16

Environmental Issues

Multiple Choice Questions (MCQs)

Q. 1 Non-biodegradable pollutants are created by

(a) nature
(b) excessive use of resources
(c) humans
(d) natural disasters

Thinking Process

On the basis of degradation/natural disposal, pollutants may be biodegradable and non-biodegradable. Nature and natural disasters don't generate non-biodegradable waste.

Ans. *(c)* Non-biodegradable pollutants have a slow or zero rate of degradation by general biological processes. They include plastics, tin container, heavy metals, radioactive substances, etc. These are created by human activities. like industrilisation.

Biodegradable pollutant are degraded or disposed quickly by biological processes. Some biodegradable pollutant created by human are paper, house hold waste like peel of vegetables , fruits and sewage.

Q. 2 According to the Central Pollution Control Board, particles that are responsible for causing great harm to human health are of diameter

(a) 2.50 micrometers
(b) 5.00 micrometers
(c) 10.00 micrometers
(d) 7.5 micrometers

Thinking Process

Air pollutants are gaseous material, radioactive substances and particulate matter.

Ans. *(a)* Particulate air pollutant like soot, flyash, dust of various types, pollens, spores, fur, hair, etc., can be differentiated as setteable (10μ m or more) and suspended, (less than 10μm) particulate matter pollutant.

Their effect (on the environment) depends on the size of particles. According to CPCB, particulate matter of 2.5 μ m or less in diameter are responsible for causing great harm to human health. The particular matter of 2.5 or less in size are inhaled deep into the respiratory tract (upto lungs) and causes respiratory problems and may even lead to death.

Q. 3 The material generally used for sound proofing of rooms like a recording studio and auditorium etc., is

(a) cotton (b) coir (c) wood (d) styrofoam

Ans. ***(d)*** The material generally used for sound proofing of rooms like recording studio, cinema hall, auditorium which absorb sound and facilitate in proofing is styrofoam.

Ear plugs (device used by working person of commercial and industrial zone) are made up of very fine glass wood or cotton wood impregnanted with wax while ear muffs contain fluid seals or plastic foam for absorbing sound.

Q. 4 Compressed Natural Gas (CNG) is

(a) propane (b) methane (c) ethane (d) butane

Ans. ***(b)*** Compressed Natural Gas (CNG) is the best and cheap fuel. It has replaced petrol and diesel fuel as it is considered as clean fuel.

CNG consists of around 90% methane, by compressing it to less than 1% of volume it occupies at standard atmospheric pressure. Propane and butane together form LPG or liquified petroleum gas while ethane is used in chemical industry to produce ethene.

Q. 5 World's most problematic aquatic weed is

(a) *Azolla* (b) *Wolffia* (c) *Eichhornia* (d) *Trapa*

Ans. ***(c)*** *Eichhornia* (water hyacinth) has been introduced in India to check water pollution, as this weed absorbs mercury, cadmium, lead and nickel from sewage water.

It is considered as worlds most problematic weed as it is on invasive species. If not controlled, water hyacinth covers the enitre pond or ake and impacts water flow. Blocks sunlight, acts as prime habitat for mosquito (vector) snails host for flatworm and starves water of oxygen.

Q. 6 Which of the following causes biomagnification?

(a) SO_2 (b) Mercury (c) DDT (d) Both (b) and (c)

Ans. ***(d)*** Biomagnification, also called as bioaccumulation is the accumulation of non-biodegradable toxic material like Hg, DDT, etc,, in different trophic levels.

In the process of bioaccumulation, the concentration of non- biodegradable pollulants increases at each successive trophic level of the food chain, thus harming the environment/ecosystem at an alarming rate, whereas SO_2 (lsulphur dioxide) is an air pollutant and acts as precursor of acid rain.

Q. 7 The expanded form of DDT is

(a) dichloro diphenyl trichloroethane
(b) dichloro diethyl trichloroethane
(c) dichloro dipyrydyl trichloroethane
(d) dichloro diphenyl tetrachloroacetate

Ans. ***(a)*** The expanded form of DDT is dechloro diphenyl trichloroethane.

