



## UNIT

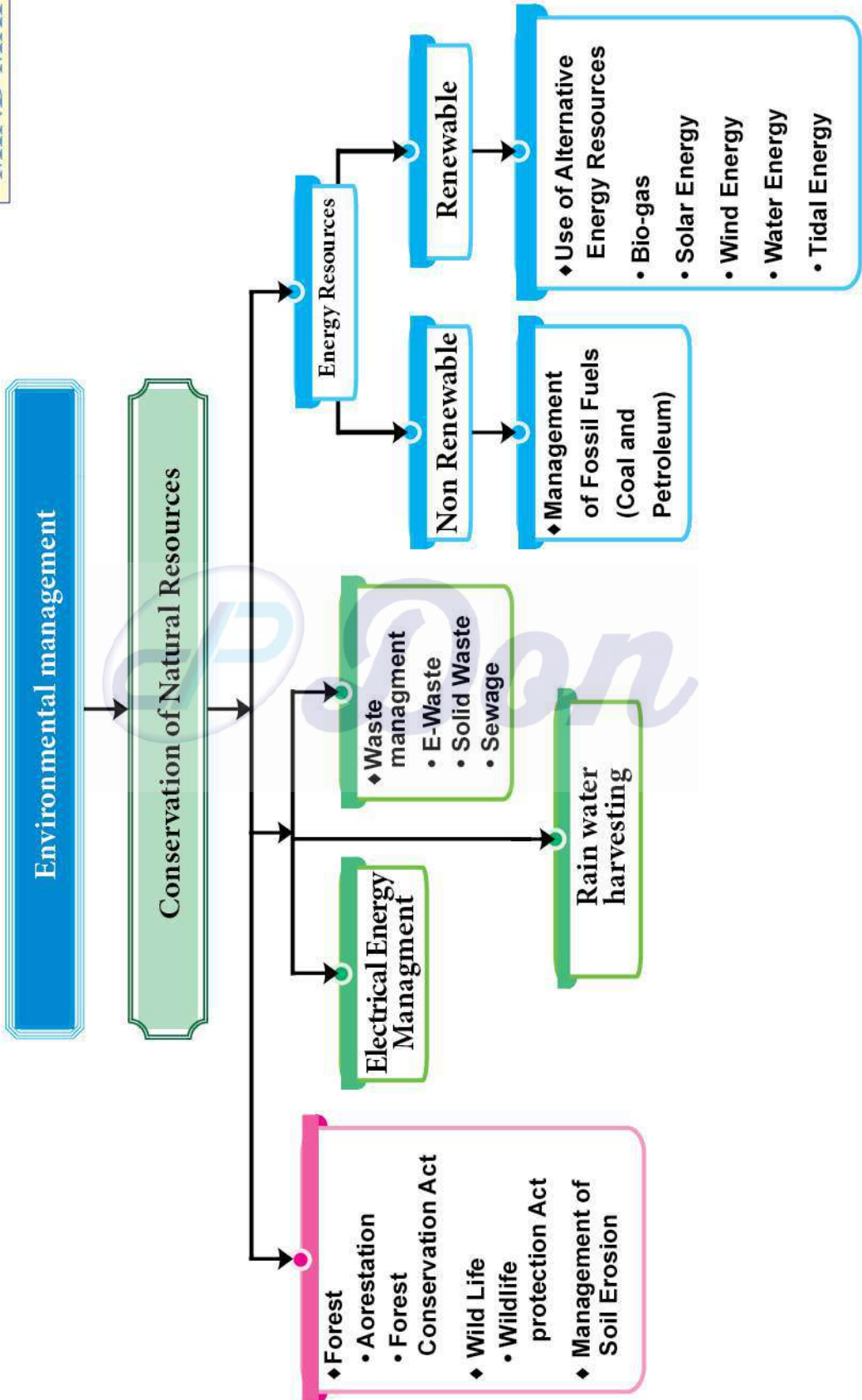
# 22

## Environmental Management

### POINTS TO REMEMBER

<b>Non-renewable energy resource</b>	: Limited - short period
<b>Renewable energy resource</b>	: Unlimited amount
<b>Fossil fuels</b>	: Anaerobic decomposition of buried organisms
<b>Alternative energy sources</b>	: 1. Solar energy, 2. Biogas, 3. Wind energy, 4. Water energy, 5. Tidal energy
<b>Sewage management</b>	: Sewage water results in agriculture contamination and environmental degradation.
<b>Solid waste management</b>	: Segregation, sanitary landfill, incineration composting
<b>3R approach</b>	: Reduce, Reuse, Recycle
<b>Habitat</b>	: The natural home of an animal, plant or other organism.
<b>Resources</b>	: All the land, forests, energy sources and minerals existing naturally in a place that can be used by people.
<b>Conservation</b>	: Protection of plants and animals, natural areas, important buildings from the damaging effects of human activity.
<b>Soil erosion</b>	: Displacement of upper layer of soil from one place to another.
<b>Shale</b>	: Soft finely stratified sedimentary rock that is formed from the contraction of small old rocks containing mud and minerals.
<b>Solar cells</b>	: Solar energy device for harvesting sun's energy
<b>Biogas or Gobar gas</b>	: Gas produced by decomposition of animal wastes (cow dung) and plant wastes in the absence of oxygen.
<b>Afforestation</b>	: Planting and protecting trees.

## MIND MAP



## Environmental Management

<b>Wild life</b>	: Wild life refers to the undomesticated animals living in their natural habitats (forests, grasslands and deserts) an area without human habitation.
<b>Solar energy</b>	: Energy obtained from the sun.
<b>Wind energy</b>	: The energy got by converting the kinetic energy of wind into mechanical power by wind turbines.
<b>Tidal energy</b>	: Tidal energy is the energy obtained from the bulk movement of water due to ocean tides.
<b>Rainwater harvesting</b>	: Rain water harvesting is a technique of collecting and storing rainwater for future use.
