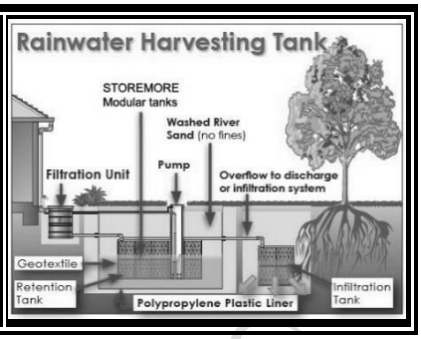
UNIT – 22

ENVIRONMENTAL MANAGEMENT



I. Fill in the blanks

1. Deforestation leads to **decrease** in rainfall.
2. Removal of soil particles from the land is called **soil erosion.**
3. Chipko movement is initiated against **the cutting down of trees (deforestation).**
4. **The Nilgiris** is a biosphere reserve in Tamilnadu.
5. Tidal energy is **non-conventional (or) renewable** type of energy.
6. Coal, petroleum and natural gas are called **fossil** fuels.
7. **Coal** is the most commonly used fuel for the production of electricity.

II. True or False. (If false write the correct statements)

1. Biogas is a fossil fuel. **[False]**
   ** Biogas is **not** a fossil fuel.*
2. Planting trees increases the groundwater level. **[True]**
3. Habitat destruction cause loss of wild life. **[True]**
4. Nuclear energy is a renewable energy. **[False]**
   Nuclear energy is a **non renewable energy.*
5. Overgrazing prevents soil erosion. **[False]**
   Soil erosion **occurs due to overgrazing.*
6. Poaching of wild animals is a legal act. **[False]**
   Poaching of wild animals is **illegal.*
7. National park is a protected park. **[True]**
8. Wild life protection act was established in 1972. **[True]**

III. Match the following

Column I	Column II	Answer
1. Soil erosion	Energy saving	**1. Removal of vegetation**
2. Bio gas	Acid rain	**2. CO_2**
3. Natural gas	Removal of vegetation	**3. Non - renewable energy**
4. Green house gas	Renewable energy	**4. Acid rain**
5. CFL bulbs	CO_2	**5. Energy saving**
6. Wind	Non - renewable energy	**6. Renewable energy**
7. Solid waste	Lead and heavy metals	**7. Lead and heavy metals**

IV. Choose the correct answer

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 **[AUG – 2022, PTA – 5]**
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**
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**
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) bio gas **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 **[PTA – 2]**
    a) hydropower b) solar energy **c) wind energy** d) thermal energy
    Note: *hydropower and solar energy can also be the answer*
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

V. Answer in a sentence

1. What will happen if trees are cut down?

Ecological problems like floods, drought, soil erosion, etc., will arise if trees are cut down.

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

If habitat of wild animals is disturbed, they move to other places in search of food & shelter. During this, they get killed by other animals and become extinct. They also attack human.

3. What are the agents of soil erosion? [PTA – 2]

- ❖ Air currents
- ❖ Landslide
- ❖ Flowing water
- ❖ High velocity of wind
- ❖ Overgrazing
- ❖ Human activities like deforestation, etc,.

4. Why fossil fuels are to be conserved? [AUG – 2022, PTA – 4]

Formation of fossil fuels is a very slow process. It takes very long time for renewal. They can get exhausted if we continue using them at a rapid rate.

5. Solar energy is a renewable energy. How?

Solar energy is a renewable energy because it is available in unlimited amount in nature.

6. How are e-wastes generated? [SEP – 2021, PTA – 6]

E-wastes/electronic wastes are spoiled, outdated, non-repairable electrical & electronic devices.

VI. Short answer questions

1. What is the importance of rain water harvesting? [MAY - 2022,PTA – 4]

- ❖ It overcomes the rapid depletion of groundwater levels.
- ❖ It satisfies the increased demand of water.
- ❖ It reduces flood and soil erosion.
- ❖ Ground water is not contaminated. So, it can be used for drinking.

2. What are the advantages of using biogas? [PTA – 1]

- ❖ It causes less pollution.
- ❖ Excellent way to get rid of organic wastes.
- ❖ Left over slurry is a good manure.
- ❖ It is safe and convenient to use.
- ❖ It reduces the amount of greenhouse gases emitted.

3. What are the environmental effects caused by sewage?

- ❖ Sewage is the major water pollutant in India.
- ❖ It causes agricultural contamination and environmental degradation.
- ❖ Contaminated water can cause diseases.

4. What are the consequences of deforestation?

Deforestation gives rise to ecological problems like flood, drought, soil erosion, loss of wildlife, extinction, imbalances, changes in climatic conditions, desertification, etc,.

VII. Long answer questions

1. How does rainwater harvesting structures recharge ground water? [SEP – 2021]

(i) Roof top rainwater harvesting :

- ❖ Rain water on roofs is collected and stored in surface tank. It is used for domestic purpose.

(ii) Recharge pit:

- ❖ Rainwater is directed to percolation pits for filtration and then to recharge pits/ ground wells.