It is an insectiside which was first synthesised in 1874. in insects it opens the sodium ion channels in neurons which leads to spas on and eventual death DDT, BHC are organic compound which were effectively used against pest during 1970 and 1980. But, now these are banned due to their less or no degradation.

Q. 8 Which of the following material takes the longest time for biodegradation?

(a) Cotton (b) Paper (c) Bone (d) Jute

Ans. *(c)* Out of the given options, bone takes the longest time for biodegradation, whereas cotton, paper and jute can be easily degraded by the action of microbes. Bone is made up of a protein fraction, mineral fraction and organic compounds.

Q. 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 green house gases

(c) Dobson units are used to measure oxygen content

(d) Use of incinerators is crucial to disposal of hospital wastes

Ans. *(c)* **Dobson unit is** used to express the column on dessity of trace gases *e.g.,* ozone. On the other hand, oxygen sensors are used to measure the exhaust gas concentration of oxygen.

Q. 10 Among the following which one causes more indoor chemical pollution?

(a) Burning coal (b) Burning cooking gas

(c) Burning mosquito coil (d) Room spray

Ans. *(a)* Burning coal is the cause of major indoor chemical pollution. It releases carbon content in the atmosphere which combines with oxygen to form carbon dioxide, a threat to environment or may result in the formation of carbon monoxide which is a threat to human health.

Burning of coal also releases inhalable particlen nitrogen oxides sulphur dioxides metal and silicates. Although of mosquito coil and room spray causes indoor chemical pollution but their effects are long term.

Q. 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)

Ans. *(d)* The green scum seen in the fresh water bodies mainly consists of green algae and blue-green algae, while the red algae is mostly marine.

Q. 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

Ans. *(d)* Relative loudness of sound ranges from 30 dB-60 dB and is generally not hazardous. The loudness above 60-80 dB, is not much uncomfortable while prolonged exposure to noise level above 80 dB is painful and gradually leads to permanent loss of hearing ability or deafness.

The premissible sound level in different areas is shown in the following table

	Day	**Night**
Industrial	75 dB	70 dB
Commercial	65 dB	55 dB
Residential	55 dB	45 dB
Silent	50 dB	40 dB

Q. 13 The major source of noise pollution, world wide is due to

(a) office equipment
(b) transport system
(c) sugar, textile and paper industries
(d) oil refineries and thermal power plants

Ans. ***(b)*** The major source of noise pollution, worldwide is transport system *i.e.,* transport vehicles (both public and private).

Whereas all machines (noise producing) wheather, agricultural or engine of motor, vehicle and machine employed in various industries like textile, printing, sugar, engineering and agricultural implements are also sources of noise pollution.

Q. 14 Match correctly the following and choose the correct option

A.	Environment Protection Act	1.	1974
B.	Air Prevention and Control of Pollution Act	2.	1987
C.	Water Act	3.	1986
D.	Amendment of Air Act to include noise	4.	1981

The correct matches are

	A	B	C	D		A	B	C	D
(a)	3	4	1	2	(b)	1	3	2	4
(c)	4	1	2	3	(d)	3	4	2	1

Ans. ***(a)*** Environment Protection Act came into force on November 1986, at the birth anniversary of late Prime Minister of India Smt. Indira Gandhi.

Air prevention and central of pollution Act came into force in 1981 which is meant for the preservation of quality air.

Water Act 1974 is meant for restoration of quality of all type of surface and ground water.

In 1987 Amendment of Air Act to include noise came into existance (force).

Q. 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 mono oxide
(c) methane
(d) carbon dioxide and methane

Ans. ***(a)*** Catalytic converters contain costly metals like rhodium and platinum-palladium as catalysts, and when exhaust gas passes to fitted catalytic converter, the unburnt hydrocarbons (cause of cancer) are oxidised into water and carbon dioxide.