<b>Ooranis</b>	: These are small ponds to collect rainwater.
<b>Incineration</b>	: It is the burying of non-biodegradable solid wastes (medical wastes) in properly constructed furnace at high temperature.
<b>National Park</b>	: National park is a reserved area for the conservation of entire wildlife including plants and animals.
<b>Sanctuary</b>	: Sanctuary is a place reserved exclusively for the use of animals.

**Scientists and Inventions:**

**Rathika Ramasamy** - First Indian woman to strike an International reputation as Wildlife photographer

## Textbook Evaluation

### 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. ★★



**Ans:**

1. Decrease	4. Nilgiris	6. Fossil
2. Soil erosion	5. Electrical	7. Bio-gas
3. Deforestation		

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

- Biogas is a fossil fuel. ★ ★** False  
Bio-gas is produced by the decomposition of animal wastes and plant wastes in the absence of oxygen.
- Planting trees increases the groundwater level.** True
- Habitat destruction cause loss of wild life.** True
- Nuclear energy is a renewable energy. ★ ★** True
- Overgrazing prevents soil erosion.** False  
Overgrazing causes soil erosion.
- Poaching of wild animals is a legal act.** False  
Poaching of wild animals is an illegal act
- National park is a protected park.** True
- Wild life protection act was established in 1972.** True

**III. Match the following**

- |                    |                            |
|--------------------|----------------------------|
| 1) Soil erosion    | - a) Energy saving         |
| 2) Bio gas         | - b) Acid rain             |
| 3) Natural gas     | - c) Removal of vegetation |
| 4) Green house gas | - d) Renewable energy      |
| 5) CFL bulbs       | - e) O <sub>2</sub>        |
| 6) Wind            | - f) Non-renewable energy  |
| 7) Solid waste     | - g) Lead and heavy metals |

(c)  
(d)  
(f)  
(b)  
(a)  
(e)  
(g)

**IV. Choose the most suitable answer from the given four alternatives and write the option code and corresponding answer:**

