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Batch : 371

LMS ID = 34478

ENVIRONMENTAL SCIENCE.

(Part - II)

Question # 04

What is Biodiversity? Give its levels, importance and explain the biodiversity loss.

INTRODUCTION.

Biodiversity is an important feature on the earth. Due to biodiversity loss presence on the earth, there is damage to survival of the population living. The levels of biodiversity are genetic, specie and ecosystem level. However, biodiversity play an important role in food, health, culture promotion, tourism along with many others. However, biodiversity loss occurs due to several reasons. These may include the natural as well as man made problems. This is caused due to the population explosion, deforestation, pollution, climate change along with many others.

BIODIVERSITY MEANS:

Bio : Life Diversity : Variety of life.

" Biodiversity is the study of the variety of life present on earth. "

It means that all life forms that are present on the earth are included in biodiversity.

It mainly comprises of animals and plants.

According to UNFCCC:

Biodiversity is the sum total of all the life forms i.e. animals, plants, humans that are present on earth.

LEVELS OF BIODIVERSITY.

There are three levels of biodiversity.

Genetic level

It refers to the genetic variation of the living organisms

Species level

Number and kinds of the organisms of a species.

Ecosystem level.

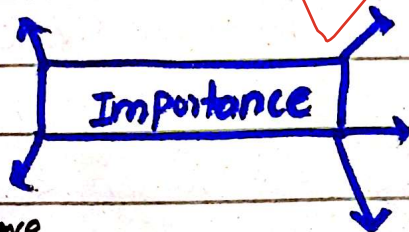
Place where the biodiversity resides at that level.

HOTSPOTS: The regions that are diverse in the biodiversity are known as hotspots. There are total 36 hotspots in the whole world. Tropics are rich in biodiversity.

IMPORTANCE OF BIODIVERSITY.

Food providance

Health uses.



Habitat maintainence

Tourism industry.

cultural promotion.

•) Biodiversity are important source of food.

The main source of the food in earth are biodiversities. This include animals that are used as a food. Also the trees included in biodiversity provide food to all other organisms.

•) Biodiversity is a source for health maintainence.

A lot of medicines that are made in the world came from the biodiversity. The trees give too much important products that are use for the production of medicines. Also the animal use for the health sector is increasing in the world.

•) Biodiversity increases the tourism sector.

Biodiversity help in increasing the tourism sector in the world. As they enhance the beauty of nature in which they are usually present. In Pakistan, a lot of areas are rich in the biodiversity that enhances the tourism.

•) Biodiversity increase the cultural promotion.

The world is highly rich in biodiversity that varies different from one place to another. Yet, due to their presence of biodiversity, cultural exchange and promotion increases due to this.

BIODIVERSITY LOSS

The decrease in the number of biodiversity present in world is known as biodiversity loss.

According to WHO,

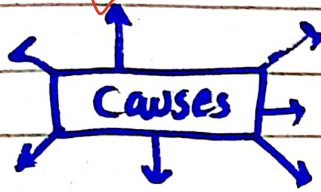
The decline in the number of biodiversity that exist is known as biodiversity loss.

CAUSES OF BIODIVERSITY LOSS.

Population Explosion.

Habitat degradation.

over exploitation



Global warming.

Deforestation.

Urbanization

Climate change

According to IUCN:

If the global temperature will rise upto 3.5°C then 70% of the world population will be at the risk of extinction.

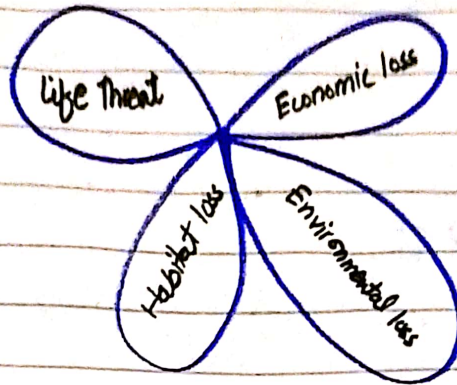
According to UNFCCC:-

1 out of every 8 mammal in the world is at the risk of extinction.

