

Chapter 15: Biodiversity and Conservation

NCERT Exemplar · Class 12 · Biology

Multiple Choice Questions

Question 1

Which of the following countries has the highest biodiversity?

A.

South America

B.

South Africa

C.

Russia

D.

India

Answer

Correct option: A

Solution

Ans: Correct option is a.

Explanation: The great Amazon rain forest located in South America constitutes half of the variety of all the species from the total planet and this there which accounts for nearly one-tenth of the world's biodiversity.

Question 2

Which of the following is not a cause for the loss of biodiversity?

A.

Destruction of habitat

B.

Invasion by alien species

C.

Keeping animals in zoological parks

D.

Over-exploitation of natural resources

Answer

Correct option: C

Solution

Ans: Correct option is c.

Explanation: The exploitation of natural resources affects biodiversity in a very significant way and has lasting effects. Horn of rhino, a shield of pangolin, feather of peacock are the most common examples of overexploitation which is one of the factors for biodiversity loss.

Question 3

Which of the following is not an invasive alien species in the Indian context?

A.

Lantana

B.

Cynodon

C.

Parthenium

D.

Eichhornia

Answer

Correct option: B

Solution

Ans: Correct Option is b

Explanation: Cynodon is a type of grass commonly called doob grass which is a plant species native to India.

Question 4

Where among the following will you find pitcher plants?

A.

Rainforest of North-East India

B.

Sunderbans

C.

Thar Desert

D.

Western Ghats

Answer

Correct option: A

Solution

Ans: Correct Option is a.

Explanation: *Nepenthes khasiana* also known as a species of pitcher plant is commonly found in India. It is mainly seen growing in the rainforests of North- East India (Jaintia hills, Garo hills and the Mawlynnong region of East Khasi hills of Meghalaya).

Question 5

Which one of the following is not a major characteristic feature of biodiversity hotspots?

A.

Large number of species

B.

Abundance of endemic species

C.

Mostly located in the tropics

D.

Mostly located in the polar regions

Answer

Correct option: D

Solution

Ans: Correct Option is d

Explanation: Biodiversity hot-spots are the places in which specific mainly endangered animals and plants are protected by human care and allowed to reproduce freely. The polar region is extremely unsuitable for many animals as well as plants so it cannot be a biodiversity hot-spot.

Question 6

Match the animals given in column I with their location in column II:

Column I		Column II	
A	Dodo	I.	Africa
B	Quagga	II.	Russia
C	Thylacine	III.	Mauritius
D	Steller's sea cow	IV.	Australia

Choose the correct match from the following:

A.

A-i, B-iii, C-ii, D-iv

B.

A-iv, B-iii, C-i, D-ii

C.

A-iii, B-i, C-ii, D-iv

D.

A-iii, B-i, C-iv, D-ii

Answer

Correct option: D

Solution

Ans: Correct Option is d

Explanation: A. Dodo, now an extinct bird was found in Mauritius,

B. Quagga was a native organism in Africa,

- C. Thylacine was primarily found in Australia, and,
- D. Steller's sea cow was a native of Russia.
-

Question 7

What is common to the following plants: *Nepenthes*, *Psilotum*, *Rauwolfia* and *Aconitum*?

A.

All are ornamental plants

B.

All are phylogenetic link species

C.

All are prone to overexploitation

D.

All are exclusively present in the Eastern Himalayas.

Answer

Correct option: C

Solution

Ans: Correct Option is c

Explanation: Since the commencement of human civilization, humans have mostly been dependent on plants. Humans use many plants for various purposes including ornamentals, medicinal and other useful plants. Thus, in one way or other the plants are prone to overexploitation.

Question 8

The one-horned rhinoceros is specific to which of the following sanctuary

A.

Bhitar Kanika

B.

Bandipur

C.

Kaziranga

D.

Corbett Park

Answer

Correct option: C

Solution

Ans: Correct Option is c

Explanation: One-horned rhino is the major animal species that is near to extinction as there are only a few of these left in the world with us. Thus, a continued effort to save these important animals has been started. There is only one place in the world that is the natural habitat of the animal, and ecologists tried to save these animals in their natural habitat. The one-horned rhino lives in the Kaziranga national park situated in the golaghat district of Assam.

Question 9

Amongst the animal groups given below, which one appears to be more vulnerable to extinction?

A.

Insects

B.

Mammals

C.

Amphibians

D.

Reptiles

Answer

Correct option: C

Solution

Ans: Correct Option is c

Explanation: Millions of years of evolution have resulted in every species that exists today. However, due to human activities such as deforestation and other forms of pollution, these species will become extinct over the next two centuries. So, the International Union for Conservation of Nature (IUCN) publishes a book called Red Data Book that informs people about extinct, fragile, and threatened species. There are very tight conditions that must be met in order for a name to be placed in a certain location in this book. Amphibians, according to that book, are the group most threatened by extinction.

