

6 Paper: Environmental Science

Q3 What are the effects of environmental pollution?

Introduction:

Environment pollution is a serious threat to the environment, it not only damage the environment, it also affects the health of living organisms. This can cause serious diseases in human beings. Further more it also affects the ecosystem of the Earth. Due to man-made activities as well as natural cause both environmental pollution starts back then, which is when Industrial Revolution started. That time, it was the beginning of environmental pollution and if we could not curb this, it will eventually make environment to be unfit for living.

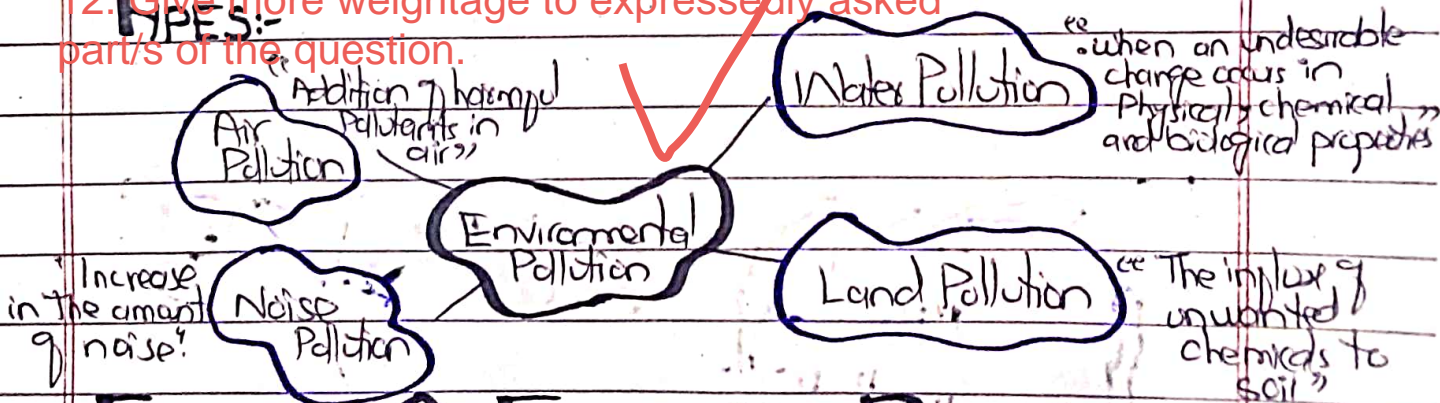
General Instructions

1. Give numbering to headings
2. Do not write lengthy paragraphs. Write medium sized paragraphs with headings.
3. Do not use table for comparison and contrast questions
4. Draw figures/diagram/flowchart where needed.
5. Start new question from fresh page.
6. Give around 15 headings for 20 marks question.
7. Every question should have introduction and conclusion paragraphs.
8. Change colour scheme for references to give them more visibility.
9. Manage time well.

Environmental Pollution:-

The addition of unwanted chemicals or pollutants that cause a change to the environment.

Types:-



EFFECTS OF ENVIRONMENT POLLUTION:-

AIR POLLUTION:

i- Global Warming:

As we know when the CO₂ release more into the air it causes rise in average temperature resulting Global warming.

ii-

Acid Rain:

Air pollution is the major cause of acid rain, it happens when NO_x and SO_x increase in concentration and when it combines with water resulting acid rain. Acid rain causes destruction of infrastructure, health problems, skin problems etc

iii

EUTROPHICATION:

When the nutrients like Nitrogen and phosphorus percolate into the lake or river, it increases the algal growth results in suffocation of marine animal and eventually prone to death.

iv-

EFFECT PLANTS AND VEGETATION Destruction:

Due to air pollution plants growth effects, and severely damaged and causes to damage the vegetation.

v-

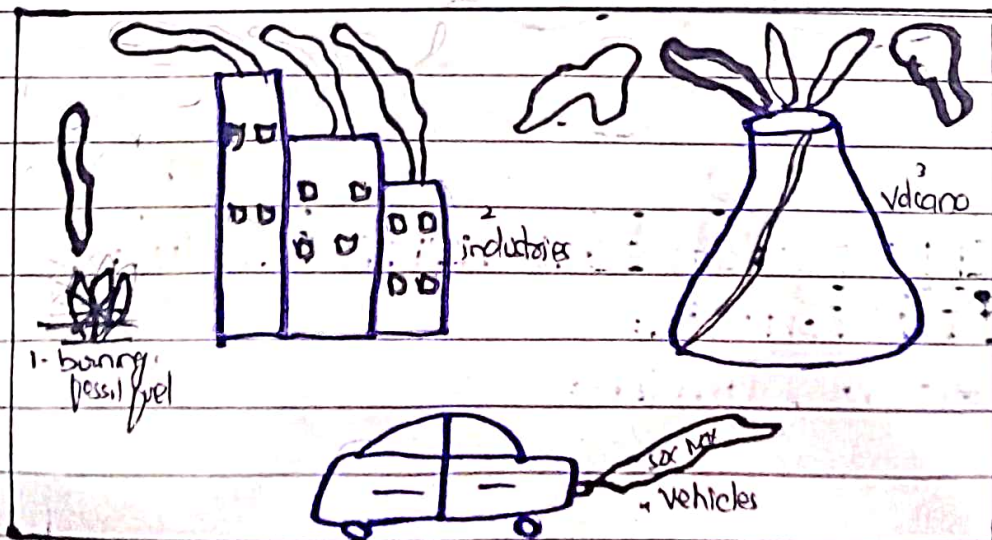
Ozone Depletion:

As the unwanted pollutants release in the air especially CFC's and HFC's, these are main cause of ozone depletion.

vi-

Health Problems:

It can cause severe health problems in human beings asthma, heart attack, skin problems, etc



WATER POLLUTION:

Eutrophication: When nutrients percolates in water

cause increase of algal blooms thus affecting marine life.

ii

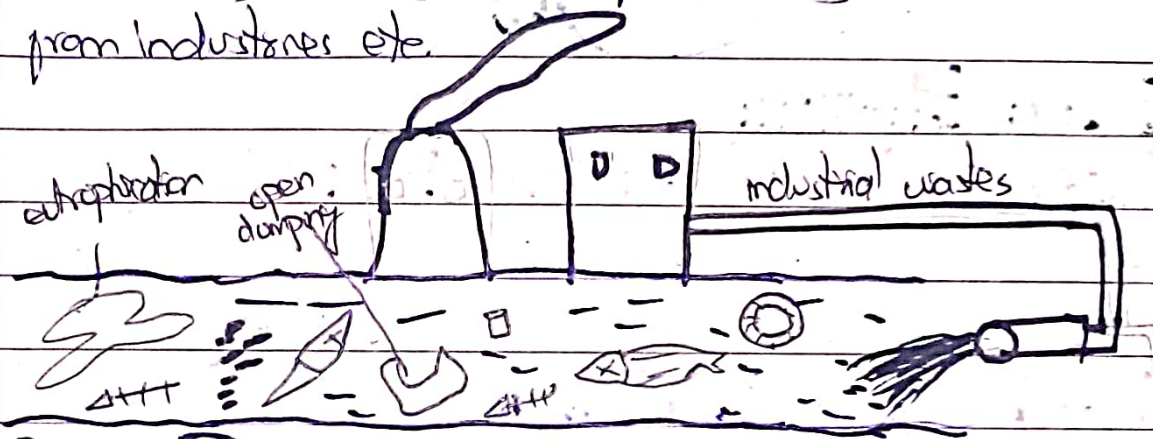
Health Problems:

When the drinking water is not fit to drink it can cause many severe problems cholera, diarrhea or water borne diseases.

iii -

Effect Aquatic Ecosystem:

Water pollution effects the aquatic system causes the aquatic living organisms to die, suffocation (eutrophication) and mainly destroys the aquatic ecosystem. Toxic chemicals from industries etc.



LAND POLLUTION:

1-

TERRISTORIAL DESTRUCTION Ecosystem:

- Plants are effected
- Fertilizers leads to eutrophication
- Dumping of plastics/wastes can damage terrestrial ecosystem
- Food shortage is also the effect of land pollution because of land pollution plant growth will be effected there will be not fertile land which causes food insecurity.

2-

Desertification:

When the soil will be not fit for fertility, is the main effect of desertification, it occurs when the top soil is eroded continuously then the fertile land becomes sandy & rocky.

HEALTH PROBLEMS:

When there is no proper waste management or in case of open dumping; the flies and mosquitoes feed on that waste and increased its population which causes many health problems in humans. Cancer, skin problems and many more.



NOISE POLLUTION:-

IMPACTS ON MIGRATORY BIRDS

The noise pollution can disturb the migration of migratory birds.