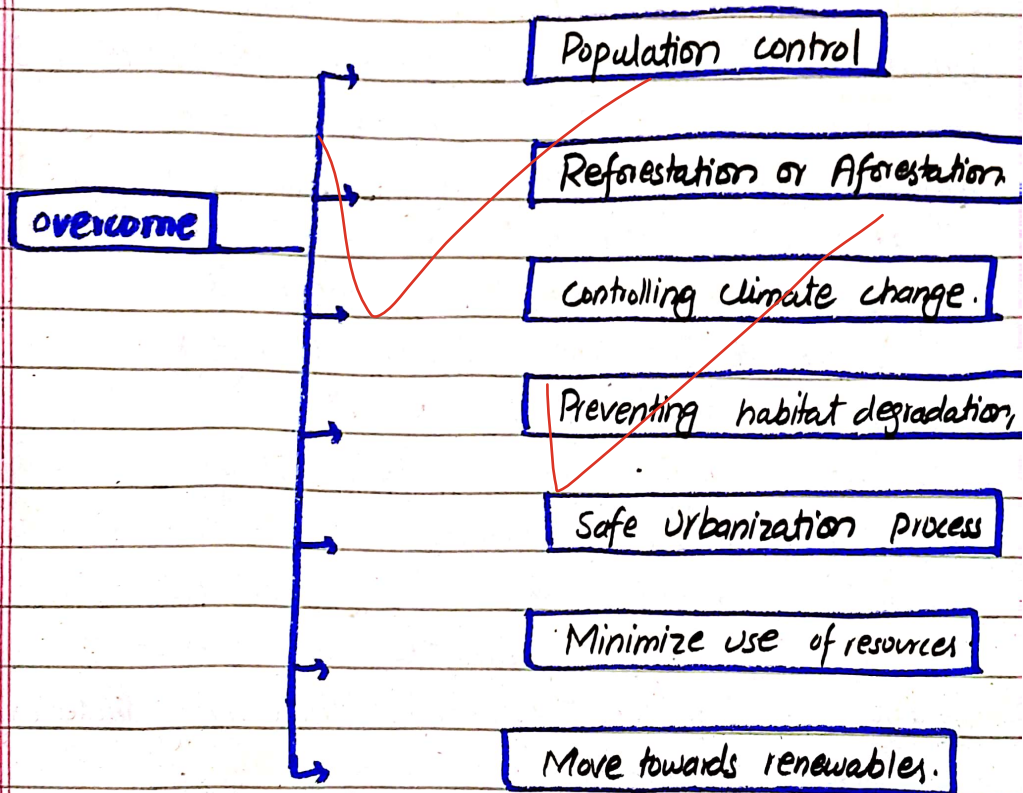
1 out of 4 conifers are at extinction risk.

75% of agricultural land can be diminished due to biodiversity loss.

EFFECTS OF BIODIVERSITY LOSS.



HOW TO OVERCOME THE BIODIVERSITY LOSS.



CONCLUSION.

In a nutshell, biodiversity is an important component in the world. This is an important feature for survival of different sectors. However,

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due to the rapid change in the climate, a lot of loss in the biodiversity occurs. These should be minimized for the safety of biodiversity.

Question # 06

Explain climate change, give its adaptation measures with respect to Pakistan.

INTRODUCTION

Climate change has become an increasing phenomenon not only in Pakistan, but also in whole world. The changing development patterns greatly contributed in climate change.

→ Pakistan only contribute 1% in the global climate emission, however it is one of the most effected country of climate change in the world."

With each passing year, climate change is becoming a more worsening phenomenon in Pakistan. To control this there should be increasing policy making and then their proper implementation in the country. These may include controlling the population expansion, waste water, proper management, safe industrial and agricultural processes along with many others.

CLIMATE CHANGE

According to WHO,

Any undesirable change in the climate that disturbs it and become harmful for the humans, animals, plants and other living things present on earth is known as climate change.

-) It is a phenomenon that changes the rainfall patterns.
-) Climate change may be in a country, in a region or in the whole world.

EXAMPLES OF CLIMATE CHANGE IN PAKISTAN

⇒ Floods of 2022 in Pakistan shows the changing of climate change patterns in Pakistan. There occur not only damage to the infrastructure, but also loss of lot of lives and economy occurs.

⇒ Melting of glaciers in Northern Areas of Pakistan.

This also causes due to the changing of climate in Pakistan. In near future, this will lead to scarcity of water.

⇒ Smog in 2024 in Lahore.

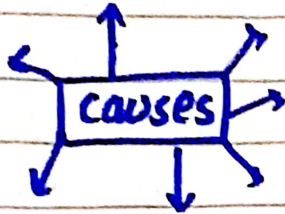
This phenomenon also occurs due to climate change in Pakistan. Due to which all the services in Lahore restricted for sometime.

CAUSES OF CLIMATE CHANGE IN PAKISTAN

Population explosion.

