

Chapter 22

Environmental Management

I. Fill in the blanks:

1. Deforestation leads to in rainfall.
2. Removal of soil particles from the land is called
3. Chipko movement is initiated against
4. is a biosphere reserve in Tamilnadu.
5. Tidal energy is type of energy.
6. Coal, petroleum and natural gas are called fuels.
7. is the most commonly used fuel for the production of electricity.

Answer:

1. Decrease
2. Soil Erosion
3. Deforestation
4. Nilgiris
5. Non-conventional
6. Fossil
7. Coal

II. State whether True or False. Correct the statements which are false:

1. Biogas is a fossil fuel.
2. Planting trees increases the groundwater level.
3. Habitat destruction cause loss of wile life.
4. Nuclear energy is a renewable energy
5. Overgrazing prevents soil erosion.
6. Poaching of wild animals is a legal act.
7. National park is a protected park.
8. Wild life protection act was established in 1972.

Answer:

1. False – Biogas is a natural gas
2. True
3. True
4. False – Nuclear energy is non-renewable energy
5. False – Overgrazing causes soil erosion

6. False – Poaching of wild animals is an illegal act.
7. True
8. Tme

III. Match the following:

Column I		Column II	
A	Soil erosion	(i)	energy saving
B	Bio gas	(ii)	acid rain
C	Natural gas	(iii)	removal of vegetation
D	Green house gas	(iv)	renewable energy
E	CFL bulbs	(v)	CO ₂
F	Wind	(vi)	non-renewable energy
G	Solid waste	(vii)	lead and heavy metals

Answer:

- A. (iii)
- B. (v)
- C. (vi)
- D. (ii)
- E. (i)
- F. (iv)
- G. (vii)

IV. Choose the correct Answer:

Question 1.

Which of the following is / are a fossil fuel?

- (i) Tar, (ii) Coal, (iii) Petroleum
- (a) (i) only
- (b) (i) and (ii)
- (c) (ii) and (iii)
- (d) (i), (ii) and (iii)

Answer:

- (c) (ii) and (iii)

Question 2.

What are the steps will you adopt for better waste management?

- (a) reduce the amount of waste formed
- (b) reuse the waste
- (c) recycle the waste
- (d) all of the above

Answer:

(d) all of the above

Question 3.

The gas released from vehicles exhaust are:

- (i) carbon monoxide
- (ii) Sulphur dioxide
- (iii) Oxides of nitrogen:
- (a) (i) and (ii)
- (b) (i) and (iii)
- (c) (ii) and (iii)
- (d) (i), (ii) and (iii)

Answer:

(b) (i) and (iii)

Question 4.

Soil erosion can be prevented by _____

- (a) deforestation
- (b) afforestation
- (c) over growing
- (d) removal of vegetation

Answer:

(b) afforestation

Question 5.

A renewable source of energy is:

- (a) petroleum
- (b) coal
- (c) nuclear fuel
- (d) trees

Answer:

(d) trees

Question 6.

Soil erosion is more where there is _____

- (a) no rainfall
- (b) low rainfall
- (c) rainfall is high
- (d) none of these

Answer:

(c) rainfall is high

Question 7.

An inexhaustible resources is:

- (a) wind power
- (b) soil fertility

- (c) wild life
- (d) all of the above

Answer:

- (d) all of the above

Question 8.

Common energy source in village is ____

- (a) electricity
- (b) coal
- (c) biogas
- (d) wood and animal dung

Answer:

- (d) wood and animal dung

Question 9.

Green house effect refers to:

- (a) cooling of earth
- (b) trapping of UV rays
- (c) cultivation of plants
- (d) warming of earth

Answer:

- (d) warming of earth

Question 10.

A cheap, conventional, commercial and inexhaustible source of energy is ____

- (a) hydropower
- (b) solar energy
- (c) wind energy
- (d) thermal energy

Answer:

- (b) solar energy

Question 11.

Global warming will cause

- (a) raise in level of oceans
- (b) melting of glaciers
- (c) sinking of islands
- (d) all of these

Answer:

- (d) all of these

Question 12.

Which of the following statement is wrong with respect to wind energy?

- (a) wind energy is a renewable energy
- (b) the blades of windmill are operated with the help of an electric motor
- (c) production of wind energy is pollution-free

(d) usage of wind energy can reduce the consumption of fossil fuels

Answer:

(b) the blades of windmill are operated with the help of the electric motor

V. Answer in a Sentence:

Question 1.

What will happen if trees are cut down?

Answer:

If trees are cut down it give rise to ecological problems like floods, drought, soil erosion, loss of wild life, extinction of species, imbalance of biogeochemical cycles, alternation of climatic conditions and desertification.

Question 2.

What would happen if the habitat of wild animals is disturbed?

Answer:

If the habitual wild animals disturbed, the biological diversity cannot be maintained and cannot promote economic activities, which generates revenue to the government.