Psychological Problem:

- Stress, Anxiety, Sleeplessness \rightarrow noise intruys. sleep \rightarrow reduced energy level \rightarrow Fatigue; efficiency. d/c

Auditory Problems:

Hearing problems are most common problems because listening to music at high volume can cause auditory problem. (Tinnitus

- **Heart Problems:** when the noise level is increased ^{also permanent hearing loss.} blood arteries constrict \rightarrow rise in BP and due to this causes heart problems

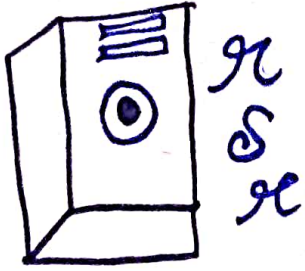
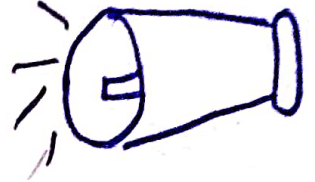
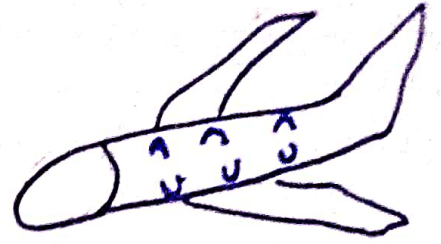
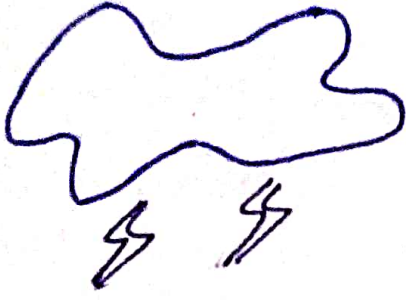
Physiological disorders:

effect physiological; semi circular canal of ear.

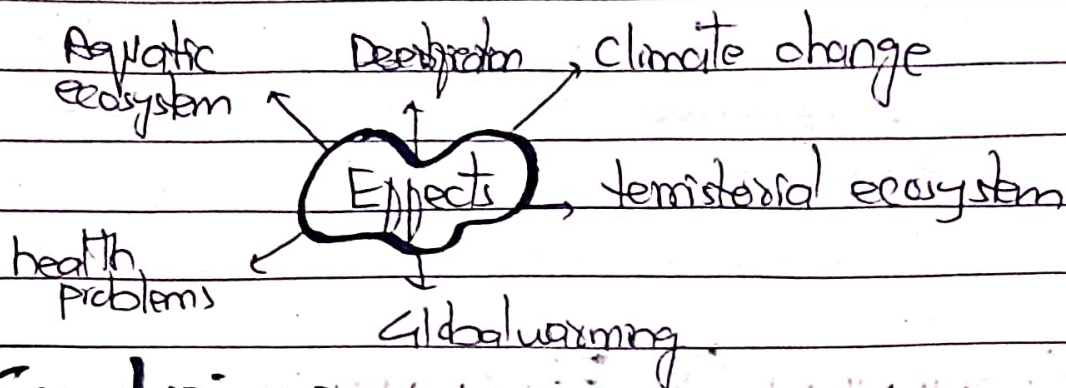
Gastrointestinal Problem:

Due to stress, tension, anxiety produce ulcers.

Noise Pollution



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Conclusion:

The effects of environment pollution is a threat because it disturbs our terrestrial, Aquatic ecosystems causes many health problems in humans. Climate change is the culprit regarding pollution.

Q7. What is Eutrophication? Give its types, causes, effects and solution.

EUTROPHICATION:

It is an increased or excessive plant and algal growth in water bodies due to increase level of growth factors." (Increase Nitrogen, Phosphorus etc)

OR

The gradual increase concentration of phosphorus nitrogen and other plants nutrients to increase algal growth in water bodies."

TYPES:-

- Natural Eutrophication
- Cultural Eutrophication

Natural Eutrophication:

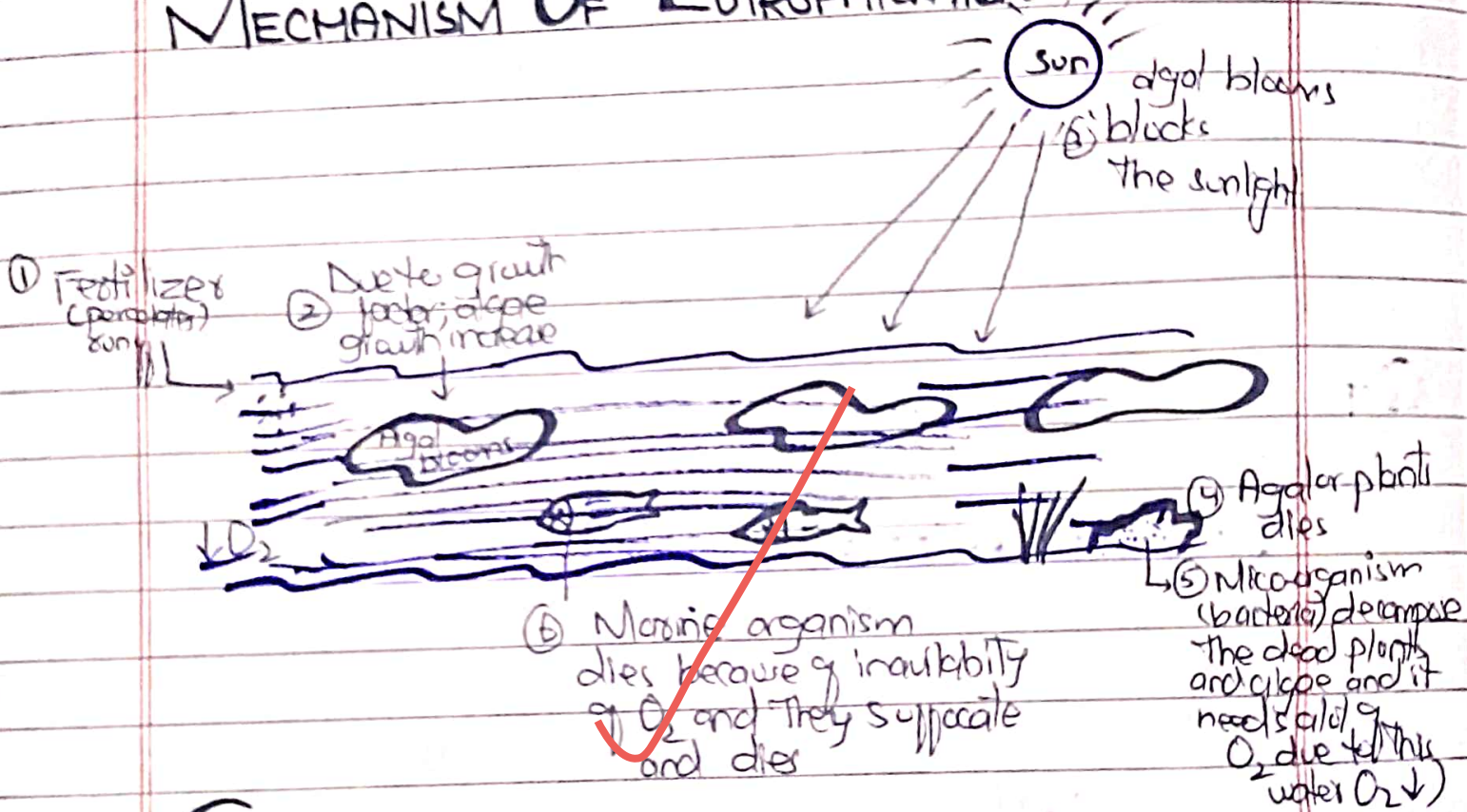
It can be caused by or naturally; without influence of human activities. It is a slower and gradual process it takes times may be decades. This eutrophication is not harmful for water bodies.

ii-

Cultural Eutrophication:

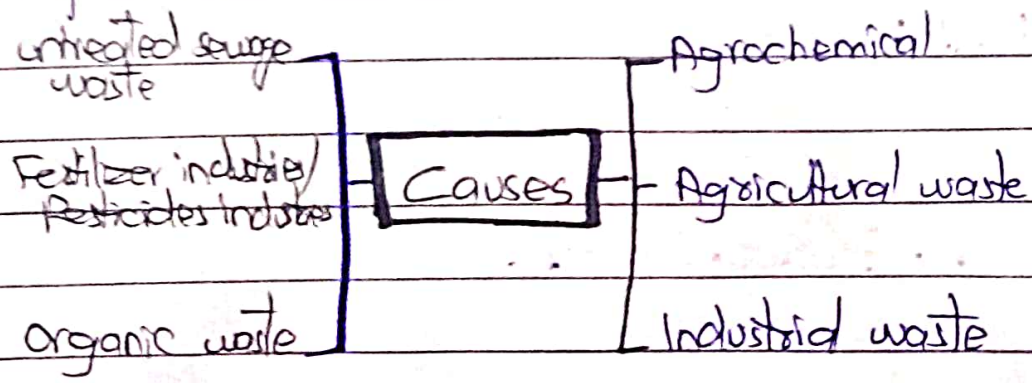
It is mainly influenced by human activities and also it accelerates the natural eutrophication as well. It is not a gradual process beside it is a speedy process; it doesn't take too much time to happen.

MECHANISM OF EUTROPHICATION:



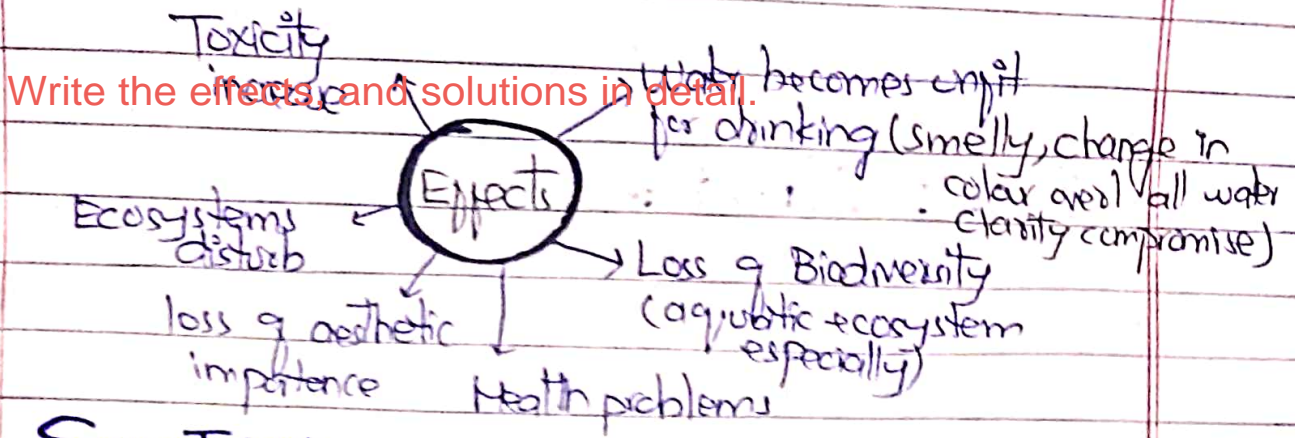
CAUSES:

Those activities in which Nitrogen, phosphorus, and any other plant nutrient involved it contributes to Eutrophication.



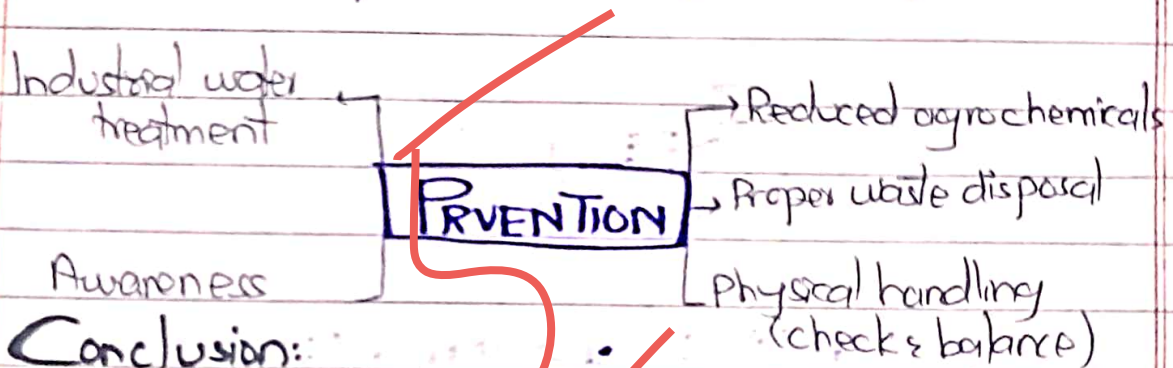
EFFECTS:

Eutrophication affects the whole ecosystem as it follows:



SOLUTION:

To mitigate eutrophication; There are certain prevention that should be followed to mitigate eutrophication.



Conclusion:

Eutrophication will be a serious threat if not properly mitigated. The effects of eutrophication causes the water bodies become smelly and unattractive or loss aesthetic importance and lastly unfit for drinking. So eutrophication should be mitigated but just in the one case if there is awareness about eutrophication do's and don't's. This problem will be solve immediately.

Q5 What are sustainable approaches..... management in Pakistan.

Introduction:

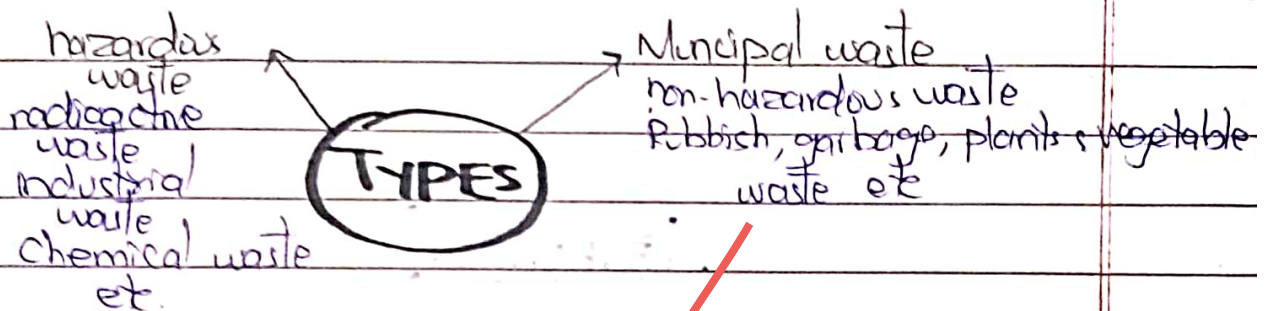
The dumping of solid waste becomes a major issue to curb the solid waste and save our Earth we must have some sustainable approaches for solid waste management and their proper disposal.