Question 10

Which one of the following is an endangered plant species of India?

A.

Rauwolfia serpentina

B.

Santalum album (Sandalwood)

C.

Cycas beddomei

D.

All of these

Answer

Correct option: D

Solution

Ans: Correct Option is d

Explanation: Rauwolfia serpentina, for example, has therapeutic potential (secrete reserpine which is a drug of medicinal importance). Another species, such as cycas, is decorative, resulting in overexploitation, while Santalum is a commercial plant with a unique perfume that is overexploited. As a result, all of the plants listed are endangered.

Question 11

What is common to Lantana, Eichhornia and African catfish?

A.

All are endangered species of India.

B.

All are keystone species.

C.

All are mammals found in India.

D.

All the species are neither threatened nor indigenous species of India.

Answer

Correct option: D

Solution

Ans: Correct Option is d

Explanation: Lantana, Eichhornia, and African catfish are examples of animals that are not indigenous to India. Endemism refers to species that are local to a specific place, whereas exotic refers to species that are not native to that area. Invasive species occur when exotic species become a threat to local species, and they are the most powerful cause in local biodiversity loss. All of the plants and animals in this area are invasive species.

Question 12

The extinction of passenger pigeon was due to:

A.

Increased number of predatory birds.

B.

Overexploitation by humans.

C.

Non-availability of the food.

D.

Bird flu virus infection.

Answer

Correct option: B

Solution

Ans: Correct Option is b

Explanation: The passenger pigeon was formerly the most common pigeon species on the planet, out of all the pigeon species. Because they migrate large distances in search of food and to avoid predators, these pigeons are known as passenger pigeons.

Furthermore, these pigeons are hunted in huge numbers for sporting purposes. Some people saw it as a threat to their crop fields, therefore they murdered a huge number of it. Along with this, as the population grew, people generated vast deforestation, destroying the habitat of these pigeons. As a result, human interaction and overexploitation are the primary causes of extinction for this species.

Question 13

Which of the following statements is correct?

A.

Parthenium is an endemic species in our country.

B.

African catfish are not a threat to indigenous catfishes.

C.

Steller's Sea cow is an extinct animal.

D.

Lantana is popularly known as carrot grass.

Answer

Correct option: C

Solution

Ans: Correct Option is c

Explanation: Endemism refers to a species that is native to a certain area, whereas exotic refers to a species that has travelled from another location. These exotic species are referred to as invasive species when they pose a hazard to local animals and vegetation. According to the IUCN red list, Steller's sea cow is a species that has recently become extinct.

Question 14

Among the ecosystem mentioned below, where can one find maximum biodiversity?

A.

Mangroves

B.

Desert

C.

Coral reefs

D.

Alpine meadows

Answer

Correct option: C

Solution

Ans: Correct Option is c.

Explanation: The total number of species found in a given area is referred to as the biodiversity of that place. Coral reefs are underwater and provide a safe haven for sea animals fleeing predators.

Question 15

Which of the following forests is known as the 'lungs of the planet Earth'?

A.

Taiga Forest

B.

Tundra Forest

C.

Amazon rainforest

D.

Rain forests of North East India

Answer

Correct option: C

Solution

Ans: Correct Option is c

Explanation: The lungs of the earth is the amazon rainforest. 20% oxygen is produced by only amazon forest on the earth. The seasonal change is minimal as it is a tropical rainforest. Generally oxygen is produced by converting oxygenhee

Question 16

The active chemical drug reserpine is obtained from?

A.

Datura

B.

Rauwolfia

C.

Atropa

D.

Papaver

Answer

Correct option: B

Solution

Ans: Correct option is b

Explanation: Rauwolfia vomitoria is the source of the active chemical substance reserpine. This is a sedative that is prescribed for hypertension.

Question 17

Which of the following groups exhibit more species diversity?

A.

Gymnosperms

B.

Algae

C.

Bryophytes

D.

Fungi

Answer

Correct option: D

Solution

Ans: Correct Option is d.

Explanation: Fungi are eukaryotic organisms with a greater variety of species. They are heteromorphic, meaning they come in a variety of shapes, sizes, physiologies, and reproductive modes. Fungi are a varied collection of creatures that are heteromorphic and sporozoite for the most part.

Question 18

Which of the below-mentioned regions exhibit less seasonal variations?

A.

Tropics

B.

Temperatures

C.

Alpines

D.

Both (a) & (b)

Answer

Correct option: A

Solution

Ans: Correct option is a

Explanation: The tilt of the earth around the sun causes the season. When we talk about the Tropic region, we should realise that it is the area that sits between the Tropic of Cancer and the Tropic of Capricorn. The availability of solar radiation is considerably higher in the tropics. As a result, this region has a greater diversity of species.

Question 19

The historic convention on Biological Diversity held in Rio de Janeiro in 1992

is known as?

