

Chapter 16: Environmental Issues

NCERT Exemplar · Class 12 · Biology

Multiple Choice Questions

Question 1

Non-biodegradable pollutants are created by

A.

Nature

B.

Excessive use of resources

C.

Humans

D.

Natural disasters

Answer

Correct option: C

Solution

Ans: Correct option is c.

Toxic pollutants which cannot be degraded or decomposed in a natural way into less harmful components are called as non-biodegradable pollutants i.e., they would not decompose when thrown away on ground. The primary source of non-biodegradable pollutants are humans because of the consumption rates of these being so high. These pollutants include various metals like arsenic, polythene, mercury; plastic; and synthetic fibers.

Question 2

According to the Central Pollution Control Board, the diameter of particles that are responsible for causing great harm to human health is:

A.

2.5 micrometer

B.

5.0 micrometer

C.

10.0 micrometer

D.

7.5 micrometer

Answer

Correct option: A

Solution

Ans: Correct option is a.

Particulate matter that leads to major air pollution can be differentiated into two categories:

1. Settable particulate matter; which is larger than 10 diameters.
2. Suspended particulate matter; which is less than 10 diameters.

According to the Central Pollution Control Board, particles having a diameter 2.5 mm and lesser are hazardous to the human health as they can pass deeper into the lungs causing many breathing and respiratory problems, and in adverse conditions it can even lead to be fatal.

Question 3

The material generally used for soundproofing of rooms like a recording studio and auditorium is

A.

Cotton

B.

Coir

C.

Wood

D.

Styrofoam

Answer

Correct option: D

Solution

Ans: Correct option is d.

Styrofoam, a type of polystyrene foam, is the material usually used for soundproofing rooms like auditorium, assembly hall and film lobby. Earplugs are made of fine glass wood or cottonwood impregnated with wax while ear covers plastic froth for engrossing sound.

Question 4

Compressed natural gas (CNG) is

A.

Propane

B.

Methane

C.

Ethane

D.

Butane

Answer

Correct option: B

Solution

Ans: Correct option is b.

Compressed natural gas or CNG is primarily methane and is considered as the most suitable alternative to petrol or diesel in terms of the impact fuels have on the environment. In 2002, as ordered by the Indian government, public transport vehicles in Delhi switched to CNG as it leads to less pollution and efficiently burns producing less pollutants.

Question 5

World most problematic aquatic weed is:

A.

Azolla

B.

Wolffia

C.

Eichhornia

D.

Trapa

Answer

Correct option: C

Solution

Ans: Correct option is c.

Eichhornia, otherwise known as water hyacinth, is famously known as the world's most problematic aquatic weed. It is also known as terror of Bengal because of its high rate of growth. It can grow rapidly and cover the surface of water bodies completely to choke them. It can cause serious threats to the aquatic fauna and flora.

Question 6

Which of the following exhibits biomagnification?

A.

SO₂

B.

Mercury

C.

DDT

D.

Both b and c

Answer

Correct option: D

Solution

Ans: Correct option is d.

The increase in concentration of a toxicant as we go at successive trophic levels is known as bio magnification. This happens because toxic substances accumulated by an organism are passed to the next trophic level as it cannot be metabolized or excreted along the food chain. This phenomenon is popularly seen in accumulations of Mercury and DDT.

Question 7

The expanded form of DDT is

A.

Dichloro-diphenyl-trichloroethane

B.

Dichloro-diethyl-trichloroethane

C.

Dichloro-dipyridine-trichloroethane

D.

Dichloro-diphenyl-trichloroacetate

Answer

Correct option: A

Solution

Ans: Correct option is a.

Dichloro-diphenyl trichloroethane, popularly known as DDT is a colorless, tasteless and odorless crystalline chemical compound and is not found naturally as it is synthesized. It was developed as an insecticide but ultimately became famous for its environmental impacts.

Question 8

Which of the following materials takes the longest time for biodegradation?

A.

Cotton

B.

Paper

C.

Bone

D.

Jute

Answer

Correct option: C

Solution

Ans: Correct option is c.

Bones are the hardest tissues in the body which are primarily made up of proteins like collagen and many inorganic compounds composed of calcium and phosphates. The inorganic content in bones is much higher as compared to the other constituents of this tissue. However, cotton, paper, and jute are made up of mostly organic matter and hence, can be easily degraded by microbes. But bones, due to the presence of a lot of inorganic content, take a very long time for biodegradation.