Due to neighbouring countries China and India.

Urbanization



Deforestation.

Massive transportation.

More industrial and agricultural effluents.

Over use of fossil fuels

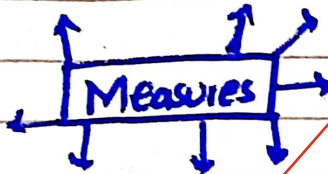
ADAPTIVE MEASURES PAKISTAN SHOULD ADOPT TO COMBAT CLIMATE CHANGE

Controlling of the increase population.

Sustainable urbanisation.

Afforestation and deforestation.

sustainable industrialization.



Control on the increasing transport.

Obligation of international commitments.

Use of renewables for energy production

Awareness among public

Controlling The population explosion in Pakistan will lead to controlling The climate change

According to The World population Index

Pakistan rank on 5th number. The population of Pakistan in Pakistan is approximately 240 million. Due to which the global climate change in Pakistan is moving to dangerous level due to too much presence of population.

-) For climate change control in Pakistan, sustainable Industrialization should be opted.

Pakistan is a semi industrialized country. The practices in industrial process is not safe - As in industries there is no mechanism of controlling the emissions that are emitting in atmosphere leading towards massive climate change. There should be proper mechanism of control of emissions from industries i.e. installation of incinerators in industries.

-) Obligation to The international commitments in controlling climate change.

Pakistan should obey the international commitments to control the increasing climate change in Pakistan. As proper implementation of Sustainable Developmental Goals (SDG's) Also the cooperation with the international treaties like United Nation Framework Convention on climate change for effective climate change control.

•) Sustainable Urbanization in Pakistan can control the climate change.

According to UN report

"Almost 60% of Pakistan's population is urbanized."

This shows that most of the population in Pakistan live in urban areas. However, there is no sustainable mechanism of the facilities provided to them. This becomes a heavy burden on the already population and on environment leading toward the climate change. Sustainable urbanization should be encouraged in Pakistan to control the climate change.

•) Use of renewables for the production of energy in Pakistan should be encouraged to combat climate change :

Pakistan should move towards the renewable sources like water, solar, hydal, wind for energy production. So that there should be less emission of pollutants can enter in the environment and climate change should not occur. Although, Pakistan is moving towards the sustainable energy production. Yet, it is dire and immediate need to combat the climate change.

•) For climate change protection in Pakistan, sustainable transportation is necessary.

To combat the increasing climate change in Pakistan, less transportation or maximum shift to electric vehicles are necessary. **Electric Buses Initiative in Islamabad - Pakistan** is a great step towards the climate change controlling mechanism.

However, according to a report, there is hundred time more transport of private property is used rather than use of public transport. There should be more emphasize on using the public transport.

•) Afforestation and Reforestation can enhance to control climate change in Pakistan.

There increase the deforestation mechanism in the passing some years. However, this mainly contribute in climate change - There should be increase in Afforestation → Growing new forests and Reforestation → growing trees in the existing places from where they have been diminished.

In the era between **2020-2021**, there seems an increase in the production of **forests in Pakistan**. This step will highly contribute in controlling the increasing and rapidly climate change in Pakistan.

•) Awareness Among The masses Through education and technological advancement.

For the combating the increasing climate change in Pakistan, there should be awareness among the public. As there is need of proper environment education in Pakistan. This will help in combating increasing climate change. Also through the technological use, Pakistan can control the climate change. Pakistan can take preventive measures opted by developed countries to control the emerging climate change conditions in world. Proper legislations and laws should be made and their proper implementation should be done.

CONCLUSION

In a nutshell, Pakistan is although facing the worst climate change phenomenon.

It can be controlled through the proper legislation and implementation mechanisms.

This will help Pakistan to control the increasing climate change. There is dire need of this as upcoming years will show more destruction and lead to the climate change.

Question #08

Write short note on following.

1- EUTROPHICATION

It is a phenomenon in which due to the excessive growth of algae, algal blooms formed on the surface of water body.