A.

CITES Convention

B.

The Earth Summit

C.

G-16 Summit

D.

MAB Programme

Answer

Correct option: B

Solution

Ans: Correct Option is b

Explanation: Biodiversity should have no political boundaries as it is a global responsibility, so its conservation is the responsibility of all countries. The historic convention on biodiversity was held in 1992 Rio de Janeiro, which was named the earth summit and this convention was signed by 150 government leaders at the 1992 Rio de Janeiro earth summit, and the convention was dedicated to promoting sustainable development.

Question 20

What is common to the techniques

(i) in vitro fertilization, (ii) Cryo-preservation and (iii) tissue culture?

A.

All are in situ conservation methods.

B.

All are ex-situ conservation methods.

C.

All require ultra-modern equipment and large space.

D.

All are methods of conservation of extinct organisms.

Answer

Correct option: B

Solution

Ans: Correct Option is b

Explanation: A. Insitu and B. Ex Situ conservation are the two types of biodiversity conservation.

1. Animal conservation in situ refers to the conservation of animals in their natural habitat. In situ conservation is used to protect biodiversity hotspots with a high level of species richness.

2. Ex-situ conservation includes zoological parks, botanical gardens, and safari parks. Off-site conservation is referred to as ex situ conservation. Exsitu conservation includes seed banks and in vitro fertilisation. Many animals in the globe are on the verge of extinction, but thanks to appropriate care and management in zoological parks and other locations, they are surviving and reproducing normally.

Very Short Answer Questions

Question 21

What characteristics make a community stable?

Solution

Ans: A stable society is one that flourishes and becomes self-sustaining on its own. It does not show any more oscillations caused by man-made or natural factors. The following are some features of a stable community.

Question 22

What could have triggered mass extinctions of species in the past?

Solution

Ans: There is a large number of species mass extinction during the whole evolution process, the process moved forward with some surviving species. Several theories have been proposed by ecologists as to why this great extinction occurred. The following are some of them: -

1. Many terrestrial animals were extinct when the sea level rose.
2. Changes in temperature caused the world to become colder or hotter at different times, resulting in catastrophic extinctions.
3. The earth's atmosphere protects it from many asteroids, but when a large meteorite strikes, the atmosphere fails to protect, resulting in mass extinction.
4. The sea contains a variety of gases. There are also certain hazardous gases that are discharged into the atmosphere under various circumstances. The discharge of hydrogen sulphide from the sea may have caused catastrophic extinction.

Question 23

What accounts for the greater ecological diversity of India?

Solution

Ans: Many factors influence the survival of any species in a given location. Two major variables in this are geographical distribution and temperature balance. There is a significant variation of topography in India, such as eastern and western plain land, Northern Himalayas, and so on, which results in temperature differences.

We already know that alien species invasion is a major influence in population instability. As a result, there is virtually little likelihood of demographic instability. They can freely reproduce and live in peace in one location with favourable climate conditions. As a result, we may see a diverse range of animals in India.

Question 24

According to David Tilman, the greater the diversity, the greater is the primary productivity. Can you think of a very low diversity man-made ecosystem that has high productivity?

Solution

Ans: The amount of biomass produced per unit time is referred to as productivity. The mass per volume per unit time is the unit of measurement. According to David Tilman, a population's production is directly proportional to the area's diversity.

The living species is always fighting for survival. Predation, competition, and other ecological animal interactions have an impact on them. In a man-built ecosystem, however, the desirable species are separated from all biological animal interactions, and a persistent effort is made to ensure that the species survives to its full potential. Farmland that is productive to its maximum potential is an example of a man-made ecosystem.

Question 25

What does 'Red' indicate in the IUCN Red List (2004)?

Solution

Ans: The IUCN (International Union for Conservation of Nature and Natural Resources) is a non-profit organisation dedicated to maintaining ecological balance and species survival.

In the book red data book, it publishes a list called red list (used for maintaining the data of extinct, vulnerable animals). This red list is a crucial measure of the world's biodiversity's health. The major purpose of this list is to preserve the data of fragile populations in order to aid their survival, as well as to educate the human community about extinct creatures in order to avoid repeating the same error.

Question 26

Explain how protection of biodiversity hotspots alone can reduce up to 30% the current rate of species extinction.

Solution

Ans: The biological hotspots are certain globally defined places in which a large number of species richness is present and these areas are protected by humans. These hot-spots cover nearly two per cent of the total area of earth but due to extreme care, it is able TO save more than 30% ongoing extinction.

Question 27

What is the difference between endemic and exotic species?

Solution

Ans: Endemism refers to species that are local to a specific place, whereas exotic refers to species that are not native to that area. Invasive species occur when exotic species become a threat to local species, and they are the most powerful cause in local biodiversity loss.

Question 28

How does species diversity differ from ecological diversity?