Question 9

Choose the incorrect statement

A.

The Montreal protocol is associated with the control of emission of ozone depleting substances.

B.

Methane and carbon dioxide are greenhouse gases.

C.

Dobson units are used to measure oxygen content of air.

D.

Use of incinerators is crucial to disposal of hospital waste.

Answer

Correct option: C

Solution

Ans: Correct option is c.

Oxygen content is not measured using Dobson units(DU) but it is used to represent ozone(O_3) in the atmosphere thickness or concentration. Accordingly, it has been established that the thickness of ozone is more around equators in comparison to poles.

Question 10

Among the following, which one causes maximum indoor chemical pollution?

A.

Burning coal

B.

Burning cooking gas

C.

Burning mosquito coil

D.

Room spray

Answer

Correct option: A

Solution

Ans: Correct option is a.

Burning coal is one of the major causes of indoor chemical pollution. It leads to release of excessive carbon content in the atmosphere that combines with oxygen to later form carbon dioxide. It may even result in formation of carbon monoxide when oxygen is provided in a limited amount which is a threat to human health.

Question 11

The green scum seen in the freshwater bodies is

A.

Blue green algae

B.

red algae

C.

green algae

D.

Both A and C

Answer

Correct option: D

Solution

Ans: Correct option is d.

The green scum found inside some water bodies includes both green algae and blue green algae in the scum. The excessive growth of such bloom-forming algae is fueled due to the presence of abundant nitrates and phosphates in the water body. These algal blooms grow excessively and then choke the water body. Green algae and blue-green algae both are photosynthetic and thus decrease the dissolved oxygen concentration of the water body. This decrease in oxygen kills flora and fauna of the water body. When microorganisms decompose algae using the oxygen in the water, it causes further reduction in the dissolved oxygen level and the aquatic life further depletes.

Question 12

The loudness of a sound that a person can withstand without discomfort is about

A.

150 dB

B.

215 dB

C.

30 dB

D.

80 dB

Answer

Correct option: D

Solution

Ans: Correct option is d.

A person can withstand about 80 dB loudness of a sound without a considerable discomfort. An individual person is capable of hearing as low as 0 dB at some times. Prolonged exposure of noise level above 80 dB can cause permanent loss of hearing or deafness. The tolerance to sound differs in different human beings and animals.

Question 13

The major source of noise pollution worldwide is due to

A.

Office equipment

B.

Transport system

C.

Sugar, textile and paper industries

D.

Oil refineries and thermal power plants

Answer

Correct option: B

Solution

Ans: Correct option is b

Transport system is a major contributor of noise pollution around the world. Transport has a substantial environmental impact as it is one of the largest energy consumers and burns the majority of the world's petroleum. This also leads to creation of nitrous oxides and particulates. Transport system is a very significant contributor to the increase in global warming due to excessive emissions of carbon dioxide.

Question 14

Match the following and choose the correct option

Column I	Column II

a.	Environment Protection act	i.	1974
b.	Air prevention and control of pollution act	ii.	1987
c.	Water act	iii.	1986
d.	Amendment of air act to include noise as an air pollutant	iv.	1981

The correct match is;

A.

a-iii, b- iv, c-i, d- ii

B.

a-i, b-iii, c-ii, d-iv

C.

a-iv, b-i, c-ii, d-iii

D.

a-iii, b-iv, c-ii, d-i

Answer

Correct option: A

Solution

Ans: Correct option is a

i) The Environment protection act was established in 1986.

ii) The Air prevention and control of pollution act was established in 1981.

iii) The Water Act was enacted in 1974.

iv) The amendment of the air act to include noise as an air pollutant was done in 1987.

Question 15

Catalytic converters are fitted into automobiles to reduce emission of harmful gases. Catalytic converters change unburnt hydrocarbons into:

A.

Carbon dioxide and water

B.

Carbon monoxide

C.

Methane

D.

Carbon dioxide and methane

Answer

Correct option: A

Solution

Ans: Correct option is a

Catalytic converters are fitted in automobiles because they help in reducing emission of poisonous gases. Rhodium and platinum Palladium are some of the examples of catalysts commonly used in catalytic converters. Catalytic converters convert unburned hydrocarbons into carbon dioxide and water and carbon monoxide into CO₂ gas which is less harmful and thus released.