But in case of solid waste management there are some weaknesses in context of Pakistan waste management system.

SOLID WASTE:-

The solid waste include Industrial waste, agricultural waste, domestic waste, E-waste, biomedical waste, battery waste, institutional waste, horticultural waste, non-residential waste (street sweepings, silt removed) radioactive waste.

TYPES:



SOLID WASTE Management:

“Supervised handling of waste material from generation at the source through the recovery processes to disposal”

Sustainable Approaches:

Bioremediation:

“The treatment of pollutants or waste by the use of micro-organisms that break down the undesirable substances.”

COMPOSTING:-

Natural process of recycling, decomposed organic material into a rich soil known as compost and this process is used to manage solid waste.

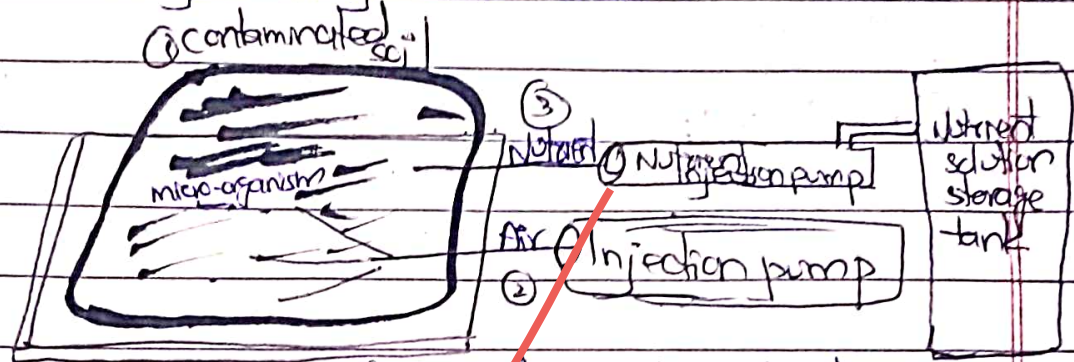
Collection of house hold waste → Recycling factory

Compost (rich soil) ← Decomposition (mix & shredded waste) ← Waste must be organic in nature (check)

ii- Biopiles:

"A technology to decompose contaminants by soil micro-organisms by depositing contaminated soil in pile and supplying air, nutrients and moisture needed for micro-organisms in soil."

Target: Biological degradable waste.

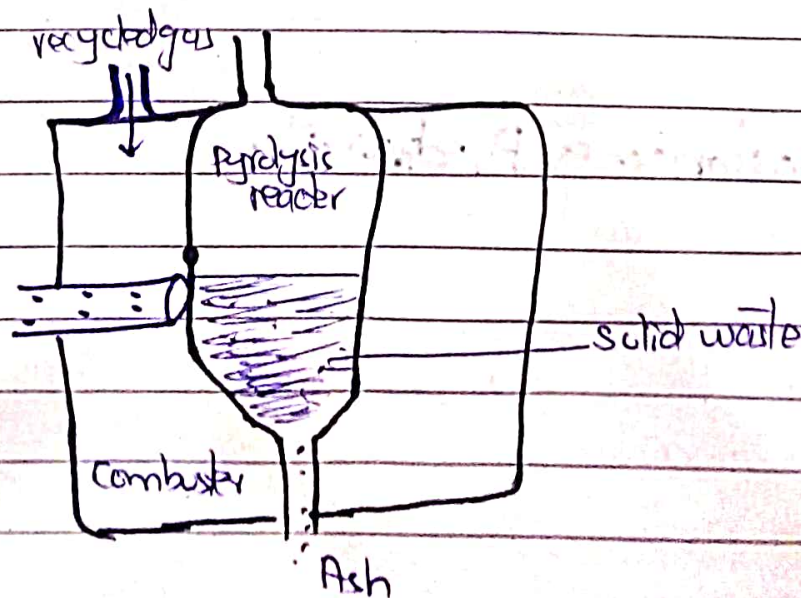


④ Formation of H_2O , CO_2 during decomposing nutrient

⑤ Completion, soil is again fit and got rid of pollutants

2- Pyrolysis: "Upon heating, waste is treated.