Solution

Ans: Species diversity refers to the quantity and distribution of species in a given area. It is divided into two units: the number of species per unit area and the number of individuals of various species per unit area.

Ecological diversity refers to diversity at the ecosystem level. It is reliant on several sorts of ecosystems. There are two types of ecosystems: terrestrial and aquatic (freshwater and marine).

Ecological diversity is more essential than species variety. Ecologists believe that the more diverse an ecosystem is, the more stable and long-term it will be.

If a particular food becomes extinct in a high-diversification ecosystem, the predator of that population can quickly switch to another food and avoid forcing it to become extinct.

Question 29

Why is genetic variation important in the plant *Rauwolfia vomitoria*?

Solution

Ans: The plant *Rauwolfia Vomitoria* provides the chemical Reserpine, which serves as a tranquiliser.

This exemplifies a particular sort of genetic variation. It's possible that this is due to the potency and concentration of the active chemical Reserpine produced by plants. This plant is commonly found in Himalayan regions.

India boasts more than 50,000 genetically distinct rice strains and 1000 mango kinds.

Question 30

What is a Red Data Book?

Solution

Ans: The Red Data Book is a public database that records endangered and rare plant, animal, and fungus species, as well as some local subspecies, in a given area. This book is intended to help people recognize and save species that are on the verge of extinction.

Question 31

Define gene pool.

Solution

Ans: Genetic pool is another name for gene pool. Every individual living in a specific demographic has a collection or set of various genes.

Individuals in that population are affected by genes, which are passed down from generation to generation via germ cells.

Question 32

What does the term 'Frugivorous' mean?

Solution

Ans: The eating habits of all animals are different. Frugivorous animals are those that consume just fruits and vegetables all day and are entirely reliant on them.

The majority of these creatures are rodents and arboreal (animals that live on a tree branch). Frugivorous creatures are usually the prey, while meat-eating mammals are the predators.

Question 33

What is the expanded form of IUCN?

Solution

Ans: Many creatures have become extinct in recent years. As a result, there should be a group that keeps track of animal and plant extinctions. IUCN is the name of this organisation. This organisation publishes a book titled "Red Data Book." The specifics of extinct animals, their causes (both man-made and natural), and vulnerable species (those that aren't entirely extinct but are swiftly approaching extinction) are detailed in this book. The International Union of Conservation of Nature and Natural Resources is the full name of this organisation.

Question 34

Define the terms:

(i) Bioprospecting

(ii) Endemism

Solution

Ans: Bioprospecting is a detailed and methodical investigation of useful goods originating from biological sources such as plants, animals, and microorganisms. The research findings can be monetized, which will benefit humanity in the long run.

Ans: Endemism is defined as a single species that is restricted to a single geographical place and is never seen elsewhere because other areas are inhospitable to them or they are unable to migrate to a suitable site. The Australian kangaroo is an example of endemism.

Question 35

What is common to the species shown in figures A and B?



A

B

Solution

Ans: Flowers may be seen on the plants in the photo. Angiospermic plants are the only ones that produce flowers. The only thing these two plants have in common is that they are both angiosperms.

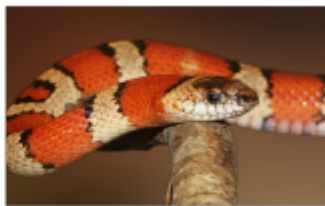
Angiosperm plants have the following characteristics:

1. At some point in their lives, all plants have blooms.
2. Stems, roots, and leaves differentiate the sporophyte.
3. True vessels in the xylem and partner cells in the phloem make up the vascular system. etc.

As a result, the angiosperms in the image above share the same traits.

Question 36

What is common to the species shown in figures A and B?

**A****B**

Solution

Ans: A tiger is seen in the image, whereas B is a snake hanging from a branch. The only thing they have in common is that they are both vertebrates. The tiger belongs to the mammalian family, while the snake belongs to the reptile family.

Short Answer Questions

Question 37

How is the presently occurring species extinction different from the earlier mass extinctions?

Solution

Ans: 1. Species extinction refers to the irrevocable loss of a portion of the earth's biological diversity. There are two types of causes for species extinction: natural causes and manmade causes. Natural disasters like floods, volcanic eruptions, extended droughts, and other natural calamities were common in the early days, resulting in habitat destruction and a lack of acceptable living conditions for creatures.

2. The introduction of new species can sometimes result in the extinction of other species. However, anthropogenic activities are currently the leading cause of species extinction. People are cutting down trees for their beneficial land usage, generating pollution, as a result of the expanding population. Currently, overconsumption of resources without recovery is causing species extinction. Natural disasters and human activities both contribute to habitat degradation, which is a big issue.

Question 38

Of the four major causes for the loss of biodiversity (Alien species invasion, habitat loss and fragmentation, over-exploitation and co-extinctions which according to you is the major cause for the loss of biodiversity? Give reasons in support.

