

#462741

Topic: Pollution and control

Discuss the effects of deforestation on the following.

- (a) Wild animals
- (b) Environment
- (c) Villages (rural areas)
- (d) Cities (urban areas)
- (e) Earth
- (f) The next generation

Solution

- a) Deforestation leads to the destruction of natural habitats of wild animals and leaves them with no place to live and reproduce. This makes animal species endangered and even causes their extinction.
- b) As we know that plants absorb carbon dioxide and release oxygen into the atmosphere during photosynthesis. Deforestation has increased the carbon dioxide level of atmosphere with resultant global warming. Green plants constitute the first trophic level of all food chains. They are also responsible for precipitation. Deforestation leads to th disturbed food chain and reduced amount of rainfall.
- c) Plant roots hold the soil particles and prevent soil erosion. Deforestation led to soil erosion and wash off of soil in nearby water bodies has caused the flood in many rural areas thereby disturbing the agricultural practices. Likewise, villagers depend on food, wood, fuel, etc. Deforestation has reduced these resources and shelter less wild animal have become a serious threat for nearby villagers.
- d) Since, urban population depends on rural population for food, timber and many other resources; deforestation has disturbed this supply chain. The increased natural calamities like the flood as well as global warming have created serious health and other related threats to them.
- e) The part of Earth that support life is referred to as biosphere. Adverse effects of deforestation on plants, animals and human have disturbed the proper functioning of the whole biosphere. It includes reduced soil fertility, increased barren land area, global warming, increased intensity and frequency of many natural calamities etc.
- f) The extinction of many useful and ornamental plant and animal species has made our future generation deprived of their benefits. Scarce and even diminished nonrenewabl resources, global warming, increased earth temperature, pollution level and resultant increased serious health problems are some of the major concerns of future generation caused by deforestation.

#462742

Topic: Pollution and control

What will happen if,

- (a) we go on cutting trees
- (b) the habitat of an animal is disturbed
- (c) the top layer of soil is exposed

Solution

- (a) If we go cut on trees- Tress provide shelter to animals and birds. If trees are cut, animals and birds will lose their shelters. Trees are sources of fruits, shed, wood. There will l a scarcity of such resources if trees are cut. Global warming will occur. Ground water reserve also will be reduced.
- (b) If the habitat of an animal is disturbed, survival of animals is endangered. It will ultimately lead to the extinction of it.
- (c) Removal of the top layer of the soil exposes the lower, hard and rocky layers. The top layer is more fertile and contains humus. If the top layers are affected by any means, ti fertility of the soil is lost and this will eventually lead to desertification.

#462748

Topic: Pollution and control

In order to meet the ever-increasing demand in factories and for shelter, trees are being continually cut. Is it justified to cut trees for such projects?
Discuss and prepare a brief report.

Solution

It is not justified to cut the trees at the present rate for such projects. Trees are most important part of the ecosystem. We must reduce our dependency on forest resources to meet their increasing demand in factories and for shelter. But being the most intelligent species on the Earth, it is our responsibility to protect the Earth. This can be done by proper planning for afforestation so that removed trees can be replaced with new trees. We have to start reforestation in larger scale taking it as a top priority.

#462751

Topic: Pollution and control

How can you contribute to the maintenance of green wealth of your locality?

Make a list of actions to be taken by you.

Solution

We can take various actions to contribute to the maintenance of green wealth in our locality. Planting new trees is one of the most important and must-do action. We can convince other people to plant new trees. We can also take out rallies to create awareness among people. We can coordinate with local authorities for proper help.

#462752

Topic: Pollution and control

Explain how deforestation leads to reduced rainfall.

Solution

Plants and water bodies are the sources of most of the moisture and water vapour that constitutes the clouds that bring rain (in continental regions). Forests act as large transpiration zones and contribute greatly to the atmospheric moisture. In their absence, the water of the soil just seeps down or flows away and thus they cannot contribute to rain.

#464963

Topic: Water and Water Pollution

What is biological magnification? Will the levels of this magnification be different at different levels of the ecosystem?

Solution

Biological magnification is the process where the substances like pesticides and heavy metals move up the food chain, they travel their way up in the food chain and at each increasing food chain level, accumulation of toxic substances increases.

For example, in a pond water, pesticide DDT was sprayed and the producers were found to have 0.03 ppm concentration of DDT. Since planktons are eaten by small fishes and clams, their body accumulates more DDT than what is found in the planktons. Seagull that feeds on clams accumulates more DDT as one seagull eats many clams. Hawk, the top carnivore, has the highest concentration of DDT.