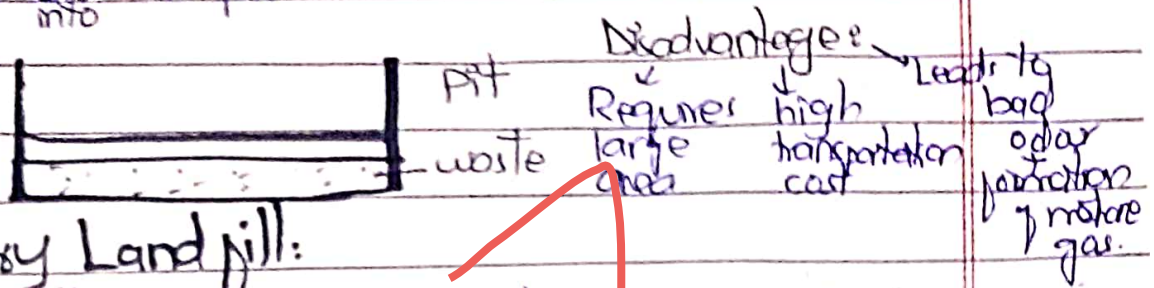
Thermal degradation of waste in Anaerobic condition to produce pyrolysis gas and fuel gas. This usually occurs under pressure & high temperature. External source of heat is employed because many contaminants are most organic and unstable thermally & thermally unstable.



3- Landfills:

Most common method and cheapest method of waste disposal.

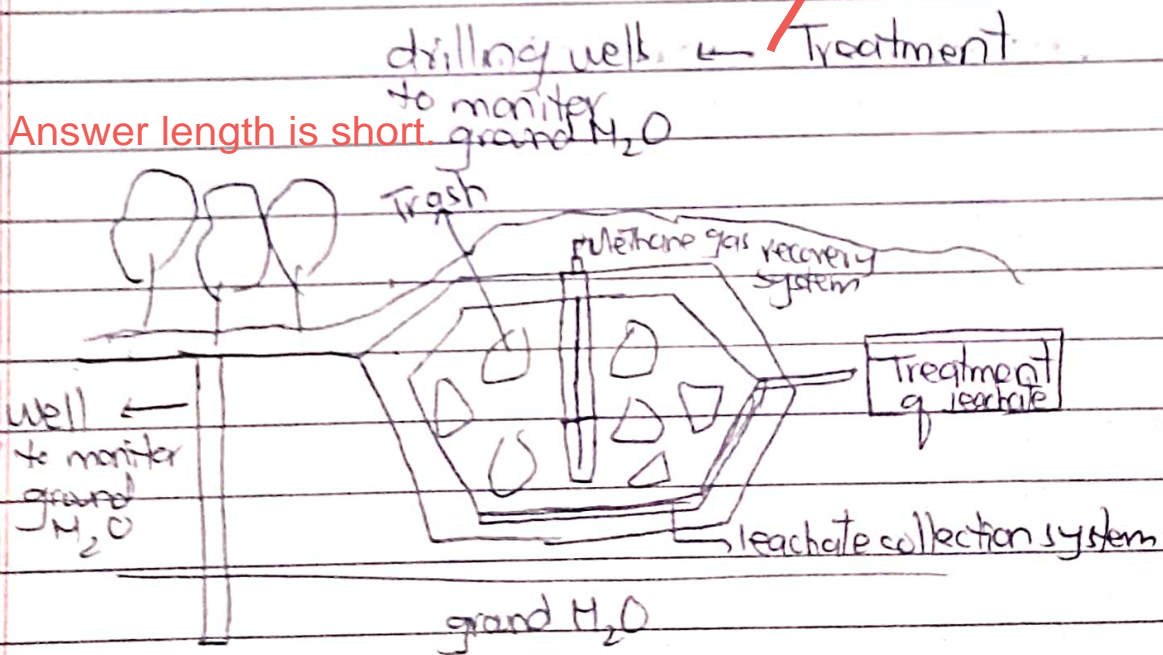
In this thick pit is dugged and all the waste is ^{dumped} thrown ~~into~~ into the pit



ii Sanitary Landfill:

Scientifically designed and more hygienic and built in a more methodological manner to solve the problem of leaching.

Lined with plastic material → leaching collector



Answer length is short.

PAKISTAN WEAK Management System

SOLID WASTES:-

- Weak infrastructure
- Insufficient funding
- lack of public awareness
- limited ^{capacity} municipal authorities
- inadequate co-ordination between different stakeholders