Q. 16 Why is it necessary to remove sulphur from petroleum products?

(a) To reduce the emission of sulphur dioxide in exhaust fumes
(b) To increase efficiency of automobiles engines
(c) To use sulphur removed from petroleum for commercial purposes
(d) To increase the life span of engine silencers

Ans. ***(a)*** Removal of sulphur from petrolium product (diesel) reduces the emission of oxides of sulphur like SO_2 and SO_3 in the exhaust fumes.

Q. 17 Which one of the following impurities is easiest to remove from waste water?

(a) Bacteria (b) Colloids
(c) Dissolved solids (d) Suspended solids

Thinking Process

Domestic sewage (household waste water) consists of everything which are transferred from residential blocks to sewer.

Ans. ***(d)*** Three type of impurities are found in waste water, suspended particles (solids). colloidal impurities and dissolved material (inorganic and organic) like calcium, ammonia, toxic material, phosphate, sodium, calcium and nitrate.

Out of them suspended solids like sand silt and clay impurities are easily removed, in sewage treatment plants.

Q. 18 Which one of the following diseases is not due to contamination of water?

(a) Hepatitis-B (b) Jaundice
(c) Cholera (d) Typhoid

Ans. ***(a)*** Hepatitis-B is initially not caused by contamination of water, but by the exposure to infectious agents on the other hand, jaundice, cholera and typhoid are water and food borne diseases which are the caused the by contamination of food item.

Q. 19 Nuisance growth of aquatic plants and bloom-forming algae in natural water is generally due to high concentrations of

(a) carbon (b) sulphur
(c) calcium (d) phosphorus

Ans. ***(d)*** Nuisance growth of aquatic plants and bloom the forming algae in natural water bodies is generally due to high concentration of dissolved organic and inorganic nutrients materials Phosphorus favours the growth of aquatic weed plants like *Eichhornia* (water hyacinth) and certain blue-green algae.

Q. 20 Algal blooms impart a distinct colour to water due to

(a) their pigments
(b) excretion of coloured substances
(c) formation of coloured chemicals in water facilitated by physiological degradation of algae
(d) absorption of light by algal cell wall

Ans. ***(a)*** Algal bloom impart distinct colour to water due to their pigmens.

Pigment composition of several groups of algae.

Green algae	—	Chlorophyll-*b*
Brown algae	—	Chlorophyll-c_1 + c_2 fucoxanthin
yellow algae	—	Chlorophyll-c_1 + c_2 fucoxanthin
Red algae	—	Phycoerythrin, phycoyanin
Blue algae	—	Phycoerythrin, phycoyanin

Q. 21 Match the items in column I and column II and choose the correct option.

Column I	Column II
A. UV	1. Biomagnificatron
B. Biodegradable organic matter	2. Eutrophication
C. DDT	3. Snow blindness
D. Phosphates	4. BOD

The correct matches is

	A	B	C	D
(a)	2	1	4	3
(c)	3	4	1	2

	A	B	C	D
(b)	3	2	4	1
(d)	3	1	4	2

Ans.

Column I	Column I
A. UV ray	Snow blindness (effect cornea)
B. Biodegradable organic matter	BOD
C. DDT	Magnification
D. Phosphate	Eutrophication

Q. 22 In the textbook you same across three mile island and chernobyl disasters associated with accidental leakage of radioactive wastes. In India we had Bhopal gas tragedy. It is associated with which of the following?

(a) CO_2 (b) Methyl isocyanate
(c) CFC's (d) Methyl cyanate

Ans. *(b)* MIC (Methyl Isocynate) was leaked from insecticide (SAVIN) unit of Union Carbide at Bhopal. Which lead to Bhopal Gas Tragedy. This chemical tragedy occured on December 2rd 1984 at Bhopal, the capital of Madhya Pradesh. In which around 2000-3000 people died on that some night.