- 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
- 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
- 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

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4. Soil erosion can be prevented by
  - a) deforestation
  - b) afforestation
  - c) over growing
  - d) removal of vegetation
5. A renewable source of energy is
  - a) petroleum
  - b) coal
  - c) nuclear fuel
  - d) trees
6. Soil erosion is more where there is
  - a) no rain fall
  - b) low rainfall
  - c) rain fall is high
  - d) none of these
7. An inexhaustible resources is
  - a) wind power
  - b) soil fertility
  - c) wild life
  - d) all of the above
8. Common energy source in village is
  - a) electricity
  - b) coal
  - c) biogas
  - d) wood and animal dung
9. Green house effect refers to ★ ★
  - a) cooling of earth
  - b) trapping of UV rays
  - c) cultivation of plants
  - d) warming of earth
10. A cheap, conventional, commercial and inexhaustible source of energy is
  - a) hydropower
  - b) solar energy
  - c) wind energy.
  - d) thermal energy
11. Global warming will cause
  - a) raise in level of oceans
  - b) melting of glaciers
  - c) sinking of islands
  - d) all of these
12. Which of the following statement is wrong with respect to wind energy?
  - a) Wind energy is a renewable energy
  - b) The blades of wind mill are operated with the help of electric motor
  - c) Production of wind energy is pollution free
  - d) Usage of wind energy can reduce the consumption of fossil fuels

**Ans:**

1. c)	ii and iii	2. d)	All of the above	3. d)	i, ii, and iii
4. a)	afforestation	5. d)	Trees	6. b)	High rainfall
7. d)	All of the above	8. c)	bio-gas	9. d)	Warming of earth
10. b)	Wind energy	11. d)	All of these.		
12. b)	The blades of windmill are operated with the help of electric motor				

**V. Assertion and Reasoning**

1. 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.

- 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.



1. **Assertion:** Rainwater harvesting is to collect and store rain water.  
**Reason:** Rainwater can be directed to recharge the underground water source.  
**Ans:** (a) Both assertion and reason are true and reason is correct explanation of assertion.
2. **Assertion:** Energy efficient bulbs like CFL must be used to save electric energy.  
**Reason:** CFL bulbs are costlier than ordinary bulbs, hence using ordinary bulbs can save our money.  
**Ans:** (a) Both assertion and reason are true and reason is correct explanation of assertion.

## VI. Answer in a sentence

### 1. What will happen if trees are cut down?

Floods, drought, soil erosion loss of wild life and desertification will be caused by cutting down of trees.

### 2. What would happen if the habitat of wild animals is disturbed? ★ ★

If the habitat of wild animals is disturbed it affects the biological diversity and revenue through tourism.

### 3. What are the agents of soil erosion? ★ ★ ★

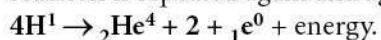
Agents of soil erosion are high velocity of wind, air currents, flowing water, landslide, human activities, overgrazing by cattle.

### 4. Why fossil fuels are to be conserved?

1. Non – renewable energy.
2. Formation of these fuels is a very slow process and takes very long period of time for renewal.

### 5. Solar energy is a renewable energy. How? ★ ★

The sun gets its energy through nuclear fusion. In this reaction Hydrogen atoms fused to form Helium atom. As a result huge energy is radiated on the surface of the sun. This reaction is repeated again and again resulting in the energy output continuously.



### 6. How are e-wastes generated?

Electronic wastes are generated from the spoiled, outdated, non – repairable electrical and electronic devices such as computers, calculator, toys etc.

## VII. Short answer questions

### 1. What is the importance of rainwater harvesting? ★ ★ ★

- Overcome the rapid depletion of **ground water levels**.
- To meet the increase demand of water.
- **Reduce flood** and **soil erosion**.
- Used for **drinking purpose**.