Question 16

Why is it necessary to remove sulphur from petroleum products?

A.

To reduce the emission of Sulphur dioxide to exhaust fumes

B.

To increase efficiency of automobiles engines

C.

To use sulphur removed from petroleum for commercial purposes

D.

To increase the lifespan of engine silencers

Answer

Correct option: A

Solution

Ans: Correct option is a

SO₂ can be reduced with the removal of sulphur from petrol and diesel exhaust emissions. SO₂ is a fatal air pollutant; it can also damage the vegetation by causing chlorosis. It can also cause acid rain by forming H₂SO₃ in the atmosphere and such rain can damage buildings and plants. In human beings, acid rain can cause damage to the respiratory system, skin and irritation in eyes.

Question 17

Which of the following impurities is easiest to remove from wastewater?

A.

Bacteria

B.

Colloids

C.

Dissolved solids

D.

Suspended solids

Answer

Correct option: D

Solution

Ans: Correct option is d

Suspended solids in water are the ones that are solid wastes including various impurities like sand, small stones, slit etc. These are heavy particles and thus get submerged at the bottom of water tanks and do not easily dissolve in water. Therefore, these can be easily and conveniently separated from water by various means like water filter, sedimentation, etc.

Question 18

Which of the following diseases is not caused due to contamination of water?

A.

Hepatitis- B

B.

Jaundice

C.

Cholera

D.

Typhoid

Answer

Correct option: A

Solution

Ans: Correct option is a

Hepatitis B is a viral infection which presents with symptoms like nausea, vomiting, fatigue and weakness. This infection can spread through sexual contact or from mother to foetus during pregnancy or lactation. So, the correct answer is option A.

Question 19

Nuisance growth of aquatic plants and bloom-forming algae in natural waters is generally due to high concentrations of:

A.

Carbon

B.

Sulphur

C.

Calcium

D.

Phosphorus

Answer

Correct option: D

Solution

Ans: Correct option is d

Phosphorus in the form of phosphate and nitrates acts as nutrients or food for the algal blooms growing in water bodies. Increase in growth of algae due to addition of these pollutants leading to excessive algae nutrients in water bodies by humans is known as cultural eutrophication. It chokes the water body and leads to the death of aquatic flora and fauna. Decomposition of this algae and dead water

organisms formed so further depletes dissolved oxygen content in water due to the microbes feeding on the matter.

Question 20

Algal blooms impart distinct colour to water due to

A.

their pigments

B.

excretion of colored substances

C.

Formation of colored chemicals in water facilitated by physiological degradation of algae

D.

Absorption of light by algal cell wall

Answer

Correct option: A

Solution

Ans: Correct option is a

Explanation: Algae blooms are the accelerated and excessive growth of blue green and green algae in a water body when environmental conditions allow explosive growth of phytoplankton that create dense clouds of these blooms which can even change the color of ocean water. All the photosynthetic phytoplankton have chlorophyll, the green pigment of photosynthesis, that explains why researchers measure chlorophyll concentrations to figure out how many phytoplankton are there in a certain region. Phytoplankton also have a few accessory pigments that allow them to use different wavelengths of sunlight for fulfilling their nourishment and cell growth needs.

Question 21

Match the items in column I and column II and choose the correct option:

Column I		Column II	
a.	UV	i.	Biomagnification
b.	Biodegradable organic matter	ii.	Eutrophication
c.	DDT	iii.	Snow blindness
d.	Phosphates	iv.	BOD

The correct match is:

A.

a-ii, b-i, c-iv, d-iii

B.

a-iii, b-ii, c-iv, d-i

C.

a-iii, b-iv, c-i, d-ii

D.

a-iii, b-i, c-iv, d-ii

Answer

Correct option: C

Solution

Ans: Correct option is c

Excess exposure to UV light causes snow blindness or cloudy cornea in the eye.

The decomposition of various biodegradable organic matter increases BOD (biological oxygen demand) of water.

DDT is known to undergo biomagnification at various trophic levels in the food chain especially seen in predatory birds whereas phosphates accelerate the ageing of lakes by increasing the eutrophication rate.