Very Short Answer Type Questions

Q. 1 Use of lead-free petrol or diesel is recommended to reduce the pollutants emitted by automobiles. What role does lead play?

Ans. Catalytic converters, having expensive metals namely platinum, palladium and rhodium as the catalysts are fitted into automobiles for reducing emission of poisonous gases and to convert unburnt hydrocarbons into CO_2 and H_2O.

Motor vehicles equipped with catalytic to converter need to use unleaded petrol because lead in the petrol, inactivates the catalyst and increases the hydrocarbon emission, there by harming the environment.

Q. 2 In which year was the Air (Prevention and Control of Pollution) Act amended to include noise as air pollution.

Ans. In 1987, the Air (Prevention and Control of Pollution) Act was amended to include noise as a source of air pollution.

Q. 3 Name the city in our country where the entire public road transport runs on CNG.

Ans. In Delhi, the entire public surface transport especially road transport runs on compressed Natural Gas (CNG)

Q. 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?

Ans. The source of silt that get deposited in overhead water tank are soil particles, which are carried out with water from the source of supply like deep borewell, rivers, etc.

Q. 5 What is cultural eutrophication?

Ans. The phenomenon wherein **effluents** from the industries and homes accelerate the natural and cultural ageing process of lakes and other water bodies that normally may take thousands of years is called accelerated **eutrophication**.

Q. 6 List any two adverse effects of particulate matter on human health.

Ans. *The fine particulate (PM of size 2.5 μm or less) can problems cause*

(i) Breathing and respiratory
(ii) Irritation
(iii) Inflammations
(iv) Damage to the lungs and premature death

Q. 7 What is the raw material for polyblend?

Ans. Polyblends are natural man made fibres, made by the mixture of two or more polymers especially plastic waste products

Q. 8 Blends of polyblend and bitumen, when used, help to increase road life by a factor of three. What is the reason?

Ans. Polyblend is a fine powder of recycled modified plastic. The binding property of plastic makes the road last longer besides giving added strength to withstand more loads.
This is because

(i) Plastic increases the melting point of the bitumen which would prevent it from melting in India's hot and extremely humid climate, where temperature frequently cross 50°C.
(ii) Rainwater will not seep through because of the plastic in the tar.

Q. 9 Mention any two examples of plants used as wind breakers in the agricultural fields.

Ans. Wind breakers or shelter belts provide shelter from wind and protect soil from erosion. Jamun and imli and some other trees like babul, *Lawsonia*, *Thevetia* and *Calotropis* acts as wind breakers in the agricultural field.

Q. 10 Name an industry which can cause both air and thermal pollution and as well as eutrophication.

Ans. Chemical fertiliser unit, thermal power plant, refineries, smelting and metallurgical processing units steel mills, and the industries using steam or water as coolant causes both air and thermal pollution. The chemical release form these Industries (if rich in nitrogen and phosphorus) may result in eutrophication.

Q. 11 What is an algal bloom?

Ans. The extensive growth of **planktonic** (free-floating) algae in water bodies due to the presence of organic matter in water (cnitrogen and phosphores) that acts as a food source is called an algal bloom. This imparts a distinct colour to the water bodies.

Q. 12 What do you understand by biomagnification?

Ans. **Biomagnification** refers to the increase in the concentration of the toxic substances at successive trophic level ls in the food chain.

This happens because a toxic substance accumulated by an organism cannot be metabolised or excreted and when this organism is eaten up by another animal of higher trophic level, it is passed on to this and then to the next higher trophic level and so on.

Q. 13 What are the three major kinds or impurities in domestic wastewater?

Ans. *The three major kinds of impurities in domestic waste water are*

(i) Dissolved salts such as nitrates, phosphates, other nutrients, toxic, metal ions and organic compounds.

(ii) Biodegradable organic matter.

(iii) Pathogenic microorganisms.