Solution

Ans: Habitat loss and fragmentation is the most significant of the four major causes of biodiversity loss, as follows:

I The degradation of natural ecosystems occurs as a result of overexploitation of forest regions for agriculture, industrialisation, and urbanisation.

(ii) As the world's population grows, there is a greater need for additional resources, which leads to the destruction of forest area. Several species are losing their habitat as a result of deforestation.

(iii) There is no time for recovery due to overconsumption, which may result in biodiversity loss.

(iv) When huge habitats are broken down into small bits, creatures suffer severe consequences as a result of the new adaptation, resulting in population decrease.

As a result, habitat fragmentation and loss are the leading causes of biodiversity loss.

Question 39

Discuss one example, based on your day-to-day observations, showing how the loss of one species may lead to the extinction of another.

Solution

Ans: 1. Co-extinction occurs when the extinction of one species causes the extinction of another. Co-extinction occurs when two species that are mutually connected or intertwined are affected by one other's extinction. It naturally leads to the extinction of a huge number of interconnected species, posing a threat to species biodiversity.

2. When a host fish species goes extinct, its parasitic species goes extinct as well. Plant pollinator mutualism is another example, in which the disappearance of pollinator insects can result in the

extinction of plant species. Parasites that rely on specific creatures for nourishment will eventually become extinct, and the parasite will follow suit. Coextinction can be seen in a variety of ways.

Question 40

A species-area curve is drawn by plotting the number of species against the area. How is it that when a very large area is considered the slope is steeper than that for smaller areas?

Solution

Ans: The number of species in relation to the area is known as a species-area slope. The slope of larger areas is steeper than that of smaller areas. The reason for a steeper slope for greater areas is that there is more food and resources available for animals in larger regions.

They have more opportunities to adapt to changes in food preferences and resources, and there will be no competition among species for resources, whereas in smaller areas, food supply and resources are limited, resulting in competition, and only the fittest among them survive. There is also limitation in resources which leads to competition and only the fittest among them remain alive.

Question 41

Is it possible that the productivity and diversity of a natural community remain constant over a time period of, say one hundred years?

Solution

Ans: It is not always possible for a community's productivity and variety to remain stable over time.

(ii) Natural habitats are never kept in good condition.

(iii) The conditions for reproduction and survival in the environment change with time.

(iv) Species extinction and evolution occur over time, and the productivity and variety of a natural community alter as a result of these changes.

(v) Co-extinction happens as a result of natural disasters and anthropogenic activity, resulting in biodiversity loss.

As a result, it is impossible to maintain the same level of output and diversity.

Question 42

There is greater biodiversity in tropical /subtropical regions than in the temperate region. Explain.

Solution

Ans: 1. Due to the environmental differences in different locations, tropical/subtropical regions have more biodiversity than temperate regions. Near the equator are the tropical and subtropical zones. Due to less fluctuating climatic circumstances, the region remains stable/unaffected.

2. Species have sufficient time to undergo evolutionary changes, resulting in species diversity. Because of their evolution, tropical/subtropical animals have a stronger ability to adapt to their environment. The environment in temperate climates, on the other hand, is more seasonal, unpredictable, and less consistent, resulting in lower species variety. The evolution of organisms is complicated due to changing environmental conditions. As a result, as compared to temperate regions, tropical/subtropical regions have the greatest biological variety.

Question 43

Why are the conventional methods not suitable for the assessment of biodiversity of bacteria?

Solution

Ans: 1. Pathogenic bacteria is basically detected by conventional methods mainly based on cultivation procedures. This method is selective for the research of only one type of pathogen at a time. They use enrichment broths followed by the isolation process of colonies.

2. Biochemical identification is done which provides the information of bacteria's morphology and chemical composition. After this process confirmation of pathogenicity is done.

3. Many of the bacteria cannot be cultured under normal conditions in vitro which creates problems in studying their morphological and biochemical characters. These characters are used for the assessment of the biodiversity of bacteria. Therefore, conventional methods are not suitable for the assessment of the biodiversity of bacteria.

Question 44

What criteria should one use in categorizing a species as threatened?

Solution

Ans: Criteria for categorizing a species as threatened species are:

1. An increase in predatory or poaching behaviour. People are accustomed to slaughtering animals for the skin and other goods they provide. These skins and materials were used to make leather bags, clothing, cosmetics, and dyes, among other things. Although it is prohibited in some locations, people continue to transport animals illegally for their own use.
2. Changes to or destruction of their natural habitat. This is primarily caused by natural disasters and human actions. Deforestation is a primary driver of habitat loss, which can result in species extinction. Afforestation is a strategy to rescue other species that are still alive. People must use resources in a way that is both sustainable and efficient.
3. The extinction of vast numbers of species is caused by overexploitation of resources and a lack of time for them to regenerate. Some species adapt fast, while others become extinct. And we must take tremendous steps to protect our biodiversity.