Question 3.

What are the agents of soil erosion?

Answer:

Agents of soil erosion are high velocity of wind, air currents, flowing water, land slide, human activities like deforestation, farming and mining overgrazing by cattle.

Question 4.

Why fossil fuels are to be conserved?

Answer:

Like fossil fuels, accumulation is a very slow process and takes a very long period, and in order to preserve them for a future generation, fossil fuels are to be conserved.

Question 5.

Solar energy is a renewable energy. How?

Answer:

Solar energy is the energy obtained from the sun. This energy resources is available in unlimited amount in nature and it can be renewed over a short period of time, inexpensive and can be harvested continuously.

Question 6.

How are e-wastes generated?

Answer:

E-wastes are generated from spoiled, outdated, non-repairable electrical and electronic devices.

VI. Short Answer Questions

Question 1.

What is the importance of rainwater harvesting?

Answer:

1. Overcome the rapid depletion of ground water levels.
2. To Meet the increase demand of water.
3. Reduces flood and soil erosion.
4. Water stored in ground is not contaminated by human and animal wastes and hence can be used for drinking purpose.

Question 2.

What are the advantages of using biogas?

Answer:

The advantages of using biogas are as follows:

- It burns without smoke, causing less pollution.
- It is an excellent way to get rid of organic wastes like bio-waste and sewage material.
- The leftover slurry is good manure rich in nitrogen and phosphorus.
- It is safe and convenient to use.
- It can reduce the number of greenhouse gases emitted.

Question 3.

What are the environmental effect caused by sewage?

Answer:

Sewage water results in agricultural contamination and environmental degradation, pollute the water resources.

Question 4.

What are the consequences of deforestation?

Answer:

The contaminants can harm animals and damage the food chain.

- Deforestation becomes a threat to the economy, quality of life and future of the environment.
- Loss of many forests.
- It gives rise to ecological problems like floods, drought, soil erosion, loss of wildlife, extinction of species, imbalance of biogeochemical cycles, alteration of climatic conditions and desertification.

VII. Long Answer Questions:

Question 1.

How does rainwater harvesting structures recharge groundwater?

Answer:

Recharge pit: In this method, the rainwater is first collected from the roof tops or open spaces and is directed into the percolation pits through pipes for filtration. After filtration the rainwater enters the recharge pits or ground wells.

People living in rural areas adopt a variety of water collecting methods to capture and store as rain water. Some of the methods used are-

(i) Digging of tanks or lakes (Eris) : It is one of the traditional water harvesting system in Tamil Nadu. Eris are constructed in such a way that if the water in one eri overflows, it automatically gets diverted to the eri of the next village, as these eris are interconnected.

(ii) Ooranis : These are small ponds to collect rainwater. The water is used for various domestic purposes (drinking, washing and bathing). These ponds cater the nearby villages.



Rain water Harvesting

Question 2.

How will you prevent soil erosion?

Answer:

The following are the methods to prevent soil erosion:

- Retain vegetation cover, so that soil is not exposed.
- Cattle grazing should be controlled.
- Crop rotation and soil management improve soil organic matter.
- Runoff water should be stored in the catchment.
- Reforestation, terracing and contour ploughing.
- Wind speed can be controlled by planting trees in the form of a shelterbelt.

Question 3.

What are the sources of solid wastes? How are solid wastes managed?

Answer:

Solid wastes mainly include municipal wastes, hospital wastes, industrial wastes and e-wastes etc. The solid wastes are dumped in the soil which results in landscape pollution.

Solid-waste management involves the collection, treatment and proper disposing of solid material that is discarded from the household and industrial activities.

Methods of solid wastes disposal:

1. Segregation : It is the separation of different type of waste materials like biodegradable and non biodegradable wastes.
2. Sanitary landfill : Solid wastes are dumped into low lying areas. The layers are compacted by trucks to allow settlement. The waste materials get stabilised in about 2-12 months. The organic matter undergoes decomposition.
3. Incineration : It is the burning of nonbiodegradable solid wastes (medical wastes) in properly constructed furnace at high temperature.
4. Composting : Biodegradable matter of solid wastes is digested by microbial action or earthworms and converted into humus.

Recycling of wastes:

1. Papers from old books, magazines and newspapers are recycled to produce papers in papermills.
2. Agricultural wastes like coconut shells, jute cotton stalk, bagasse of sugarcane can be used to make paper and hard board. Paddy husk can be used as livestock fodder.
3. Cowdung and other organic wastes can be used in go-bar gas plant to provide biogas and manure for fields. The 3R approach such as Reduce, Reuse and Recycle may be followed for effective waste management.

Question 4.

Enumerate the importance of forest.