Question 22

In the textbook you came across "Three Mile Island and Chernobyl disasters associated with accidental leakage of radioactive wastes." In India we have the Bhopal gas tragedy. It is associated with which of the following?

A.

CO₂

B.

Methyl Isocyanate

C.

CFC

D.

Methyl Cyanate

Answer

Correct option: B

Solution

Ans: Correct option is b

On the night of December 2-3, 1984, clouds of methyl isocyanide were formed in Bhopal, Madhya Pradesh all across the sky. From a pesticide plant in union carbide India limited, this chemical got leaked on that night. The gas was seen to have had various acute, short lasting and long-term effects

on the human body. Acute effects included vomiting, suffocation and pulmonary edema while the genetic effects brought various harmful mutations that lead to genetic disorders.

Very Short Answer Questions

Question 1

Use of lead-free petrol or diesel is recommended to reduce the pollutants emitted by automobiles. What role does lead play?

Solution

Ans: There is a presence of lead in diesel and petroleum. The gaseous exhaust emitted by vehicles contains lead. The automobile parts like converters are damaged by fuel containing lead, it is also harmful to humans and other organisms. In adverse conditions it may also cause mental retardation in children. The lead less fuel costs cheaper and has only fewer disadvantages when compared to the lead containing fuels.

Question 2

In which year was the Air (prevention and control of pollution) act amended to include noise as air pollution.

Solution

Ans: The air (prevention and control of pollution) act was enacted in 1981. This act was amended in 1987 to provide for the prevention, control and abatement of air pollution in India. The main cause behind amendment of act in 1987 was to include noise as an air pollutant.

Question 3

Name the city in your country where the entire public road transport runs on CNG.

Solution

Ans: In India, New Delhi is a city where entire public transport runs on CNG. CNG is considered as the most suitable alternative to petrol or diesel in terms of adverse impact on the environment. In 2002, as ordered by the Indian government, public transport vehicles in Delhi switched to CNG as it causes less pollution and burns more efficiently.

Question 4

It is a common practice to undertake desilting of the overhead water tanks. What is the possible source of silt that gets deposited in the water tanks?

Solution

Ans: The source of silt that gets deposited in the water tank is soil particles that are carried out with water from the source of supply like deep borewells, rivers, etc.

Question 5

What is cultural eutrophication?

Solution

Ans: Cultural eutrophication is nutrient enrichment of water bodies due to human activities like the passage of sewage, industrial effluents, and runoff from fertilized fields rich in nitrates and phosphates. It occurs when human-caused water pollution speeds up the aging of lakes and rivers.

Question 6

List any two adverse effects of particulate matter on human health.

Solution

Ans: The health effects of particulate matter are as follows:

a) The premature death of people with heart or lung diseases.

- b) Irregular heartbeat
- c) Asthma
- d) Decreased lung functioning
- e) Coughing or difficulty in breathing.

Question 7

What is the raw material for polyblend?

Solution

Ans: The polyblend is the fine powder of recycled plastic waste. So the raw material of polyblend is recycled plastic or any plastic film waste.

Question 8

Blends of polyblend and bitumen, when used, help to increase road life by a factor of three. What is the reason?

Solution

Ans: The addition of polyblend to bitumen enhances the water repellant property of bitumen. This increases the road life factor by three.

Question 9

Mention any two examples of plants used as windbreakers in the agricultural fields.

Solution

Ans: The examples of plants used as windbreakers in agricultural fields are Coconut (Cocos) and Betelnut (Areca).

Question 10

Name an industry that can cause both air and thermal pollution as well as eutrophication.

Solution

Ans: The fertilizer industry is the industry that can cause both air and thermal pollution as well as eutrophication.

Question 11

What is an algal bloom?

Solution

Ans: An algal bloom is a rapid increase in the population of algae in freshwater or marine water systems which can occur due to various reasons. Some algal blooms are the result of excess nutrients in the water accumulated over time or by human action, mainly nitrates and phosphates. This increases the growth of algae and green plants in water bodies and leads to eutrophication.

Question 12

What do you understand by biomagnification?

Solution

Ans: The increase in the concentration of toxins in the body of living organisms at each trophic level of a food chain is termed biomagnification. It is known as the increase in concentration of pollutants as we move from one trophic level to the next.