Question 45

What could be the possible reason for the greater vulnerability of amphibians to extinction as compared to other animal groups?

Solution

Ans: The following is a list of reasons why frogs are more vulnerable to extinction than other animal groups:

1. Climate change on a large scale alters aquatic ecosystems, preventing amphibians from reproducing.
2. The most common cause of extinction is habitat change or destruction. Amphibians require both aquatic and terrestrial environments to survive. As a result, risks to either habitat can have an impact on their populations.
3. Habitat fragmentation also contributes to amphibian extinction. Habitat fragmentation occurs when habitat change isolates a few regions. These small populations that persist are sometimes subject to

genetic drift or inbreeding, or they may become extinct as a result of minor environmental changes.

Question 46

How do scientists extrapolate the total number of species on Earth?

Solution

Ans: The estimation of extrapolated species on earth can be done by two methods:

- (i) The primary method is to estimate the rate of discovery of new species
 - (ii) The statistical comparison of the temperate and tropical species richness of group of insects studied exhaustively can extrapolate the total number of species. The ratio is extrapolated then with plant and animal species existing that helps in gross estimation of the number of species on the earth prediction
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Question 47

Humans benefit from the diversity of life. Give two examples.

Solution

Ans: Out of the 13 million generic species envisioned by scientists, approximately 1.75 million species of plants, animals, and microbes have been identified.

The gifts that those species provide contribute to the delicately-stretching herbal cycles that help make the earth habitable for humans, as well as to our way of life in a variety of ways, from supplying our food and prescribed drugs to helping to mitigate the effects of natural disasters such as floods. Biodiversity is strongly linked to environmental production through a mechanism known as beneficial complementarity. There are numerous examples of food and medications that are basic examples of human benefit.

Question 48

List any two major causes other than anthropogenic causes of the loss of biodiversity.

Solution

Ans: Other than anthropogenic causes, alien species invasions and co-extinction are the two major drivers of biodiversity loss.

1. Invasion of alien species: It is given to organisms that have a negative impact on their new surroundings. Invasion species have a negative impact on invaded habitats and bioregions, inflicting ecological, environmental, and/or monetary damage. Local species that overrun human environments and become invasive pests are sometimes assigned to this historical period.

2. Co-extinction: A major factor in the threat of co-extinction is the host specificity and life cycle. Mutualists, parasites, and a variety of free-living bugs with staged life cycles are more prone to face extinction. This is due to the fact that, in contrast to the easy lifestyles of cycled organisms, those organisms may rely on more than one host for the rest of their lives.

Question 49

What is an endangered species? Give an example of an endangered plant and animal species each?

Solution

Ans: The endangered species are the species which are most likely to become extinct in some of the coming years then be it one a globe scale or on within a specific political jurisdiction. Some of the factors that are responsible for the species to be endangered are habitat loss, poaching and the species which are invasive.

Many different organisations verify the popularity of species inside the unique environment, and the International Union for Conservation of Nature (IUCN) Red List lists the worldwide conservation popularity of many species. Many foreign locales have legal standards that protect conservation-dependent species, such as prohibiting hunting, limiting land development, or establishing protected areas. Huge conservation efforts, including captive breeding and habitat restoration, are underway for several endangered species.

Question 50

What are sacred groves and their role in biodiversity conservation?

Solution

Ans: 1. A sacred grove or sacred woods are any wooded areas that may hold special spiritual significance for a particular culture. Sacred groves can be found in a variety of cultures around the world.

2. They were important features of Celtic, Estonian, Baltic, Germanic, historical Greek, Near Eastern, Roman, and Slavic polytheism's mythical landscape and cult practise, and they continue to emerge in countries like India and Japan. The Greco-Roman temenos is an example of a holy grove.

Question 51

Suggest a place where one can go to study coral reefs, mangrove vegetation and estuaries.

Solution

Ans: The ideal places to study coral reefs are the Andaman and Nicobar Islands. West Bengal has the best mangrove vegetation, and Karnataka's coast has the best estuaries.

Question 52

Is it true that there is more solar energy available in the tropics? Explain briefly.

Solution

Ans: As one moves from the equator to the poles, the length of the day shortens and the length of the night lengthens. On the equator, the day and night periods are the same. The Tropics are located close to the equator. As a result, more solar energy will be received. The tropics receive direct sunlight. The day lasts longer in the tropics than it does at higher latitudes due to hetero lighting. As a result, there is a lot of daylight inside the tropics.

Question 53

What is co-extinction? Explain with a suitable example?

Solution

Ans: Co-extinction and co-threatened refer to the phenomenon of the extinction or decline of a group of species resulting in the extinction or endangerment of a separate species that depend on it, with unavoidable cascading effects across trophic levels. The term was coined by the author's Stork and Lyal was first used to describe the extinction of parasitic bugs as a result of the loss of their specific hosts. Co-extinction is a common occurrence when a keystone species is on the verge of extinction. To uncover probabilistic links between associate and host extinctions in co-advanced inter-unique systems. The pollinating Ficus Wasps and Ficus, primate parasites and their hosts come under the coextinction.