Q. 14 What is reforestation?

Ans. Reforestation is the process of restoring a forest that had once existed but was removed at some point of time in the past. Though, it can occur naturally in a deforested area but we can expedite it by planting trees with due consideration to biodiversity that earlier existed in that area.

Q. 15 What is the best solution for the treatment of electronic wastes?

Ans. The best solution for the treatment of electronic wastes is to recycle it. Electronic waste recycling facilities have advanced considerably and now they can be recycled 95-98% by weight.

Recycling has two fold benefits

(i) It prevents the toxic components of computers from entering the delicate environment and ground water *via* landfill.

(ii) It also slows the use and mining of primary raw materials.

Short Answer Type Questions

Q. 1 Is it true that carpets and curtains/drapes placed on the floor or wall surfaces can reduce noise level. Explain briefly?

Ans. Yes, it is true, that the placing/using carpets on floor and curtains on wall surface, windows, reduces noise level. This is because the curtains and carpets on wall surface and carpet acts as muffling device and absorb sounds of moderate level.

Q. 2 What is hybrid vehicle technology? Explain its advantages with a suitable example?

Ans. The technology used to run vehicles on dual mode like petrol or compressed natural gas is said to be hybrid vehicle technology. These vehicles runs on either petrol or CNG. As CNG is a clean and green fuel so it is helpful to reduce environmental pollution and also to conserve petrol, fossil fuel.

Q. 3 Is it true that if the dissolved oxygen level drops to zero, the water will become septic. Give an example which could lower the dissolved oxygen content of an aquatic body.

Ans. Yes, it is true, in case of zero level of dissolved oxygen (DO), the water becomes septic. Organic pollution like fertiliser in aquatic bodies is responsible for lowering (upto zero) the level of dissolved oxygen.

Q. 4 Name any one green house gas and its possible source of production on a large scale. What are the harmful effects of it?

Ans. The common green house gases are CO_2, CH_4, CFC, oxide of nitrogen (N_2O), water vapour and O_3. The level of CO_2 (green house gas) is increasing due to large scale deforestation, change in land use and unlimited buring of fossils fuel and is leading to global warming.

The source of methane and other main green house gases are garbage dump, incomplete decomposition by anaerobic methanogens, flooded paddy field and marshy land. About 90-95% of CH_4 is produced/generated by rice fields of Asia.

Q. 5 It is a common practice to plant trees and shrubs near the boundary walls of buildings. What purpose do they serve?

Ans. A common practice to grow and maintain trees and shrub near the boundary wall of residential, official building acts as a barrier for sound and check noise pollution. This green belt of tree and shrub also acts as an effective measure to check primary air pollutants like dust, flyash, etc.

Q. 6 Why has the National Forest Commission of India recommended a relatively larger forest cover for hills than for plains?

Ans. It is our moral duty to protect, restore and conserve/preserve forest as they are highly beneficial for mankind In India, around 30% of land was covered by forest in early 20th century, which has been reduced to 18-19% by the year 2000. National Forest Commission of India (1988) recommended a relatively large forest cover (67%) for the hills and 33% for the plains.

Recommendation a large forest area for hills is due to its properties like checking soil erosion, percolation and recharging ground water, checking landslide and other natural calamities and to maintain the original flora and fauna of hills.

Q. 7 How can slash and burn agriculture become environment friendly?

Ans. *Slash and burn agriculture can be environment friendly if*

(i) small widely scattered plots are used for cultivation as the forest ecosystem will not suffer damage.

(ii) crop rotation is used so that soil does not loose fertility entirely.

(iii) keeping cropping period small and fallow (unplanted) period longer.

Q. 8 What is the main idea behind "Joint Forest Management Concept" introduced by the Government of India?

Ans. The main idea behind joint forest management concept introduced by the Government of India was involving the local communities in the forest conservation.

This concept was adopted considering the extraordinary courage and dedication the local people showed in protecting the wildlife through the movements like Bishnoi's is movement in Jodhpur and Chipko Movement in Garhwal Himalayas.