Question 13

What are the three major kinds of impurities in domestic wastewater?

Solution

Ans: There are three major kinds of impurities in domestic water which are:

- a) Suspended impurities like sand, silt, clay.
- b) Colloidal materials like fecal matter, bacteria, cloth, paper, etc.
- c) Dissolved materials like nutrients (nitrate, ammonia, phosphates).

Question 14

What is reforestation?

Solution

Ans: Reforestation is a natural or artificial restocking of existing forests and woodlands that have been depleted due to manmade or natural action. It is regenerating, replanting forest areas that were destroyed for the benefit of mankind for building industries, houses, or any other projects. This allows the forests to be reestablished and includes planting trees in the areas that have been deforested.

Question 15

What is the best solution for the treatment of electronic wastes?

Solution

Ans: The best solution yet found for the treatment of electronic wastes is recycling the waste products. Electronic waste recycling facilities have advanced considerably over the years and now they can be recycled by 95-98% by weight.

Short Answer Questions

Question 1

Is it true that carpets and curtains/drapes placed on the floor or wall surfaces can reduce the noise level? Explain briefly.

Solution

Ans: Yes, carpets and curtains/drapes that are laid on the floor or hanging on the wall surfaces could greatly reduce noise levels. This is because these objects are made up of fibers and fibers can absorb sound waves acting as sound barriers and thus, reduce the sound level. On the other hand, the carpets act as muffling devices and absorb sounds at a moderate level.

Question 2

What is hybrid vehicle technology? Explain its advantages with a suitable example.

Solution

Ans: The technology which is used to run some vehicles on a dual-mode like petrol and compressed natural gas (CNG) is called hybrid vehicle technology. These vehicles run either on petrol or CNG and can efficiently run on any one of these two fuels at a time. This is called a green fuel as it helps reduce environmental pollution and also to conserve petroleum fossil fuel which is non-renewable.

Question 3

If the dissolved oxygen level drops to zero, will the water become septic? Give an example that could lower the dissolved oxygen content of an aquatic body.

Solution

Ans: Yes, it is completely true that if the dissolved oxygen level in a water body drops to zero, the water will become septic. The absence of oxygen in water means water will no longer be able to support life in it because the aquatic plants and animals living there use this dissolved oxygen for respiration. When sewage water is discharged into a water body, microorganisms efficiently feed on organic impurities

and grow excessively. In this process, they consume most of the oxygen in the water for respiration and this reduces the oxygen level to zero.

Question 4

Name any one greenhouse gas and its possible source of production on a large scale. What are the harmful effects of it?

Solution

Ans: Carbon dioxide is one of the potent greenhouse gases and is produced by the burning of fossil fuels and other organic matter in presence of oxygen. The excess level of carbon dioxide in the atmosphere causes a greenhouse effect, absorbs heat and results in global warming.

Question 5

Is it a common practice to plant trees and shrubs near the boundary walls of buildings? What purpose do they serve?

Solution

Ans: Trees and shrubs are grown near the boundary walls of buildings, along roadsides and around residential areas to help in reduction of noise pollution. These trees serve as noise screens and also as dust catchers, namely a sound barrier.

Question 6

Why has the National Forest Commission of India recommended a relatively larger forest cover for hills than for plains?

Solution

Ans: It is a well-established fact that any conservation efforts in a biodiversity-rich area give better results. The hilly areas have a better and more dense biodiversity than the plains because of less

human intervention. This is the reason that the National Forest Commission of India recommended a relatively larger forest cover for hills than for plains.

Question 7

How can slash and burn agriculture become environment friendly?

Solution

Ans: Slash and burn agriculture is an ancient practice which is still practiced by the tribal people in today's time but due to increasing population and more land being used right now, this practice is becoming an environmental disturbance. Earlier, a proper recovery time was provided to the ground used to recover when a particular patch of land was left fallow but now, due to increased population and industrialization, this period of recovery has been greatly reduced, and if the forests are given proper recovery time after using any part of the land then it will become eco-friendly again. Another idea is to not burn the remains of the land and instead till them with the soil again to enrich the soil with plant remains.

Question 8

What is the main idea behind the "Joint Forest Management Concept" introduced by the Government of India?"

