PETIT SEMINAIRE HIGHER SECONDARY SCHOOL, PUDUCHERRY

22. ENVIRONMENTAL MANAGEMENT

X std SELF – EVALUATION BIOLOGY

I. Fill in the blanks :

01. Deforestation leads to **decrease** in rainfall.
02. Removal of soil particles from the land is called **soil erosion.**
03. Chipko movement is initiated against **deforestation.**
04. **Nilgiris** is a biosphere reserve in Tamilnadu.
05. Tidal energy is **renewable** type of energy.
06. Coal, petroleum and natural gas are called **fossil** fuels.
07. **Coal** is the most commonly used fuel for the production of electricity.

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

01. Biogas is a fossil fuel. **FALSE**
    Correct Statement : **Petroleum** is a fossil fuel.
02. Planting trees increases the groundwater level. **TRUE**
03. Habitat destruction cause loss of wildlife. **TRUE**
04. Nuclear energy is a renewable energy. **FALSE**
    Correct Statement : Nuclear energy is a **non-renewable** energy.
05. Overgrazing prevents soil erosion. **FALSE**
    Correct Statement : Overgrazing **can lead to** soil erosion.
06. Poaching of wild animals is a legal act. **FALSE**
    Correct Statement : Poaching of wild animals is **illegal.**
07. National park is a protected park. **TRUE**
08. Wild life protection act was established in 1972. **TRUE**

III. Match the following :

01. Soil erosion	-----	**removal of vegetation**
02. Bio gas	-----	**CO_2**
03. Natural gas	-----	**non-renewable energy**
04. Greenhouse gas	-----	**acid rain**
05. CFL bulbs	-----	**energy saving**
06. Wind	-----	**renewable energy**
07. Solid waste	-----	**lead and heavy metals**

IV. Choose the correct answer :

01. Which of the following is / are a fossil fuel? c) **ii and iii.**
02. What are the steps will you adopt for better waste management? d) **all of the above.**
03. The gas released from vehicles exhaust are d) **I, ii and iii.**
04. Soil erosion can be prevented by b) **afforestation.**
05. A renewable source of energy is d) **trees.**
06. Soil erosion is more where there is c) **rainfall is high.**
07. An exhaustible resource is a) **wind power.**
08. Common energy source in village is d) **wood and animal dung.**
09. Green-house effect refers to d) **warming of earth.**
10. A cheap, conventional, commercial and inexhaustible source of energy is a) **hydropower.**
11. Global warming will cause d) **all of these.**
12. Which of the following statement is wrong with respect to wind energy?
    b) **the blades of wind mill are operated with the help of electric motor.**

V. Answer in a sentence :

01. What will happen if trees are cut down?
    Cutting down of trees 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.

02. What would happen if the habitat of wild animals is disturbed?
    The animal will not be able to find food, shelter or live with its community. Such animals tend to migrate into residential areas, fields, etc., affecting human life.

03. What are the agents of soil erosion?
    Agents of soil erosion are high velocity of wind, air currents, flowing water, landslide, human activities (deforestation, farming and mining) and overgrazing by cattle.

04. Why fossil fuels are to conserved?
    The formation of these fossil fuels coal and petroleum is a very slow process and takes very long period of time for renewal.

05. Solar energy is a renewable energy. How?
    It is said to be renewable since it is available in unlimited amount in nature. It can be renewed over a short period of time and can be harvested continuously.

06. How are e-wastes generated?
    E-wastes are generally called as electronic non-repairable electrical and electronic devices. They are generated at houses, Industries, etc.,

VI. Short answer questions :

01. What is the importance of rainwater harvesting?

Importance of Rainwater Harvesting :

i) Overcome the rapid depletion of groundwater levels.
ii) To meet the increase demand of water.
iii) Reduces flood and soil erosion.
iv) Water stored in ground is not contaminated by human and animal wastes and hence can be used for drinking purpose.

02. What are the advantages of using biogas?

Advantages of using biogas :

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

03. What are the environmental effect caused by sewage?

Environmental effect caused by sewage :

i) Untreated sewage or wastewater generated from domestic and industrial process is the leading polluter of water sources in India.
ii) Sewage water results in agricultural contamination and environmental degradation.

04. What are the consequences of deforestation?

Deforestation 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 :

01. How does rainwater harvesting structures recharge ground water?

The main purpose of rainwater harvesting is to make the rainwater percolate under the ground so as to recharge 'groundwater level'.

Methods of rainwater harvesting :

i) Roof top rainwater harvesting :

Roof tops are excellent rain catchers. The rain water that falls on the roof of the houses, apartments, commercial buildings, etc., is collected and stored in the surface tank and can be used for domestic purpose.

ii) Recharge pit :

The rain water 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 pit 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 Tamilnadu. Eris are constructed in such a way that if 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.

02. How will you prevent soil erosion?

Soil erosion can be prevented by :

i) Retain vegetation cover, so that soil is not exposed.
ii) Cattle grazing should be controlled.
iii) Crop rotation and soil management improve soil organic matter.
iv) Runoff water should be stored in the catchment.
v) Reforestation, terracing and contour ploughing.
vi) Wind speed can be controlled by planting trees in form of a shelter belt.