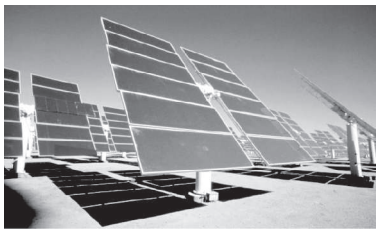
Q. 9 What do you understand by Snow-blindness?

Ans. The inflammation of cornea caused due to the excessive absorption of ultravioet-B radiations is called snow-blindness cataract.

Q. 10 How has DDT caused decline in bird population?

Ans. High concentrations of DDT disturb calcium metabolism in birds, which causes thinning of egg shell and their premature breaking, eventually causing decline in bird populations.

Q. 11 Observe the figure A and B given below and answer the following questions



A

B

(i) The power generation by the above two methods is non-polluting, True/False.

(ii) List any two applications of solar energy

(iii) What is a photovoltaic cell?

Ans. **(i)** Figure A is solar energy panel and figure B is wind mill device. Both devices produce power without polluting the environment.

(ii) Solar lamp (lantern) (made up of a LED lamp, a photo-voltaic solar panel and rechargeable battery) and solar hot water system (geyser) are the two application of solar energy.

(iii) A solar cell is also called as photovoltaic cell. It is a form of photoelectric cell which converts the light energy into electrical energy by photovoltaic cell.

Long Answer Type Questions

Q. 1 Write a short note on electronic waste. List the various sources of e-wastes and the problems associated with its disposal.

Ans. Solid waste can be biodegradable recyclable non-biodegradable, and can be categoriesed as municipal wastes (se-wage), industrial waste, hospitals and nursing wastes and electronic waste. Irrepairable computers, mobiles and other electronic goods are often known as 'e' waste or electronic waste.

Source of e-waste Majority of the developing countries like China, Pakistan and India import irrepairable electronic goods for their valuable metals like copper, nickel and gold.

Disposal of e-waste Such waste should be burried in landfills or incinerated. In developing countries, metal from e-waste is extracted manually. So, during working with e-waste, one can expose with toxic substances present in it, and may get affected by skin diseases in future. However, recycling is the only solution for the treatment of electronic waste.

Q. 2 What is organic farming? Discuss the benefits of organic farming as a viable practise in the context of developing nations like India.

Ans. Organic farming system primarily aims at sustainable production in an eco-friendly and pollution free environment. The land is cultivated by using techniques such as crop rotation, green manure, composting and biological pesticides alongwith beneficial microbes (biofertilisers) instead of chemical fertilisers and pesticides, etc.

Benefits of organic farming are

(i) Maintains long-term soil fertility.

(ii) Controls pests and diseases without harming the environment.

(iii) Ensures that water stays clean and safe.

(iv) Makes use of resources which the farmer already has, to make it economic.

(*v*) Helps produce nutritious food and high quality crops.

Organic farming in India

Using organic farming techniques makes much more sense for developing nations like India. As we know that modern, intensive agriculture makes the use of expensive chemical fertilisers and herbicides, which leach out from the soil and pollute rivers, lakes and water bodies and also damage the soil fertility in the long run.

Q. 3 Water logging and soil salinity are some of the problems that have come in the wake of the Green Revolution. Discuss their causes and adverse effects to the environment.

Ans. Water logging and soil salinity is caused by extensive irrigation without proper drainage of water.

Continuous presence of water draws salt to the surface of the soil, which gets deposited as a thin crust on the land surface or start collecting at the roots of the plants.

Adverse effects

(i) Increased salt content stunts the growth of crop plants.

(ii) Root cells saturated with saline water gets damaged.

(iii) Plants die.

(iv) Crop yield gets affected.

(v) Financial loss to the farmers.

Although properly managing the soil-water system can correct the salination and water logging, but the economic costs of this are very high.

Q. 4 What are multipurpose trees? Give the botanical and local names of any two multipurpose trees known to you and list their uses.