(iii) Digging of tanks or lakes (Eris):

- ❖ It is one of the traditional water harvesting system in Tamilnadu.
- ❖ Eris are inter connected so that if water in one Eri overflows, it gets diverted to next eri.

(iv) Ooranis : These are small ponds to collect rainwater. It is used for various domestic purposes.

2. How will you prevent soil erosion? [PTA – 3]

- ❖ Retain vegetation cover.
- ❖ Cattle grazing should be controlled.
- ❖ Crop rotation and soil management.
- ❖ Runoff water should be stored in catchment.
- ❖ Reforestation, terracing and contour ploughing.
- ❖ Wind speed is controlled by planting trees as shelterbelt.

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

Sources of Solid wastes: Municipal wastes, hospital wastes, industrial wastes, e - wastes.

Solid Waste Management: Collection, treatment and proper disposing of solid wastes.

Methods of solid wastes disposal:

a) ***Segregation:*** Separation of waste materials as biodegradable and non-biodegradable wastes.

b) ***Sanitary landfill:*** Solid wastes are dumped into low-lying areas & organic matter decomposes.

c) ***Incineration:*** non-biodegradable solid wastes are burnt in furnace at high temperature.

d) ***Composting:*** Biodegradable matter is digested by microbes/earthworms & converted to humus.

Some Solid wastes can be Recycled:

- Papers are recycled in paper mills.
- Paddy husk can be used as livestock fodder.
- Cowdung can be used to provide biogas and manure.

4R Approach: **R**educe→**R**euse→**R**ecover→**R**ecycle.

4. Enumerate the importance of forest. **[MDL – 19]**

- Forests are an important component of environment.
- Protect wildlife and provide habitat for wild animals.
- They are the source for many renewable natural resource.
- They provide wood, food, fodder, fiber and medicine.
- They act as carbon sink
- Regulate climatic conditions, increase rainfall, reduce global warming
- Prevent natural hazards like flood and landslides
- It helps water conservation.
- It helps in economic development.
- They maintain ecological balance.

5. What are the consequences of soil erosion?

- ***Loss of topsoil :*** Soil erosion removes topsoil which reduces the fertility.
- ***Soil compaction :*** Due to this, ability of the soil to absorb water is reduced.
- ***Water pollution :*** It increases sedimentation in streams & rivers causing reduction of fishes.
- Soil erosion causes loss of humus, nutrients and decreases soil fertility
- It disturbs the soil structure, fertility, acidity, etc., thus disrupting the ecosystem.

6. Why is the management of forest and wild life resource considered as a challenging task?

Management of forest and wildlife resource is a challenging task because,

- Lack of public awareness.
- Local people kill animals and cut down trees, for their living.
- Uncertainty of rainfall, affects forest irrigation.
- Changes in rainfall pattern due to global warming, climatic changes, etc,.
- Illegal cutting of trees and killing of animals.
- Increase in human population.

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.

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 rainwater.
   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. (c) ***Assertion is true but reason is false.***

IX. Higher Order Thinking Skills (HOTS)

1. **Although coal and petroleum are produced by degradation of biomass, yet we need to conserve them. Why? [PTA – 2]**
   - ❖ Coal and petroleum are fossil fuels.
   - ❖ Formation of fossil fuel is a very slow process. It takes a very time for renewal.
   - ❖ Degradation of biomass takes millions of years to get converted into coal and petroleum.
   - ❖ They get exhausted if we continue using them at rapid rate. So, we need to conserve them.

2. **What are the objectives for replacing non-conventional energy resources from conventional energy resources?**
   - ❖ They are available easily in unlimited quantity.
   - ❖ They can be renewed quickly.
   - ❖ They produce less pollution.
   - ❖ They can be used continuously.

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?**

   Reasons for banning polythene bags and plastics:
   - ❖ Plastics can not degrade naturally causing pollutions in land, soil and water.
   - ❖ Burning of plastics leads to air pollution.
   - ❖ Plastics prevent absorption of water into Earth, which reduces groundwater level.
   - ❖ Polythene bags are accidentally eaten by animals. It harms them and may lead to death.

   Alternatives : Use containers, cloth bags, paper wraps, compostable bags, jute bags.
   Improvement : Reduces various pollutions and improves health of individuals.

X. Value based questions

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

Reasons:

- ❖ High installation cost.
- ❖ Limited availability of silicon to make solar cells.
- ❖ Efficiency of energy conversion and storage is low.
- ❖ Solar energy can be obtained only during day time.

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) Domestic wastes have to be disposed in **compost pits.** Yes, this protects the environment because it is used as **manure and improves soil fertility**.

b) Industrial wastes like metallic cans can be **recycled**. Yes, this disposal protects the environment because it causes **no pollution** and there is **no left over.**

3. **List any three activities based on 4R approach to conserve natural resources.**

1. Use of public transport instead of personal transport - Reduces fuel consumption.
2. Materials like paper can be reused & recycled.
3. Use of plastics should be reduced, reused and recycled.
4. Recovery – Conversion of waste materials into resources like electricity, fuel etc.,