Solution

Ans: The motive behind "Joint Forest Management Concept" implemented by the Government of India" was that the involvement of local communities in forest management will lead to greater change and acceptability. In the past, it was observed that when the local people were excluded from forest management, they felt alienated and revolted against the changes occurring in their local area. This always resulted in a clash of interests between locals and government leading to failure of projects. Involvement of the local community produces better results in terms of conservation in a sustainable manner and efficiency.

Question 9

What do you understand about snow-blindness?

Solution

Ans: Snow blindness, also known as arc eye is a painful eye condition which is brought on by excess exposure of eyes to ultraviolet light. When too much UV light hits the transparent outer layer i.e., cornea of your eyes, it gives your cornea a sunburn which leads to this condition.

Question 10

How has DDT caused a decline in the bird population?

Solution

Ans: DDT is a potent pesticide and an organic compound which was initially thought to be of no harm but has been found out to accumulate. The accumulation of DDT in various organisms at different trophic levels is called biomagnification and is a major problem in the bird population. DDT in a bird's body leads to the thinning of eggshells of birds which kill the newborns before the egg has even hatched which causes a decline in the bird population.

Question 11

Observe the figure A and B are given below and answer the following questions



I. The power generation by the above two methods is non-polluting True/False.

Solution

Ans: True, the power generated by above two methods (solar energy and wind energy) is non-polluting as both these are natural sources of energy and do not release any pollutants.

li. List any two applications of solar energy.

Ans: Solar energy can be used to generate electricity on small as well as large scales.

Solar energy is also used in thermal power production.

lii. What is a photovoltaic cell?

Ans: A photovoltaic cell is a semiconductor diode which is used for conversion of visible light rays into a direct current.

Long Answer Questions

Question 1

Write a short note on electronic waste. List the various sources of e- wastes and the problems associated with its disposal.

Solution

Ans: The waste including computers, mobiles, televisions and various other electronic gadgets which are discarded after use are referred to as the electronic or e-waste. These kinds of gadgets contain many metals including gold, nickel, silver, iron, copper, plastic, silver, etc. The main sources or gadgets involved in this kind of waste are printers, computers, phones, music players, e-reading gadgets, scanners, webcams, mobiles, music players, playstations, etc. The various problems that are associated with the e-waste disposal are:

- The dumping of this kind of waste is going to lead to the accumulation of plastic on land.
- Extraction of metals, like gold, iron, silver, etc. involves the incineration of plastic components which creates further plastic pollution.
- Manual handling of e-waste is fatal and harmful to workers dealing with the gadgets in this waste.

Question 2

What is organic farming? Discuss the benefits of organic farming as a viable practice in the context of developing nations like India.

Solution

Ans: Organic farming is a method of farming which ensures sustainable yield in an eco-friendly and a pollution-free system without causing any harm to the environment. The cultivation of land is done through various techniques like crop rotation, green manure usage, composting and use of biological pesticides. It also includes using beneficial microbes instead of synthetically made chemical fertilizers and pesticides.

Benefits of organic farming for developing nations:

1. Long-term soil fertility is maintained.
2. Control of pests and diseases is achieved without harming the environment in any way.
3. Ensures safe water supply and underground water is clean.
4. Make use of natural and raw resources that the farmer already has, to make it more economic.
5. Nutritious, organic food and high-quality crops with good yield are produced.

Question 3

Waterlogging and soil salinity are some of the problems that have come in the wake of the Green Revolution. Discuss their causes and adverse effects on the environment.

Solution

Ans: Causes of waterlogging and salinity produced are given below:

- Numerous canals were built to implement the Green Revolution which made it considerably easy to access water for irrigation but use of excess water in irrigation results in waterlogging. This draws salt to the surface of the soil being irrigated and increases soil salinity.
- Excess and inconsiderable use of fertilizers has to lead to an accumulation of many unused salts in the soil resulting in an increased soil salinity.
- Various effects due to Waterlogging are:

- Increase in soil salinity.
- Many crops cannot survive in water-logged conditions and thus die leading to an economic loss.
- Waterlogging over a long time shall reduce the number of microorganisms and creatures in the soil thus, reducing biodiversity in the soil which is harmful for the environment.
- Decomposition of organic matter which lies in stagnant water will release methane which is a potent greenhouse gas and can lead to more global warming.
- Effects of an increase in soil salinity are:
 - Most plants cannot survive in saline soil and would not grow or produce any yield.
 - The soil with high salinity cannot grow any plants and thus, will become barren and unsuitable for farming.