#464970

Topic: Water and Water Pollution

Why is damage to the ozone layer a cause for concern? What steps are being taken to limit this damage?

Solution

The ozone layer is a blanket of gases that envelops the Earth. Ozone layer functions as a protective shield for the living beings on the planet. The main function of the ozone layer is to filter out the harmful ultra-violet rays of the Sun.

The damage to the ozone layer is a cause for concern because:

→ It will not be able to filter out the ultra-violet rays efficiently, and this will cause various skin problems such as skin darkening and skin cancer.

→ Ozone layer maintains a steady temperature on the planet. Damage to the layer might result in the death of many phytoplanktons that leads to increased global warming.

Chlorofluorocarbons (CFCs) are compounds that damage the ozone layer. To limit the damage to the ozone layer, the release of CFCs into the atmosphere must be reduced.

CFCs used as refrigerants and in fire extinguishers should be replaced with environmentally-safe alternatives. Also, the release of CFCs through industrial activities should be controlled.

#526120

Topic: Water and Water Pollution

What is sewage? In which way can sewage be harmful to us?

Solution

Sewage is a water-carried waste matter that is discarded away in sewers and drains. It is also known as domestic or municipal wastewater. Sewage can be harmful due to several reasons:

1) It includes wastes containing organic matter and microbes which are pathogenic and can cause several water-borne diseases.

2) Sewage provides a breeding place for disease-causing harmful insects and microbes.

3) Sewage is a major cause of polluting drinking water.

4) When sewage enters a lake or stream, it destroys or pollutes the water body affecting the organisms present in the water bodies.

#526123

Topic: Waste generation and management

What is the key difference between primary and secondary sewage treatment?

Solution

Primary sewage treatment is a physical process that removes large impurities while secondary sewage treatment is a biological process that removes organic matter of sewage through the action of microbes.

#526224

Topic: Water and Water Pollution

What measure would you take to prevent water-borne diseases?

Solution

Use of bottled water, regular cleaning of water containers, maintain personal hygiene, eating cooked and warm food, wash vegetables and fruits before cooking, maintain cleanliness in surroundings, proper dispose off of infant and toddler feces, avoid foods and fruit juices from roadside vendors, keep food and drinking water are covered as the preventive measures for water borne diseases. Chloration of drinking water, proper sanitation and hygiene practices to interrupt the disease transmission by vector is effective measure.

#526354

Topic: Water and Water Pollution

What are the various constituents of domestic sewage? Discuss the effects of sewage discharge on a river.

Solution

Sewage is a household waste and occasionally some liquid waste from industry and commerce that is disposed off via sewers. It contains organic and inorganic impurities and pathogenic and nonpathogenic microbes. Upon contamination of fresh water with sewage, the aerobic pathogenic bacteria add nitrites, sulfates, nitrates while anaerobic one add methane, H_2S , phosphine causing the offensive smell to water bodies. These pathogenic microbes cause many water borne diseases.

#526360

Topic: Waste generation and management

List all the wastes that you generate, at home, school or during your trips to other places, could you very easily reduce? Which would be difficult or rather impossible to reduce

Solution

Waste generated at school: pencil shaving, paper, sewage, laboratory waste.

Waste generated at home: vegetable and fruit peels, kitchen and other domestic water, polyethylene, sewage.

Waste generated at trip to other places: disposals, sewage, water bottles, food wrappings.

Sewage is almost impossible to reduce, all other waste material production can be reduced by their judicious use and by using the eco-friendly material e.g., use of paper bags instead of polybags.

#526363

Topic: Air and Air pollution

Discuss the causes and effects of global warming. What measure need to be taken to control global warming?

Solution

Causes of global warming are the release of an excess of carbon dioxide, methane (CH_4), surface ozone, nitrous oxide, and chlorofluorocarbons (CFCs) through human activities like burning carbon-containing fossil fuels, land conversion, use of CFCs released appliances etc. These greenhouse gases absorb infrared radiations which in turn slow down the escape of heat back to space and warming of the atmosphere. Effect of global warming includes changes in sea level, changes in precipitation patterns, disturbed nutrient cycling, effects of changes in climatic conditions on organisms, including humans; and effects on agriculture. Measures include Reduced the use of fossil fuels, Use of eco-friendly energy efficient fuels, use of renewable source of energy and reforestation.

#526374

Topic: Air and Air pollution

Match the items given in column A and B.

