leaves is a preparation to face the cold months of the winter: roots, stem and branches are more resistant to low temperature and snow than the leaves; without leaves the metabolic rate of the plant is reduced; the decaying fallen leaves help to nourish the soil.

Biomes - Image Diversity: deciduous trees

[View All Answers](#)

**Question - 124:**

What are the typical vegetation and the typical fauna of the temperate forests?

**Ans:**

In the temperate forest, deciduous trees predominate. Mammals are found in great number, like bears and deers.

Biomes - Image Diversity: temperate forests

[View All Answers](#)

**Question - 125:**

What are the typical vegetation and the typical fauna of the taigas?

**Ans:**

Taiga, or the boreal forest, is characterized by coniferous trees, pine forests. There are also mosses, lichens, small bushes, and angiosperms. In the taiga many mammals, like moose, wolves, foxes and rodents, migratory birds and great diversity of insects are found.

Biomes - Image Diversity: taigas

[View All Answers](#)

**Question - 126:**

What are the typical vegetation and the typical fauna of the tundras?

**Ans:**

Tundras have vegetation formed mainly by mosses and lichens. In the fauna the dense furred animals, like caribous, musk oxen and polar bears, and migratory birds are found.

Biomes - Image Diversity: tundras

[View All Answers](#)

**Question - 127:**

What are the major terrestrial biomes?

**Ans:**

The major terrestrial biomes are tundras, taigas (or boreal forest), temperate forests, tropical forests, grasslands and deserts.

[View All Answers](#)

**Question - 128:**

What are species?

**Ans:**

Species is the set of living beings able to cross among themselves generating fertile offspring.

This concept however does not apply to individuals of exclusive asexual reproduction and other definitions have been proposed. For example, "species is a set of living beings that evolve in a common manner all of them considered ancestors of the same type in relation to common descendants".

[View All Answers](#)

**Question - 129:**

What is population?

**Ans:**

Population is the set of individuals of the same species found in a given place in a given time.

[View All Answers](#)

**Question - 130:**

What is a community? What is the difference between the concepts of community and population?

**Ans:**

Community is the set of populations of living beings that live in the same region and interact with each other.

In Ecology population is a set whose members (living in a given place in a given time) are part of the same species. Community is a set of populations of different species (living in a given place in a given time).

[View All Answers](#)

**Question - 131:**

What is the difference between ecological niche and habitat?

**Ans:**

Ecological niche is the set of peculiar activities, resources, and strategies that a species explores to survive and reproduce. Habitat is the place where the species lives to explore its ecological niche.

In other words, it can be said that habitat is the "address" of the species and the ecological niche is the "profession" of the species.

[View All Answers](#)

**Question - 132:**

What are biotic factors?

**Ans:**

Biotic factors are the living beings (plants, animals, and microorganisms) that are part of a given environment.

Image Diversity: biotic factors

[View All Answers](#)

**Question - 133:**

What are abiotic factors?

**Ans:**

Abiotic factors are the nonliving elements that constitute a given environment, like light, temperature, minerals, water, gases, atmospheric pressure, etc.

Image Diversity: abiotic factors

[View All Answers](#)

**Question - 134:**

What is an ecosystem?

**Ans:**

Ecosystem is a system composed of biotic and abiotic factors in interaction.

Image Diversity: ecosystem

[View All Answers](#)

**Question - 135:**

What is biosphere?

**Ans:**

Biosphere is the set of all of the ecosystems of the planet.

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**Question - 136:**

What are autotrophic beings? What are heterotrophic beings?

**Ans:**

Autotrophic beings are those that can produce their own food, i.e., that make organic material from inorganic compounds. Heterotrophic beings are those that need to incorporate organic material to nourish them. Therefore, heterotrophs depend on the production of the autotrophs.

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**Question - 137:**

What are the processes that autotrophic beings use to produce organic material from inorganic substances?

**Ans:**

Autotrophic beings make organic material by photosynthesis or by chemosynthesis. There are photosynthetic autotrophs, like plants, and chemosynthetic autotrophs, like some bacteria.

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**Question - 138:**

What is a biome?

**Ans:**

Biome is a prevailing ecosystem constituted by similar biotic and abiotic factors present in one or more regions of the planet.

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**Question - 139:**

What is Ecology?

**Ans:**

Ecology is the field of Biology that studies the relations between living beings and between living beings and the environment.

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