Answer:

- Forests are an important component of our environment.
- There are microorganisms, flowering plants, shrubs, climbers and dense trees in the forest.
- Forests provide a vast habitat for wild animals.
- Forests help for the economic development of our country.
- Forests are the source for a wide range of renewable natural resource.
- Forests provide wood, food, fodder, fibre and medicine.
- They act as a carbon sink, regulate climatic conditions, increase rainfall and reduce global warming.
- The natural hazards like flood and landslides are prevented.
- Wildlife is protected.
- It acts as a catchment for water conservation.
- Forests maintain ecological balance.

Question 5.

What are the consequences of soil erosion?

Answer:

The effects of soil erosion leads to loss of fertility of land, humus and nutrient. It leads to increased pollution, sedimentation in streams and rivers. Degraded lands able to hold water which can worsen flooding.

Question 6.

Why is the management of forest and wildlife resource considered as a challenging task?

Answer:

The management of forest and wildlife resource is considered as a challenging task because,

- Due to deforestation, there is a lack of oxygen.
- People kill animals, for making cloth designs so it harms the wildlife.
- There is a lack of public awareness.
- There are global warming and climate change.
- Water scarcity and changes in rainfall pattern.
- People kill animals and cut down trees, for economic benefit.
- Poaching.
- Forests cannot be irrigated like fields they depend on rain.
- Changes in rainfall pattern, affect the development of forests and may lead to destruction.

VIII. Assertion and Reasoning:

In each of the following question a statement of assertion(A) is given and a corresponding statement of reason (R). Of the four statements given below mark the correct answer.

Question 1.

Assertion (A): Rainwater harvesting is to collect and store rain water.

Reason (R): Rainwater can be directed to recharge the underground water source.

- (a) Both Assertion and Reason are true and Reason is correct explanation of Assertion.
(b) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
(c) Assertion is true but Reason is false.
(d) Both Assertion and Reason are false.

Answer:

- (a) Both Assertion and Reason are true and Reason is correct explanation of Assertion.

Question 2.

Assertion (A): Energy efficient bulbs like CFL must be used to save electric energy.

Reason (R): CFL bulbs are costlier than ordinary bulbs, hence using ordinary bulbs can save our money.

- (a) Both assertion and reason are true and reason is correct explanation of assertion.
(b) Both Assertion and Reason are true but Reason is not the correct explanation of

Assertion.

- (c) Assertion is true but Reason is false.
- (d) Both Assertion and Reason are false.

Answer:

(b) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.

IX. Higher Order Thinking Skills: (HOTS)

Question 1.

Although coal and petroleum are produced by degradation of biomass, yet we need to conserve them. Why?

Answer:

The formation of coal and petroleum is a very slow process and takes very long period of time for renewal. Moreover coal is used for generation of electricity, petroleum is used to run automobile, trucks, trains, ships and aeroplane. So we need to conserve them as they get exhausted.

Question 2.

What are the objectives for replacing non-conventional energy resources from conventional energy resources?

Answer:

- Non-conventional energy resources can be replenished quickly.
- Hydrocarbons are formed over a period of thousands of years when the remains of dead plants and animals are buried inside the Earth.
- Burning coal and oil results in air pollution.
- Conserve fossil fuels, using an alternate source of energy, when possible.
- Wise utilization of non-renewable natural resources.

Question 3.

Why is the Government imposing ban on the use of polythene bags and plastics? Suggest alternatives. How is this ban likely to improve the environment?

Answer:

1. It is non-biodegradable material which causes environmental pollution. It is harmful to wild life and marine life. It is very hard to clean or remove from environment.
2. Alternatives to plastic bag are jute or canvas bags, paper bags.
3. It controls the pollution and cleans the environment and makes it a better place to live for all organisms.

X. Value-Based Questions:

Question 1.

Why is it not possible to use solar cells to meet our energy needs? State three reasons.

support your answer.

Answer:

- The installing cost of solar cell panel is high, as the silicon wafer is very expensive and also the silver used in connecting solar cells.
- D.C electricity is produced. To operate any A.C device, this D.C. has to be connected in, as by using an inverter.
- The efficiency of energy conversion is low as compared to other means of generating electricity.

Question 2.

How would you dispose the following wastes?

(a) Domestic wastes like vegetable peels

(b) Industrial wastes like metallic cans

Can the disposal protect the environment? How?

Answer:

(a) Domestic waste like vegetable peels can be disposed by composting where solid wastes is digested by microbial action or earthworms and converted into humus.

(b) The metallic ions melt into molten aluminium this removes the coating and inks that may be present on the aluminium. The aluminium is then made into large blocks which is used to make other products.

Question 3.

List any three activities based on the 3R approach to conserve natural resources.

Answer:

- Integrated solid waste management is based on the 3R approach. (Reduce, Reuse and Recycle).
- 3R is aimed at the management of solid waste from all waste generating sectors.
- 3R helps to minimize the amount of wastes from generation to disposal.