List 1

A	Catalytic converter
B	Electrostatic precipitator
C	Earmuffs
D	Landfills

List 2

1	Particulate matter
2	Carbon monoxide and nitrogen oxides
3	High noise level
4	Solid wastes

Answer: A → 2, B → 1, C → 3, D → 4

Solution

Catalytic converters convert the carbon monoxide and nitrogen oxide from vehicle exhaust into carbon dioxide and nitrogen gas. Electrostatic precipitator removes particulate matter from the exhaust under an electric field. Earmuffs are used to avoid high noise level and landfills are the sites where waste is disposed of by burying it in pits.

#526377

Topic: Water and Water Pollution

Write critical notes on the following:

- (a) Eutrophication
- (b) Biological magnification
- (c) Groundwater depletion and ways for its replenishment

Solution

a) Eutrophication refers to the excessive rich nutrients running into the water body which leads to algal bloom. The algal bloom upon not only reduces the oxygen content of the water required for the aquatic animals to survive, some of them actually produces toxins and harmful substances that have negative impact on aquatic life

b) Biological magnification: Biological magnification refers to the accumulation of toxins like pesticides as we go up in the food chain. e.g. spraying water bodies with agents like DDT to control mosquitoes will cause trace amounts of DDT to accumulate in the cells of microscopic aquatic organisms, clams and some fish consuming many of these accumulate more of DDT and in humans consuming these fishes the DDT concentration is magnified (more DDT)

c) Groundwater depletion is a major threat to the future. This can be replenished by harvesting the rainwater by digging holes in the ground and storing them during rainy season and also by planting the plants

#526378

Topic: Air and Air pollution

Why ozone hole forms over Antarctica? How will enhanced ultraviolet radiation affect us?

Solution

Unique atmospheric and chemical conditions of Antarctica including very low winter temperatures causing the formation of polar stratospheric clouds and the relative isolation of polar stratospheric air, facilitate reactions of abundant chlorine and bromine to produce the ozone hole. The increased UV irradiance on earth surface causes skin aging, skin cancer, cataract, skin darkening etc.

#526383

Topic: Water and Water Pollution

What measures, as an individual, you would take to reduce environmental pollution?

Solution

Reforestation, practising triple Rs (reuse, recycle and reduce), economic use of eco friendly fuels (CNG), maximum use of public transport, use of catalytic converters, use of renewable resources, wise use of non renewable resources and limited resources are some of the practices that can be followed to reduce environmental pollution.

#526386

Topic: Waste generation and management

Discuss briefly the following:

- (a) Radioactive wastes
- (b) Defunct ships and e-wastes
- (c) Municipal solid wastes.

Solution

- (a) Radioactive waste is a byproduct of nuclear weapons production, nuclear power generation plants having radioactive materials that release mutation causing ionizing radiations and thus, are considered harmful.
- (b) The dead nonfunctional ships are called as defunct ships that impart solid waste like lead, mercury etc and are harmful to health. Waste materials from electronic appliances are called as e-waste and contain copper, silicon, gold etc.
- (c) The solid waste generated from school, offices, homes is called as municipal solid waste and mainly serves as a breeding site for pathogenic microbes.

#526389

Topic: Air and Air pollution

What initiatives were taken for reducing vehicular air pollution in Delhi? Has air quality improved in Delhi?

Solution

The introduction of CNG vehicles, use of catalytic converters, use of lead-free petrol having lower sulfur content, phasing out the old vehicles and most recently, "odd -even" scheme for use of petrol and diesel vehicles are some of the major steps taken to reduce pollution in Delhi. Despite these steps, Delhi's atmosphere is still highly polluted with suspended particulate matter.

#526393

Topic: Air and Air pollution

Discuss briefly the following:

- (a) Greenhouse gases
- (b) Catalytic converter
- (c) Ultraviolet B

Solution

- (a) Greenhouse gases are carbon dioxide, methane (CH₄), nitrous oxide and are released through human activities like burning carbon-containing fossil fuels, land conversion, use of CFCs released appliances etc. These greenhouse gases absorb infrared radiations which in turn slow down the escape of heat back to space causing warming of the atmosphere.
- (b) Catalytic converters convert the unburnt hydrocarbon into carbon dioxide, carbon monoxide, and nitrogen oxide from vehicle exhaust into carbon dioxide and nitrogen gas.
- (c) UV-B is electromagnetic radiation of a shorter wavelength that penetrates through ozone hole and stimulates skin ageing, darkening, and cancer.