{ General science and ability }

Question # 1

Part-A

What are the factors responsible for environmental pollution?

Any undesirable change in land, water, and air which is contributed directly or indirectly due to human causes is termed as pollution. Following are the factors which contributes to environmental pollution.

a) Deforestation ~~are~~ is the main cause of environmental pollution

Trees filter the air from harmful gases and provides us oxygen. Deforestation decreases the amount of trees and result in environmental pollution. In Pakistan forests occupy only 5% of land which contributes to environmental pollution.

b) Automobile fumes result in environmental pollution

The combustion of fuel in the engine can produce toxic substances which can harm the environment. Catalytic converters are used in automobile in order to reduce environmental pollution.

c) Improper waste disposal leads to environmental pollution

Abscense of waste managment system leads to improper disposal of waste which can lead to environmental pollution

d) Industrial waste contributes to environmental pollution

Industrial waste contains toxic chemicals. When it is disposed in rivers or sea it can damage aquatic life. It can also contribute to environmental pollution.

e) Extensive use of plastic results in environmental pollution.

Plastic takes a long time to decompose. Extensive use of plastic can contribute to environmental pollution.

Part (b)

Briefly explain the main reasons of water logging in Pakistan

Water logging is the saturation of ~~water~~ soil with water either due to rising ground water or poor ~~irrigati~~ drainage making land useless for irrigation purposes. Following are the main reasons of water logging in Pakistan

a) Poor drainage system leads to water logging

Water logging in Pakistan is due to poor drainage system especially in Punjab and Sindh. Old drainage system often fails to remove excess ground water

b) Excessive irrigation can

also lead to water logging

Excessive and inefficient methods of irrigation can also contribute to water logging. Methods like flood irrigation cause the fields to remain saturated yielding crop growth.

c) Salinity of soil

Poorly drained water often leaves behind salts. These salts does not allow further absorption of water by the soil thus contributing to water logging

d) Rising level of groundwater

Continuous extraction of water without proper drainage can result in water logging

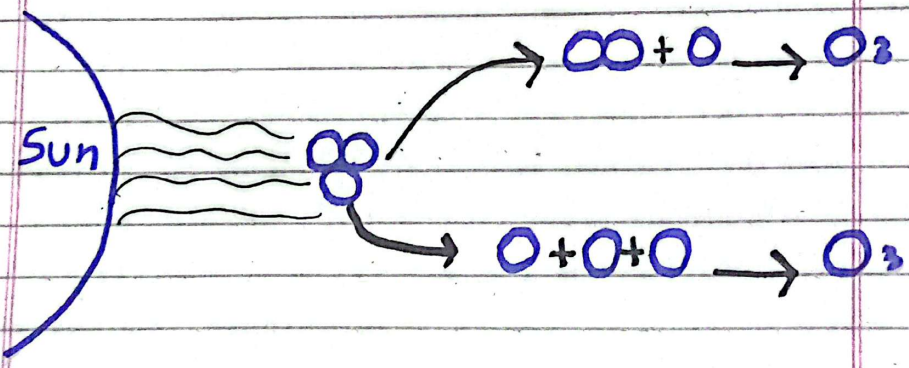
e) Moonsoon rains and heavy floods

Moonsoon rains and heavy floods combined with poor drainage system can contribute to temporary or permanent water logging.

Part (C)

What do you mean by ozone depletion. How can we prevent it?

Ozone is a layer present in stratosphere which protects the Earth from harmful radiations of sun. It consists of O_3 molecules. Without ozone layer the harmful rays of the sun would reach the Earth. The oxygen molecules are broken by the sunlight and they combine to form ozone layer.



Depletion of ozone layer

The industrial revolution has increased the number of toxic substances in the atmosphere. Substances like CFCs and Chlorine result in the depletion of ozone layer. It has resulted

in the formation of ozone hole. As a result the Ultra violet rays of the sun are able to reach the surface of the Earth. The CFCs, halogen and chlorine molecules prevent the ozone layer from regeneration

$$O + O_2 \longrightarrow 2O_2$$

How to prevent ozone depletion

Ozone depletion can be prevented in the following manner

a) Replace CFCs with ammonia

CFCs are mostly used in refrigevator for the purpose of cooling. In order to prevent ozone depletion CFCs should be replaced with ammonia

b) Filter industrial and automobile fumes

Automobile and industrial fumes should be filtered through catalytic convertor.

c) Follow Montreal protocol

ontreal protocol was specifically
igned for the protection of ozone
yer. According Kofi Anna "It is the
ost successful observed protocol upto date".

Part - D

What is acid rain and how is it produced? Briefly describe it's dangers

Acid rain is the rain which is slightly acidic in nature it has a PH of 4 to 5. Compared to normal rain acid rain can cause damage to trees, buildings, and aquatic life

Formation of acid rain

Since the industrial revolution the number of harmful gases and fumes have increased in the atmosphere. These fumes mix with the moisture in the atmosphere to form acid rain. These despositions reach the ground in two ways

a) Dry desposition

When the fumes are deposited with air or wind it is termed as dry disposition

b) Wet desposition

When the fumes are deposition with rain it is termed as Wet desposition. It is also known as acid rain. Following reaction takes place

$$H_2SO_4 + H_2O \rightarrow HNO_2 + HNO_3$$

Dangers of acid rain

Following are the dangers assosiated with acid rain

a) It can damage the buildings

Acid rain can damage the buildings by corroding marble and limestone

b) It can harm the aquatic life

Acid rain can harm the aquatic life by ~~damaging~~ making lakes and rivers acidic

c) It can damage leaves

Acid rain can damage leaves and trees. It can often make holes in them

d) It washes important nutrients from soil

Acid rain can damage the soil and can also wash out important nutrients from soil.