### 2. What are the advantages of using biogas?

- It burns without smoke and therefore causes **less pollution**.
- An excellent way to get rid of organic wastes like **bio-waste** and sewage material.
- Left over slurry is a good manure **rich** in **nitrogen** and **phosphorus**.
- It is safe and **convenient** to use.
- It can reduce the amount of **green house gases** emitted.

## Environmental Management

### 3. What are the environmental effect caused by sewage?

- Untreated sewage or wastewater generated from domestic and industrial process is the leading polluter of water sources in India.
- Sewage pollute water source in India. Sewage water results in **agricultural contamination** and **environmental degradation**

### 4. What are the consequences of deforestation? ★ ★

Deforestation gives rise to ecological problems like floods, drought, soil erosion, loss of wild life, extinction of species, imbalance of biogeochemicals, alternation of climatic conditions and desertification.

## X. Long answer questions

### 1. How does rainwater harvesting structures recharge ground water? ★ ★ ★

**Methods of Rain water harvesting:**

#### i) Roof top rainwater harvesting:

- Roof tops are excellent rain catches.
- The rain water that falls on the roof of the houses, apartments commercial buildings, etc is collected and stored domestic purpose.

#### ii) 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.

### 2. How will you prevent soil erosion?

**Prevent soil erosion:**

- Retain vegetation cover, so that soil is not exposed.
- Cattle grazing should be controlled.
- Crop rotation and soil management.
- Reforestation, terracing and contour ploughing
- Wind speed can be controlled by planting trees of a shelter belt

### 3. What are the sources of solid wastes? How are solid wastes managed?

**Sources of solid wastes:**

1. Municipal wastes
2. Hospital wastes
3. Industrial wastes
4. e - wastes

**Solid waste management:**

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:**

#### i) Segregation:

It is the separation of different type of waste materials like biodegradable and non biodegradable wastes.

#### ii) Sanitary landfill:

- Solid wastes are dumped into low lying areas.
- The layers are compacted by trucks to allow settlement.



- The waste materials get stabilized in about 2 -12 months.
- The organic matter undergoes decomposition.

### iii) Incineration:

It is the **burning** of **nonbiodegradable** solid wastes (medical wastes) in properly constructed furnace at high temperature.

### iv) Composting:

Biodegradable matter of solid wastes is digested by microbial action or earthworms and converted into **humus**.

## 4. Enumerate the importance of forest. ★ ★ ★

- Forests are an important component of our environment.
- Forest is dominated by
  - i) microorganisms
  - ii) flowering plants
  - iii) shrubs
  - iv) climbers
  - v) dense trees
  - vi) provide a vast habitat for wild animals.
- Forests also contribute to the economic development of our country.
- Forests are vital for human life.
- It is a source for a wide range of renewable natural resource.
- They provide wood, food, fodder, fibre and medicine.
- Forest are major factor of environment concern like,
  - i) carbon sink
  - ii) regulate climatic conditions
  - iii) increase rainfall
  - iv) reduce global warming
  - v) prevent natural hazards like flood and landslides
  - vi) protect wildlife
  - vii) act as catchments for water conservation.
- They also play a vital role in maintaining the ecological balance.

## 5. What are the consequences of soil erosion? ★ ★

- The top layers of soil contain humus and mineral salts, which are vital for the growth of plants.
- Removal of upper layer of soil by wind and water is called soil erosion.
- Soil erosion causes a significant loss of humus, nutrients and decrease the fertility of soil.
- The direct and primary effect of soil erosion is soil loss and nutrient leaching resulting in reduction of land productivity.
- Annual floods causes damages to crops, property and lives.
- Deforested rain forest soil becomes dry and nutrient- deficient as there is no longer vegetation to hold water and nutrients in place.
- Heavy rains further erode soil and saturate waterways with excess nutrients, disrupting the food chains of tropical ecosystems.
- Eroded sediments can even change the course of rivers, which suffer from huge deposits of silt from deforestation.
- Desertification is another possible consequence of erosion.