TYPES OF EUTROPHICATION

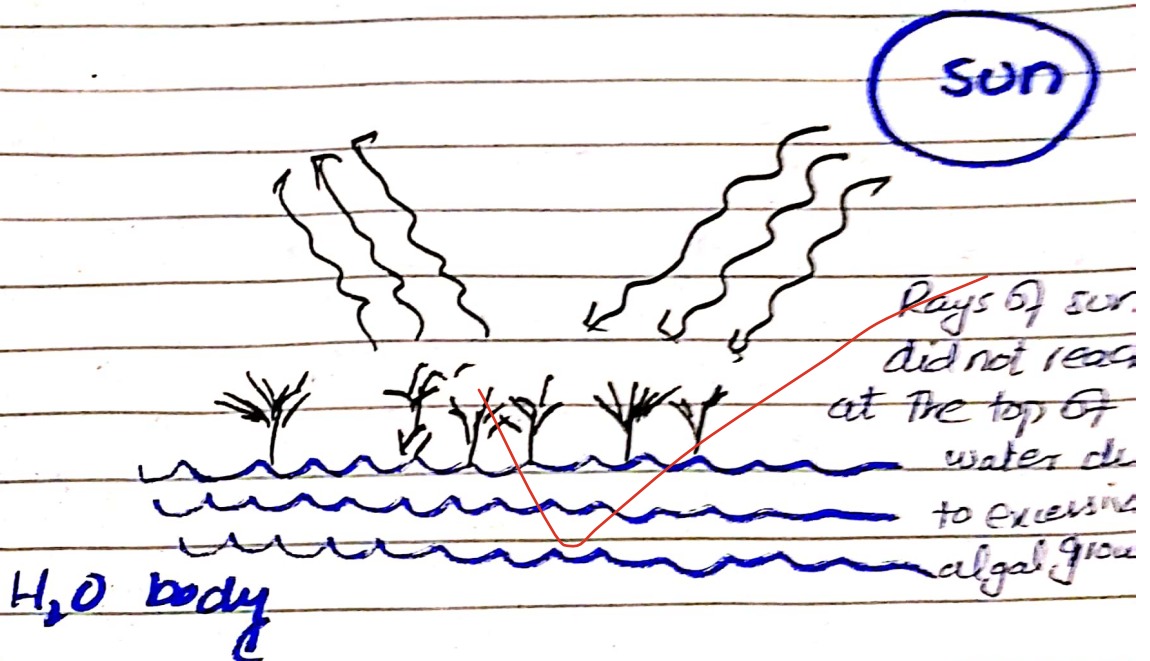
Natural Eutrophication

The Eutrophication that is caused due to the natural processes is known as natural Eutrophication.

Artificial Eutrophication

The Eutrophication that is caused by the harmful human activities is known as Artificial Eutrophication.

PHENOMENON OF EUTROPHICATION



CAUSES OF EUTROPHICATION

Industrial waste
water

Agricultural water
run off

Addition of
solid waste

Livestock.



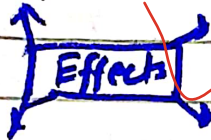
EFFECTS OF EUTROPHICATION

Loss of biodiversity
in water

Public health
Risk.

Loss of the
aesthetic importance
of water body.

Changing in color,
odor and taste
of water.



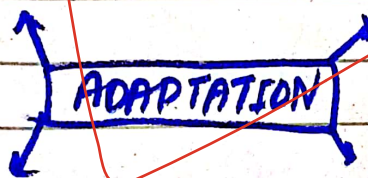
ADAPTATION MEASURE FOR EUTROPHICATION.

Effective disposal
of waste from
industries.

Educational
awareness

Implementing goal
16 of SDGs.

Ensuring proper
waste water



2- DEFORESTATION

- "Deforestation is a process in which the land more cutting of forests include."
-) In deforestation, a large number of trees or forests have been cleared from the land.

Examples

Illegal forest cutting in Pakistan and Brazil.

CAUSES OF DEFORESTATION

To acquire land for residential purpose.

Making of the products



Over population.

