

Definition

Pollution is the contamination of the environment by harmful substances that cause adverse effects on living organisms and surroundings.

Main Types of Pollution

Air Pollution

Water Pollution

Soil Pollution

Noise Pollution

Air Pollution

Definition

Contamination of air by harmful gases, smoke and dust particles.

Causes

Vehicle exhaust

Industrial emissions

Burning of fossil fuels

Burning of garbage

Forest fires

Pollutants

Carbon monoxide

Sulfur dioxide

Nitrogen oxides

Particulate matter

Effects

Respiratory diseases

Global warming

Acid rain

Damage to plants

Prevention

Use of clean fuels

Public transport

Planting trees

Pollution control devices in factories

Water Pollution

Definition

Contamination of water bodies by harmful substances.

Causes

Industrial waste discharge

Sewage disposal

Agricultural chemicals

Oil spills

Effects

Waterborne diseases

Death of aquatic organisms

Eutrophication

Prevention

Proper sewage treatment

Avoid dumping waste

Reduce chemical use

Soil Pollution

Definition

Degradation of soil quality due to harmful substances.

Causes

Excessive use of fertilizers

Pesticides

Industrial waste

Plastic waste

Effects

Reduced soil fertility

Toxic crops

Groundwater contamination

Prevention

Use organic manure

Avoid excessive chemicals

Proper waste disposal

Noise Pollution

Definition

Excessive and unwanted sound harmful to health.

Sources

Traffic

Loudspeakers

Construction work

Industrial machines

Effects

Hearing loss

Stress

Disturbed sleep

Prevention

Use of silencers

Avoid loud noise

Planting trees

Global Warming

Definition

Increase in average temperature of Earth due to greenhouse gases.

Main Greenhouse Gases

Carbon dioxide

Methane

Nitrous oxide

Effects

Melting glaciers

Sea level rise

Extreme weather

Common Examination Traps

All pollution is visible. Incorrect. Some pollutants are invisible gases.

Noise pollution affects only ears. Incorrect. It affects mental health.

Greenhouse effect is always harmful. Incorrect. Natural greenhouse effect is essential; excess is harmful.

Concept Linkage

Pollution affects natural resources.

Human activities are major contributors.

Concept 2: Environmental Conservation and Waste Management

Definition

Environmental conservation is the protection and careful management of natural resources and environment.

Waste management is the proper handling and disposal of waste materials to reduce pollution.

Types of Waste

Biodegradable Waste

Waste that can be decomposed by microorganisms.

Examples: food waste, paper, leaves.

Non-Biodegradable Waste

Waste that does not decompose easily.

Examples: plastic, glass, metal.

Hazardous Waste

Waste that is harmful to health and environment.

Examples: chemical waste, batteries, medical waste.

3Rs Principle

Reduce

Minimize use of resources and avoid waste generation.

Reuse

Use items again instead of discarding them.

Recycle

Convert waste materials into new products.

Waste Disposal Methods

Composting

Conversion of biodegradable waste into manure.

Landfilling

Waste buried under soil.

Incineration

Burning of waste at high temperature.

Recycling

Processing materials like paper, plastic and metal for reuse.

Segregation of Waste

Separate waste into biodegradable and non-biodegradable.

Reduces environmental damage.

Sustainable Practices

Use cloth bags instead of plastic.

Save electricity and water.

Plant trees.

Use renewable energy sources.

E-Waste

Electronic waste such as old computers and mobile phones.

Contains harmful metals.

Requires special disposal methods.

Impact of Poor Waste Management

Air pollution

Water contamination

Soil degradation

Health problems

Common Examination Traps

Plastic is biodegradable. Incorrect. It is non-biodegradable.

Burning all waste is safe. Incorrect. It releases harmful gases.

Recycling eliminates all pollution. Incorrect. It reduces but does not eliminate.

Concept Linkage

Waste management reduces pollution.

Conservation ensures long-term resource availability.

Concept 3: Natural Calamities – Types and Causes

Definition

A natural calamity is a sudden destructive event caused by natural forces that results in damage to life and property.

Major Types of Natural Calamities

Earthquake

Flood

Drought

Cyclone

Tsunami

Landslide

Earthquake

Definition

Sudden shaking of the Earth's surface due to movement of tectonic plates.

Cause

Release of energy in Earth's crust.

Effects

Damage to buildings.

Loss of life.

Cracks in land.

Precautions

Move to open area.

Do not use lifts.

Take shelter under strong furniture.

Flood

Definition

Overflow of water onto normally dry land.

Causes

Heavy rainfall.

Overflowing rivers.

Dam failure.

Effects

Destruction of crops.

Spread of diseases.

Loss of property.

Precautions

Move to higher ground.

Avoid walking in flood water.

Drought

Definition

Long period of low rainfall leading to water shortage.

Causes

Failure of monsoon.

Deforestation.

Effects

Crop failure.

Water scarcity.

Famine.

Precautions

Water conservation.

Rainwater harvesting.

Cyclone

Definition

A violent rotating storm with strong winds and heavy rainfall.

Causes

Formation over warm ocean waters.

Effects

Destruction of houses.

Flooding.

Power failure.

Precautions

Stay indoors.

Follow weather warnings.

Tsunami

Definition

Large sea waves caused by underwater earthquake or volcanic eruption.

Effects

Coastal destruction.

Loss of life.

Precautions

Move away from coastal areas after warning.

Landslide

Definition

Sudden movement of rocks and soil down a slope.

Causes

Heavy rainfall.

Earthquake.

Deforestation.

Effects

Damage to roads and houses.

Disaster Management

Definition

Planning and actions taken to reduce impact of disasters.

Stages

Preparedness

Response

Recovery

Mitigation

Common Examination Traps

Cyclone forms on land. Incorrect. It forms over warm oceans.

Tsunami caused by heavy rainfall. Incorrect. It is caused by underwater disturbances.

Drought means no rain at all. Incorrect. It means prolonged low rainfall.

Concept Linkage

Deforestation increases risk of flood and landslide.

Proper planning reduces damage from natural calamities.