Ans. Multipurpose trees are those tree which on plantation fulfills a number of purpose, like shade, providing, soil improvement, provide wood, fruit and food etc. In other words, multipurpose trees serve a wide variety of function and services for human needs.

Neem (*Azardicta, indica)* is known for its medicinal properties. Its fruit, leaves, wood and oil extracted from wood is used in most of the ayurvedic medicines. Its wood is pest resistant due to chemical azardiction. Another most important tree is coconut palm.

Its botanical name is *Coccos nucifera* and belongs to the family-Palmae, it serves a variety of function. As we get oil, wood and food fibre, from this plant. This plant has fibre, medicinal and commercial importance.

Some other multipurpose trees are *Moringa oleifera* and *Gliricidia sepium*, which is widely used for fences in central America and provide fire wood fooder and fix atmospheric N_2. While *M.oleifera* is commonly used for animal forage and shade, its leaves are edible.

Q. 5 What are the basic characteristics of a modern landfill site. List any three and also mention the reasons for their use.

Ans. *Characteristics of a modern landfill includes*

(i) Methods to contain leachate such as lining clay or plastic liners.
(ii) Compaction and covering of the waste to prevent it from being blown by wind.
(iii) Installation of a landfill gas extraction system to extract the gas for use in generation of power.

The use of modern landfill sites must be promoted due to the following reasons

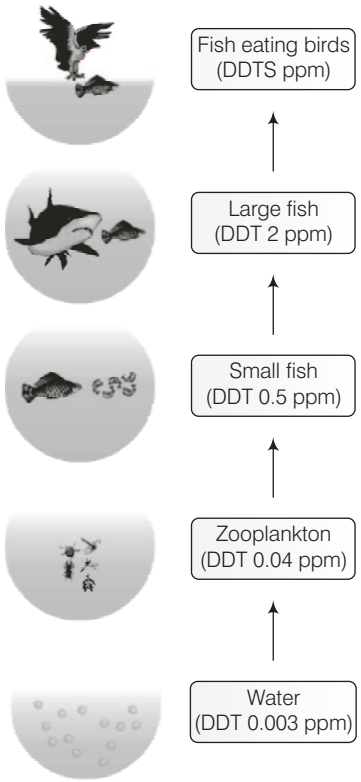
(i) They stimulate the waste prevention *via* recycling and recovery of waste.
(ii) They create a uniform cost for the disposal of waste which consequntly will prevent the unecessary transport of waste.
(iii) They prevent or reduce the negative eftects on the envirionment, as well as the risks to human health arising from the landfilling of the waste.

Q. 6 How does an electrostatic precipitator work?

Ans. Electrostatic precipitator can remove over 99% particulate matter present in the exhaust from a thermal power plant by the following mechanism

(i) It has electrode wires that are maintained at several thousand volts, which produce a corona that releases electrons.
(ii) These electrons attach to dust particles giving them a net negative charge.
(iii) The collecting plates are grounded and attract the charged dust particles.
(iv) The velocity of air between the plates is kept low enough to allow the dust to fall.

Q. 7 Observe figure and answer the following questions.



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

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

(iii) Will DDT accumulation lead to eutrophication?

(iv) Does it affect the BOD?

(v) Name disease caused by accumulation of any heavy metal.

Ans. **(i)** The ecological term used to describe the DDT accumulation at different trophic levels is called biomagnification.

(ii) High concentrations of DDT disturb calcium metabolism in birds, which causes thinning of egg shell and their premature breaking, eventually causing decline in bird populations.

(iii) *Yes*, DDT accumulation can lead to eutrophication.

(iv) It increases the BOD, resulting in a decrease in dissolved oxygen in the water body.

(v) Eating fish that has accumulated mercury, a heavy metal, causes a disease called **Minamata**. It is characterised by diarrhoea, haemolysis, numbness, deafness, mental derangement, meningitis and death.