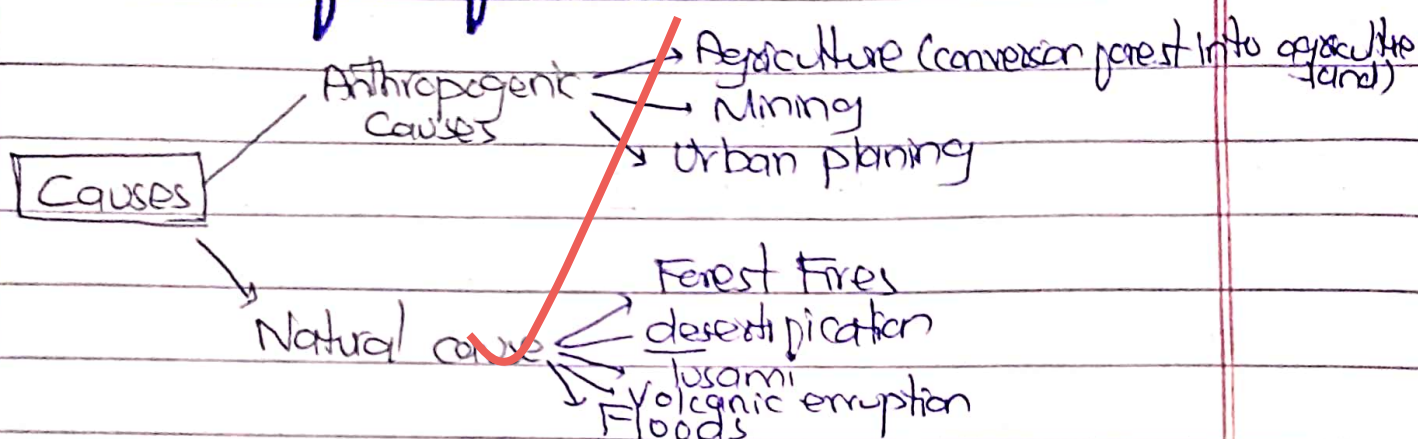
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Q8- Short notes:

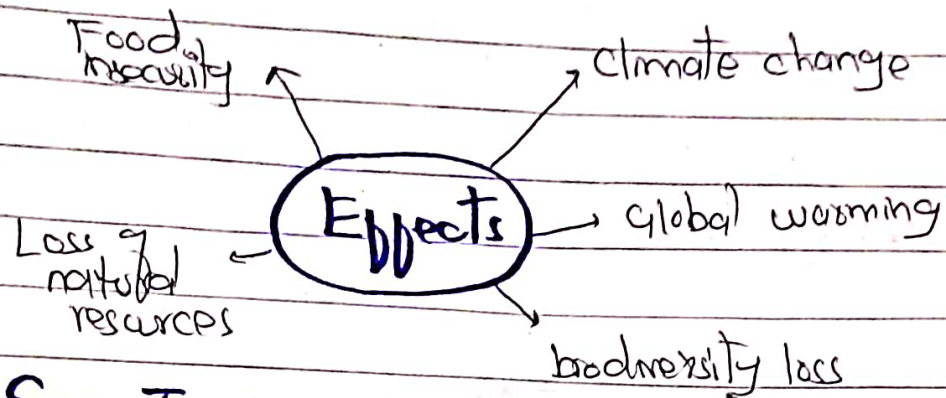
i- **Deforestation:-**

“The loss of continual degradation of forests due to man-made or natural activities”

Causes of Deforestation:



- Construction of Dams, buildings
 - Urbanization
 - As a fuel: Wood is cut and burn which is used for cooking.
 - Furniture and paper
 - Petroleum Exploration
 - Increase population leads to the cutting of trees.
 - Cash crop economy
 - Infrastructure development
- These all contribute for the destruction of forest.



SOLUTION:

- 1- Reforestation
- 2- Afforestation
- 3- Recycle papers to protect trees from cutting
- 4- Renewable resources
- 5- Raise awareness
- 6- Conserve forest - (CBD treaty)
- 7- Restore degraded forest
- 8- Use recycled products

2- Biodiversity loss:-

Biodiversity:-

"Variety of living organisms living on Earth is called biodiversity"

It includes:

Plants, animals, and micro-organism.

Importance of Biodiversity

- 1- Food purposes
- 2- Food industries
- 3- Treatment / Medicine (medicinal plants & ^{micro}organism)
- 4- Pharma industry
- 5- Increase aesthetic beauty ...
- 6- Tourism
- 7- Timber - Fuel, furniture, paper.

Biodiversity loss:

When different organisms living together but due to certain causes these organisms (plant/animal/micro) are gradually decreases, endangered or near to extinction.

CAUSES:

- 1 Land Pollution
- 2 Air pollution
- 3 illegal killings/hunting
- 4 Global warming
- 5 Climate change
- 6 Population explosion
- 7 Deforestation
- 8 Eutrophication

Effects:

- 1- Food insecurity
- 2- Global warming
- 3- climate change
- 2- Loss of economic importance
Paper, Wood, Pharma, Food industry effected
- 3- less Tourism

Conservation:

- 1 Controlling population growth
- 2 Awareness
- 3- Strengthening role of institutions
- 4- Sustainable urbanization
- 8- Mitigating Global warming & climate change
- 6- Natural Parks
- 7- Implementation of CBD
- 2- Managing environmental pollution.