## Environmental Management

### 6. Why is the management of forest and wildlife resource considered as a challenging task? ★

- Management of forest and wild life resource is considered as a challenging task.
- Now-a-days people are continuously cutting down trees and it causes deforestation and it results in lack of oxygen.
- People kill animals for making cloth designs and thus harm wildlife.

## XI. Higher Order Thinking Skills (HOTS)

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

- Coal and petroleum are natural resource, formed from the degradation of biomass buried deep under the earth millions of years ago.
- The formation of these fossil fuels is a very slow process and takes very long period and for renewal. So we need to conserve them.

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

- The objective of this kind of energy is to replace the use of fossil fuels which are mainly made of hydrocarbons and hence result in pollution.
- Renewable source of energy do not result in pollution and we can reuse them.
- We all need to shift to these resource of energy and try to avoid usage of fossil fuels.

### 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?

Problems associated with plastic bags, use of non-renewable resources, causes difficulties during disposal and affects environmental impacts:

#### Alternatives:

- Wooden Cutlery
- Muslin pouches
- Glass Bottles
- Canvas Bag
- Metal straws

Ban plastic in order to save and preserve the environment and reduce the production of Green house gases.

## XII. Value based questions

### 1. Why is it not possible to use solar cells to meet our energy needs? State three reason to support your answer.

- In the solar cells, the solar panels convert solar energy into electricity which is stored in storage battery.
- These can be installed in remote and inaccessible areas (forest and hilly region) where setting up of power plant is expensive.

### 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?

- a) For domestic wastes- we can have a compost pit. As vegetable waste is dumped in the pit, they rot and become manure.

b) Metallic can - method - Recycle

c) Yes, this disposal method protects the environment because recycling saves energy. It also reduce green house gas emissions which helps to tackle climate change.

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

The 3R approach such as Reduce, Reuse and Recycle are followed for effective waste management.

## Additional Questions

### I. Fill in the blanks

- There are \_\_\_\_\_ biosphere reserves in India.
- Removal of \_\_\_\_\_ by wind and water is called soil erosion. ★
- When the tides hit the turbine, the turbine rotates and converts the \_\_\_\_\_ energy into electrical energy.
- \_\_\_\_\_ is a source for a wide range of renewable natural resource.
- \_\_\_\_\_ was a non - violent agitation that was aimed at protection and conservation of trees and forest.
- \_\_\_\_\_ includes planting and protecting trees which help in restoration of green forest. ★
- The first established National Park in India is \_\_\_\_\_.
- \_\_\_\_\_ is the first Indian woman wild life photographer.
- \_\_\_\_\_ is used in artificial satellites and space props.
- \_\_\_\_\_ can reduce the amount of green house gases emitted.
- The world's largest and tallest wind turbine is in \_\_\_\_\_.
- \_\_\_\_\_ is the e - waste that affect brain development in children. ★

**Ans:**

1. 15	5. Chipko movement	9. Solar cell
2. Upper layer of soil	6. Van mahotsav	10. bio gas
3. tidal	7. Jim Corbett National park	11. Hawaii
4. Forest	8. Rathika Ramasamy	12. Lead

### III. Match the following

- |                                |                          |
|--------------------------------|--------------------------|
| 1. 1) Forest conservation Act  | - a) 1972 ★              |
| 2) The wildlife protection Act | - b) 215.1 lakhs hectare |
| 3) Reserved forests            | - c) 1980                |
| 4) Protected forests           | - d) 752.3 lakhs hectare |

(c)  
(a)  
(d)  
(b)



## Environmental Management

2. 1) Lead - a) Chronic damage to brain (d)  
 2) Chromium - b) Accumulates in kidney and liver (c)  
 3) Cadmium - c) Asthmatic bronchitis (b)  
 4) Mercury - d) Damages central and peripheral nervous system (a)

#### IV. Choose the most suitable answer from the given four alternatives and write the option code and corresponding answer:

- India is losing about \_\_\_\_\_ hectare of forest cover every year.  
 a) 1 Million      b) 1.5 Million      c) 2 Million      d) 2.5 Million
- Wild life refers to the undomesticated animals living in their natural habitats  
 a) forests      b) grasslands      c) deserts      d) all the above
- \_\_\_\_\_ is a biosphere reserves in Tamilnadu.  
 a) Nilgiris      b) Covai      c) Ooty      d) Chennai
- E-waste include computer components which may be \_\_\_\_\_. ★  
 a) 12%      b) 7%      c) 66%      d) 5%
- Medical wastes are disposed by \_\_\_\_\_ method.  
 a) Segregation      b) Sanitary landfill      c) Incineration      d) Composting
- The fourth oldest dam in the world is \_\_\_\_\_.  
 a) Methur Dam      b) Kallanai Dam  
 c) Manimutharu Dam      d) Papanasam Dam
- Solar cells are made up of \_\_\_\_\_ that converts sunlight directly into electricity  
 a) Silicon      b) copper      c) Lead      d) Iron ★ ★
- \_\_\_\_\_ causes chronic damage to brain and respiratory system.  
 a) Lead      b) Chromium      c) Mercury      d) Polyvinyl chloride

#### Ans:

1. b)	1.5 Million	4. c)	66%	7. a)	Silicon%
2. d)	all the above	5. c)	Incineration	8. c)	Mercury
3. a)	Nilgiris	6. b)	Kallanai Dam		

#### V. 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.  
 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.

3. **Assertion:** Energy obtained from sources that cannot renew themselves over a short period of time.

**Reason:** These are available in limited amount in nature

**Ans:** (a) Both assertion and reason are true and reason is correct explanation of assertion.

4. **Assertion:** Petrol and diesel which are used to run automobiles.

**Reason:** Using pressure cooker can reduce the consumption of kerosene.

**Ans:** (b) Both assertion and reason are true but reason is not the correct explanation of assertion.

## VI. Answer in a sentence

1. **Name the gases which pollute the air that affect the Taj Mahal**

Sulphur and nitrogen Oxides.

2. **How can we reduce the use of Kerosene and LPG? ★**

- by using pressure cooker.
- using solar cooker and heater wherever possible.

3. **In India what are the main agents of water pollution?**

Household activities and industrial wastage of water.

4. **How are the suspended particles removed from the waste water?**

By sedimentation process

5. **What is called 3 R method? ★**

For effective waste management the 3 R's are

- Reduce
- Reuse
- Recycle

6. **How is biogas produced?**

Bio gas is produced by the **anaerobic decomposition** of cow dung.

## VII. Short answer questions

1. **Define Deforestation.**

Deforestation is the **destruction** of large area of forests.

2. **What is afforestation? ★**

It includes **planting and protecting** trees with multiple uses.

3. **Write the aims of wildlife management.**

- To control and limit exploitation of species.
- Preserve the endangered species.

4. **What are the agents of soil erosion?**

High velocity of wind, air currents, flowing water, landslides, human activities.



## Environmental Management

## 5. What is solar energy?

Solar energy is the energy obtained from the sun.

## 6. Write the advantages of wind energy. ★

- It does not cause pollution.
- Expenses on periodic maintenance is low when compared to the other power sources.

## 7. Write about E-wastes.

E-wastes are electronic wastes which includes the spoiled, outdated, non-repairable electrical and electronic devices.

## 8. Why are fossil fuels to be conserved?

The formation of these fossil fuels is a **very slow process** and takes very long period of time for renewal.

## 9. What is meant by hydroelectricity? ★

Hydropower plants converts the **kinetic energy** of flowing water into **electricity**. This is called hydroelectricity.

## 10. What are the sources of sewage/ waste water?

Domestic purpose or household activities, dye and textile industries, leather industries, sugar and breweries industries, paper and pulp industries.

## VIII. Long answer questions

## 1. Write about some solar energy devices. ★

**Solar Cells**

- Solar cells (Photovoltaic devices) is made up of silicon that converts sunlight directly into electricity.
- Solar cell produces electricity without polluting the environment.