Long Answer Questions

Question 54

Elaborate how invasion by an alien species reduces the species diversity of an area.

Solution

Ans: 1. When alien species are introduced into a habitat, whether purposefully or unintentionally, some of them cause the decrease or extinction of indigenous species. Alien species are those that live outside of their normal range and have the ability to disperse. Human activity, whether consciously or unknowingly, spreads alien species. These are dangerous to the local wildlife.

2. The introduction of the Nile perch into the Victoria Lake in east Africa resulted in the demise of an ecologically unique assemblage of over 200 species of cichlid fish in the lake. Carrot grass, lantana, and water hyacinth (Eichornia) are all alien species that pose a serious danger to native species. The unlawful import of the African catfish *Clarkias gariepinus* for aquaculture reasons has put the indigenous Catfishes in our rivers in jeopardy.

Question 55

How can you, as an individual, prevent the loss of biodiversity?

Solution

Ans: A healthy environment filters our water, cleans the air, and improves our health. We must maintain the ecosystem's biodiversity in order to keep it alive. It is correct to say that biodiversity is a key indicator of an ecosystem's health. When compared to a high number of variants of a single species, a diverse range of types can withstand harsh environments. Yes, despite the fact that five mass extinctions have already occurred, humanity can still save biodiversity by following these steps.

1. The conservation of useful animals and plants in their natural habitats
2. Protection of key habitats for endangered species, such as feeding, breeding, and resting sites.
3. Hunting should be prohibited or strictly restricted.
4. Farms in the area should be supported.
5. help the bees
6. Plant flowers, fruits, and vegetables native to the area.
7. Reuse and recycle
8. reduce pollution as well as the use of plastic bags

Question 56

Can you think of a scientific, besides the analogy used by Paul Ehrlich, for the direct relationship between diversity and stability of an ecosystem?

Solution

Ans: 1.The Rivet Popper hypothesis was proposed by Paul Ehrlich. He stated the following: "All parts of an aeroplane (environment) are held together by thousands of rivets (species).

2.If every passenger on board starts popping a rivet to take home (causing a species to go extinct), it may not harm flight safety (correct ecosystem functioning) at first, but as more rivets are removed over time, the plane becomes dangerously fragile. It could also make a difference which rivet is removed."

As a result, if the extinction of any species continues, the entire habitat or ecosystem would suffer.

3.There is a woodland region with a diverse range of plants and animals. A particular type of insect lives in the plants that provide food for the birds in that location.

Question 57

Though the conflict between humans and wildlife started with the evolution of man, the intensity of the conflict has increased due to the activities of modern man. Justify your answer with suitable examples.

Solution

Ans: The battle between people and animals began with man's evolution. Agriculture began 2.5 million years ago, and humans evolved 2.5 million years ago. Humans have been utilising the land area, i.e. the forest area, for farming or extraction of valuable forest products since that time. Human life expectancy has improved as medical technology has progressed. The challenge now is that, as technology and medical research advance, the population is rapidly increasing. As the world's population grows, so does the demand for food, and as a result, we are increasingly investigating land resources. Forests are dwindling day by day, to the point where animals no longer has a natural habitat. These are some of modern man's actions, and we should investigate them.

Question 58

What is an ecosystem service? List any four important ecosystem services provided by the natural ecosystems. Are you in favour or against levying a charge on the service provided by the ecosystem?

Solution

Ans: A vast range of economic, environmental, and aesthetic products and services are dependent on healthy ecosystems. Ecosystem services are the end result of ecosystem processes. The following are some of the most essential ecosystem services that we receive:

- 1.Ecosystems purify the air and water, as well as reducing the effects of drought and flooding.
2. Create fertile soil by cycling nutrients.
- 3.Provide wildlife habitat and maintain biodiversity
- 4.Pollinate crops and provide a carbon storage site
- 5.Aesthetic, cultural, and spiritual values are provided.

Ecosystem services have an incalculable value. We're not even able to put a price on it. The average annual cost of these services is US \$33 trillion (double the world GNP of \$18 trillion), which is taken for granted because they are provided for free.

Question 59

Describe the consumptive use value of biodiversity as food, drugs and medicines, fuel and fibre with suitable examples.

Solution

Ans: Biodiversity refers to the variety of animals and plants found in various habitats. A country's economic growth is also defined by its rich diversity. It makes a significant contribution to the world's food supply.