Question 4

What are multipurpose trees? Give the botanical and local names of any two multipurpose trees known to you and list their uses.

Solution

Ans: Multipurpose trees, as is evident from the name, are those that have more than one uses; two of which are as follows:

1. Banana: *Musa paradisiaca*

Uses:

- Raw bananas are used for making various snacks.
- Fiber from the stem of a banana plant is used in textiles.
- The stem of a banana plant is also used for making a makeshift raft.

2. Coconut: *Cocos nucifera*

Uses:

- Fruit, coconut, is used as food and additive in many culinary items.
 - Coconut leaves are used for making various daily use things like hand-fans, baskets, mats, etc.
 - Veins of coconut leaf are used in making brooms or cleaning equipment.
-

Question 5

What are the basic characteristics of a modern landfill site? List any three and also mention the reasons for their use.

Solution

Ans:

Characteristics of a modern landfill site should include:

1. Methods to contain the leachates such as lining clay or plastic liners to avoid leaching after the site has been filled or dumped in.
 2. Compaction and covering of the waste after dumping to prevent it from being blown or scattered by the wind.
 3. Installation of a landfill gas extraction system which is used to extract the gas for generating power.
-

Question 6

How does an electrostatic precipitator work?

Solution

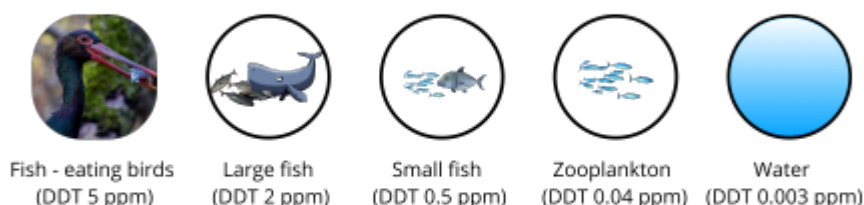
Ans:

Working of electrostatic precipitator can be described as follow:

1. Electrode wires produce a corona to release the electrons.
2. The electrons so produced attach to the dust particles and confer to them a net negative charge.
3. Grounded collecting plates attract these negatively charged dust particles.
4. Thus, dust particles are hence, removed from the air passing.
5. A spray of water or lime in the scrubber is generated and exhaust is passed through this spray of water or lime.
6. This scrubber removes the gases mixed in air like sulfur dioxide.
7. Thus, the polluting gases or pollutants, like sulfur dioxide are removed from the air.

Question 7

Observe the figure and answer the following questions.



i. What ecological term is used to describe the DDT accumulation at different trophic levels?

Solution

Ans: At different trophic levels, the accumulated DDT is defined by the term biomagnification.

ii. List any one effect of DDT accumulation on birds.

Ans: In birds, the eggshells of the eggs laid in birds having exposure to DDT are thin which causes death of newborns before the eggs are even hatched and thus causes a decline in bird population.

iii. Will DDT accumulation lead to eutrophication?

Ans: Eutrophication is a process which means that the water body undergoing eutrophication becomes excessively nutrient rich such that it changes from accommodating phytoplankton to an overgrowth of aquatic vegetation and then more fauna. DDT cannot render an aquatic body this nutrient rich so no, it does not lead to eutrophication.

iv. Does it affect the BOD?

Ans: Biological oxygen demand of the water is not disturbed or affected by DDT concentration as it leads to no disturbance in aquatic microflora.

v. Name a disease caused by the accumulation of any heavy metal.

Ans: Minamata disease is seen after accumulation of mercury in water bodies.

NCERT Exemplar for Class 12 Biology Chapter 16 - Environmental Issues (Book Solutions)

The NCERT Exemplar for Class 12 Biology Chapter 16 - Environmental Issues (Book Solutions) provides you with detailed answers to all the questions. There are more than 50 questions in the NCERT Exemplar for Class 12 Biology Chapter 16 - Environmental Issues (Book Solutions) to help you revise and practice the Chapter. Since Chapter 16 is an important part of the Class 12 Biology syllabus, these solutions will benefit you and provide you with a deep understanding of the concepts related to Environmental Issues.