**Solar Panel**

- Arrangement of many solar cells side by side connected to each other is called solar panel.
- The capacity to provide electric current is much increased which is very expensive.

**Solar Cooker**

- It consist of an insulated metal box or wooden box which is painted from inside so as to absorb maximum solar radiations.
- A thick glass sheet forms the cover over the box. The reflector is the plane mirror which is attached to the box.
- The food is cooked by energy radiated by the sun.

**Solar thermal power plant**

- In solar thermal power plants, many solar panels are used to concentrate sun rays, to heat up water into steam.
- The steam is used to run the turbines to produce electricity.

## 2. You are a student how will you save electricity at home and school.

I can take the following measures to save electricity at home and school.

- Use energy efficient appliances to save electricity like compact fluorescent lamps (CFL), LED bulbs and other electrical equipments

- Switch off the lights and fans, television and other electrical appliances when not in use.
- Minimize the use of air conditioners.
- Switch of the mobile phone chargers when not in use.
- Maximize the use of solar radiations

### 3. Write the steps involved in waste water treatment methods.

- 1. Pre-screening:** Wastewater generated from domestic and industrial activities is screened to remove soil and solid particulates.
- 2. Aeration:** Screened wastewater is then pumped to an aeration tank.
- 3. Sedimentation process:** In this process, the solid particles in suspension form are allowed to settle. The particles that settle out from the suspension is known as sludge.
- 4. Sludge removal:** The sludge generated by the degradation process is transferred periodically from the tank for safe disposal.
- 5. Disinfection:** Chlorination and ultraviolet (UV) radiation of treated water is required to remove any micro - organism contamination.
- 6. Water recycling:** The water will then be supplied for domestic or industrial purposes.

## IX. Higher Order Thinking Skills (HOTS)

### 1. If recycling is not done in the environment what will be the condition?

- Harmful chemicals and greenhouse gases are released from rubbish in land fill sites.
- Recycling helps to reduce the pollution caused by waste.
- Recycling reduces the necessity for raw materials so that the rain forest can be preserved.

### 2. Why is e-waste bad?

- Informal processing of e-waste in developing countries can lead to adverse human health effects and environmental pollution.
- Electronic scrap components such as CPUs contain lead, cadmium, etc.

### 3. Are wind turbines more efficient than solar panels?

- On smaller scale system, turbines can be a good alternative to solar power but more often than not is achievements their best when implemented together with a solar system.
- A small wind turbines can generate electricity in a breeze even when the sun is not shining, while the solar modules can generate electricity.





## Unit Test - 22

## Environmental Management

Time : 1 hr

Marks : 30

**I. Choose the most suitable answer and write the code with the corresponding answer.** $5 \times 1 = 5$ 

- The gas released from vehicles exhaust are
  - Carbon monoxide
  - Sulphur dioxide
  - Oxides of nitrogen
  - i and ii
  - i and iii
  - ii and iii
  - i, ii and iii
- Soil erosion can be prevented by
  - deforestation
  - afforestation
  - over growing
  - removal of vegetation
- A renewable source of energy is
  - petroleum
  - coal
  - nuclear fuel
  - trees
- Green house effect refers to
  - cooling of earth
  - trapping of UV rays
  - cultivation of plants
  - warming of earth
- A cheap, conventional, commercial and inexhaustible source of energy is
  - hydropower
  - solar energy
  - wind energy.
  - thermal energy

**II. Answer the following questions in one or two lines.** $5 \times 2 = 10$ 

- What are the advantages of using biogas?
- What are the environmental effect caused by sewage?
- What are the consequences of deforestation?
- Write the aims of wildlife management?
- What are the agents of soil erosion?

**III. Answer the following questions in brief.** $2 \times 4 = 8$ 

- Enumerate the importance of forest.
- Why is the management of forest and wildlife resource considered as a challenging task?

**IV. Answer the following questions in detail.** $1 \times 7 = 7$ 

- What are the consequences of soil erosion?
- Although coal and petroleum are produced by degradation of biomass, yet we need to conserve them. Why?