Desertification

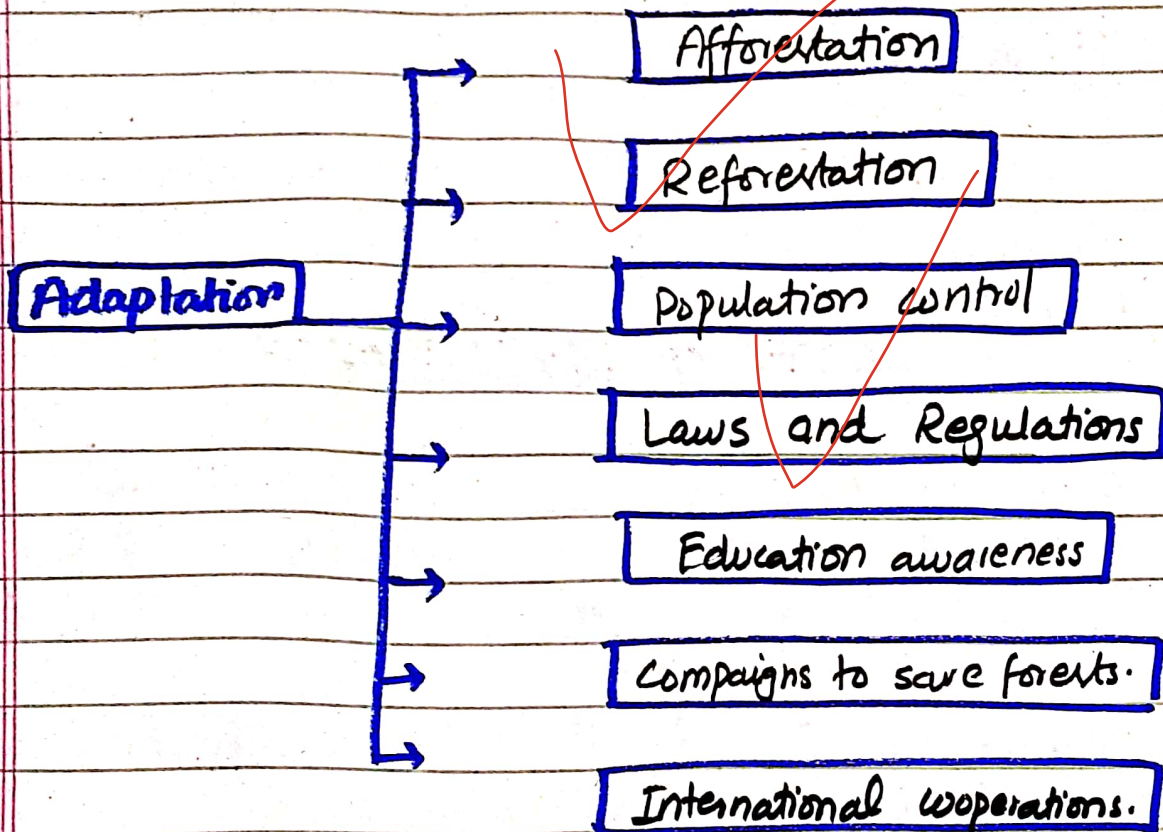
Resources exploration.

Impacts of deforestation

- Due to deforestation, habitat loss for the species living there will occur.
- Due to deforestation, more disasters like floods will come.
- Deforestation will lead towards extreme weather conditions and climate change.

- Different types of paper pollution will enhance due to the growing mechanism of the deforestation.
- Loss of aesthetic scene in natural beauty due to deforestation.

ADAPTIVE MEASURES FOR DEFORESTATION.



3- REDD.

It is for the protection and conservation of the decaying forests in the world.

It is an international cooperation for the control of forests destruction that is increasing in the world.

REDD \Rightarrow Reducing Emissions From Deforestation and Degradation

When This was framed.

This was framed under the UNFCCC in . It helps in conserving the forests that are big source of carbon in The world.

Benefits of REDD.

- It helps in controlling the forest damage and prevent from climate change.
- It is benefit to control the loss of biodiversity occurring due to the deforestation.
- It promotes the sustainable developmental projects.

Phase of REDD

Phase - I :-

In first step, the formation of the national policies and strategies took place.

Phase - II -

In 2nd step, implementation of strategies conducted.

Phase - III :

In last step, the results regarding

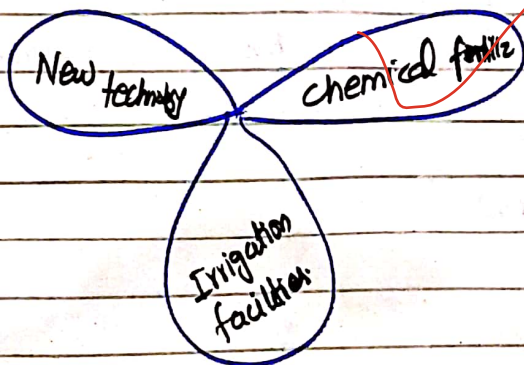
implementation strategies has been shown.

4- GREEN REVOLUTION

Green Revolution started in the mid 20th century when the agricultural revolution started in world.

-) Due to this introduction of new technologies and varieties of the crops in the world.

Major events occur due to green revolution.



Effects of Green Revolution

- Enhanced the mechanism of growth in crops.
- Induction of new technologies.