1. Food is derived from a variety of organisms. As a result, biodiversity has a significant impact on the local way of life.
2. Biodiversity is advantageous in modern agriculture since it indicates a large variety of plant species.
3. About 55 percent of proteins and 60 percent of calories come from only three cereal crops: wheat, rice, and maize.
4. Plants provide the basis for pharmaceuticals such as morphine (*papaver somniferum*), quinine (*chinchona ledgeriana*), reserpine (*Rawolifa vomitoria*), and belladonna (*Atropa belladonna*). As a result, biodiversity plays a role in medical treatments as well.
5. Medicines such as penicillin and tetracycline are made from many plants and animals.
6. *Chorchorus Gossypium* is a fibre supply, but *jatropha* is a biofuel source.
7. Petroleum is made from the remains of living organisms.

We can clearly see the value of biodiversity in a given area based on the examples above. As a result, we must be conscious of the need to conserve the environment.

Question 60

Species diversity decreases as we move away from the equator towards the poles. What could be the possible reasons?

Solution

Ans: As we move away from the equator and toward the poles, species diversity declines. There are a few possibilities:

1. As we move away from the equator and toward the poles, the temperature drops.
2. As we move further from the equator and toward the poles, sunshine and production diminish.
3. Because the temperature in the polar region is so low, most species struggle to survive.
4. Resources are scarcer as you get closer to the pole.
5. There is less greenery.

Speciation is usually determined by the passage of time and the stability of the environment. As a result, the organism cannot survive in hostile environments since it lacks the ability to adapt to the changing surroundings. As a result, biodiversity decreases as you get closer to the pole.

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Question 61

Explain briefly the 'rivet popper hypothesis' of Paul Ehrlich.

Solution

Ans: 1. The Rivet Popper hypothesis was proposed by Paul Ehrlich. He stated the following: "All parts of an aeroplane (environment) are held together by thousands of rivets (species).

2. If every passenger on board starts popping a rivet to take home (causing a species to go extinct), it may not harm flight safety (correct ecosystem functioning) at first, but as more rivets are removed over time, the plane becomes dangerously fragile. It could also make a difference which rivet is removed."

As a result, if the extinction of any species continues, the entire habitat or ecosystem would suffer.

Question 62

The relation between species richness and area for a wide variety of taxa turns out to be a rectangular hyperbola. Give a brief detail.

Solution

Ans: Within a region, species richness grew with increasing explored area, but only up to a certain point, according to Alexander von Humboldt.

$$\log \mathrm{S} = \log \mathrm{C} + \mathrm{Z} \log \mathrm{A}$$

Where

S = species richness

C = $\log \mathrm{y}$ - intercept

Z = slope of the line (regression coefficient)

A = area

As a result, over a wide range of taxa (birds, bats, angiosperm, gymnosperm, and so on), the relationship between species richness and area appears to be a rectangular hyperbola.

The diversity of species in any given location is determined by a variety of factors.

1. Attaining a healthy balance between immigration and extinction

2. Disturbance rate and magnitude in a small and large area

3. The hunter and the hunted

4. Due to dispersion constraints, members of the same species cluster together.

Tips To Prepare for the Class Test in Class 12 Chemistry, Chapter 13- Amines

- Refer to Vedantu and look for the NCERT Exemplar for Class 12 Chemistry Chapter 13 - Amines.
- The chapter has been entirely covered in this book of solved exercises and solutions
- You can even refer to the revision notes provided on the portal
- These solved exercises will not only teach you time management but also make the concepts seem interesting
- You must solve everyion and keep practising until you get them all correct
- Try and make notes especially in the topics that you are not very well-versed with after scanning the book of questions
- Amines have been beautifully explained with the help of related illustrations for a clearer understanding.

Advantages of Exemplar Problems Class 12 Biology

Rather than serving as a question bank for exams, these NCERT Exemplar Problems for Class 12 Biology are meant to improve students' knowledge and learning. The purpose of these NCERT Exemplar Problems for Class 12 Biology is to encourage instructors and students to come up with good discussion topics. For complete chapter practice, these example books include high-quality questions based on the most recent CBSE Syllabus. To improve test quality, special questions are included in CBSE Board Papers every year.

The primary goal of the NCERT Biology Exemplar Solution Chapter 15 Biodiversity and Conservation is to provide instructors and students with a large number of high-quality problems of varying cognitive levels to aid in the teaching-learning of topics covered in the NCERT Solutions for Classes 6 to 12. The questions in these volumes are intended to help teachers create balanced question papers for unit and terminal examinations, as well as prepare assignments, assess their teaching effectiveness and learn about their students' accomplishments.

Feedback based on student reactions could be beneficial to teachers who seek to improve the quality of their classroom instruction. In addition, the Biology questions are challenging to answer. Exemplar Solutions Chapter 15 Biodiversity and Conservation are needed to help educators understand the components of high-quality questions and encourage them to construct their own. Completing the self-assessment questions in the Exemplar book and knowing the basic problem-solving procedures may be beneficial to students. Some of the questions in the book are designed to test students' understanding of ideas and their ability to apply them in new situations.