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

Soil wastes mainly include municipal wastes, hospital wastes, industrial wastes and e-wastes, etc.,

Methods of Solid wastes disposal :

i) Segregation : It is the separation of different type of waste materials like biodegradable and no-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 non-biodegradable 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.

v) Recycling of wastes :

- Papers from old books, magazines and newspapers are recycled to produce papers in papermills.
- 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.
- Cow-dung and other organic wastes can be used in gobar gas plant to provide biogas and manure for fields.

vi) 4R approach : The 4R approach such as Reduce, Reuse, Recovery and Recycle may be followed for effective waste management.

04. Enumerate the importance of forest.

Importance of forest :

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

05. What are the consequences of soil erosion?

Removal of upper layer of soil by wind and water is called Soil Erosion.
Soil erosion causes :

- Significant loss of humus, or nutrients.
- Decrease the fertility of soil.
- Loss of ground water levels.
- Loss of Vegetations

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

i) Expanding human population results in expanding needs. Forests provide a variety of resources to fulfill man's needs.
ii) Forests are destroyed for reasons like agriculture, urbanization, mining, construction of dams, roads, buildings, industries, hydroelectric projects, etc., A lot of these projects are related to the economic development of the nation.
iii) The use of natural resources in excess and unplanned way leads to imbalance in the environment.
iv) A judicious balance of the ecosystem and its resources is lagging amidst the people.
v) People are not ready to build a long-lasting sustainable environment.
vi) Many are not ready to share the Global resources among others.
vii) We, humans care about the present day's selfish requirement, but botherless of the other living organisms; as well as our future generations.

Hence, management of forest and wildlife is indeed a challenging task.

VIII. Assertion and Reasoning :

In each of the following questions, 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 : Ranwater can be directed to recharge the underground water source.
a) **Both Assertion and Reason are true and Reason is the 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.
c) **Assertion is true but Reason is false.**

IX. Higher Order Thinking Skills :

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

We need to conserve Coal and Petroleum because these reserves can get exhausted, if we continue using them at a rapid rate. The formation of these fossil fuels (Coal and Petroleum) is a very slow process and takes very long period of them for renewal. Hence it is necessary to conserve them for future use. This can be done by the wise or judicial use of their consumption.

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

Conventional energy (Coal, Petroleum, Natural gas, etc.,) is in limited amount in nature, as well as cannot be renewed within a short period of time. Whereas, Non-conventional energy {Biofuel, Bio-mass energy, Geothermal energy, Water (Hydro-electric) energy, solar energy, Wind energy, etc.,} are available in unlimited amount in nature, inexpensive, can be renewed over a short period of time; or can be harvested continuously. Further, non-conventional energy resources are non-pollutant. Hence, conventional energy resources are replaced with non-conventional energy resources.

03. 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 ?

- Polythene bags and Plastics are non-biodegradable pollutants, that accumulate in the soil, and water bodies.
- Excessive accumulation of plastics in soil, alter the nature (texture and pH) of soil; It affects the useful microbes there and renders the soil barren. Plastics in soil also avoids water seeping into it.
- Plastics in water bodies, either cover the surface and prevents diffusion of atmospheric oxygen or poisons the water and thereby kills the aquatic flora and fauna.
- Plastic covers choke to death, the animals which feed on them by mistake.
- Burning of plastic causes air pollution, which cause developmental and reproductive problems, damage the immune system and cause various respiratory problems.

Alternative methods to avoid plastics :

i) Use eco-friendly bio-degradable bags.
ii) Use household utensils made of bio-degradable or recyclable materials.
iii) Carry our own bags for shopping.

Ban on plastics by the Government will improve the environment by the following ways :

i) Plastic usage or wastes will be reduced and disappear.
ii) It will conserve the nature of soil and water bodies and the useful microbes living in those.
iii) It will lead to decrease in challenges faced by Government in disposal of solid wastes.
iv) The environment will be free from the hazards caused by the use of plastics.

X. Value based questions :

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

i) Solar cells are expensive.
ii) Sunlight must be available throughout the year; in all seasons.
iii) If energy needs are high, huge solar panels need to be installed, which is not economically possible for all.

02. How would you dispose the following wastes?

a) Domestic wastes like vegetable peels.
Domestic wastes can be composted in the garden. This will help to decompose the waste and return the nutrients to the soil thereby adding fertility to the soil. This will also help to manage the waste, thereby protecting the environment.

b) Industrial wastes like metallic cans.
Can the disposal protect the environment? How?
Metallic cans must be sent to recycling units. The cans will be melted and moulded and reused to make other objects. Thus, the waste is managed and the environment can be protected.

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

REDUCE : reduce the useage of fossil fuels.

REUSE : reuse the plastic covers as much as possible.

RECOVERY : metallic and glass wastes must be melted and recovered and moulded into different objects.

RECYCLE : Sewage (solid) wastes must be treated and recycled by composting into manures.