Date

Subjective Part- Part- II

Question-3 (a)

What is a climate? Enlist the weather variables and explain the LA-NINA and EL-NINO phenomenon in the context of Global climate distribution.

What is climate?

Climate is all about the description of weather variables in long term at a particular place or location usually from 20 to 30 year or 2 to 3 decades.

Weather variables:

Weather:

Short term description of weather variables at a particular place or location for the period of 24 hours.

OR

Mixture of the events which happens each day in the atmosphere.

Date

Enlist of Weather Variables:

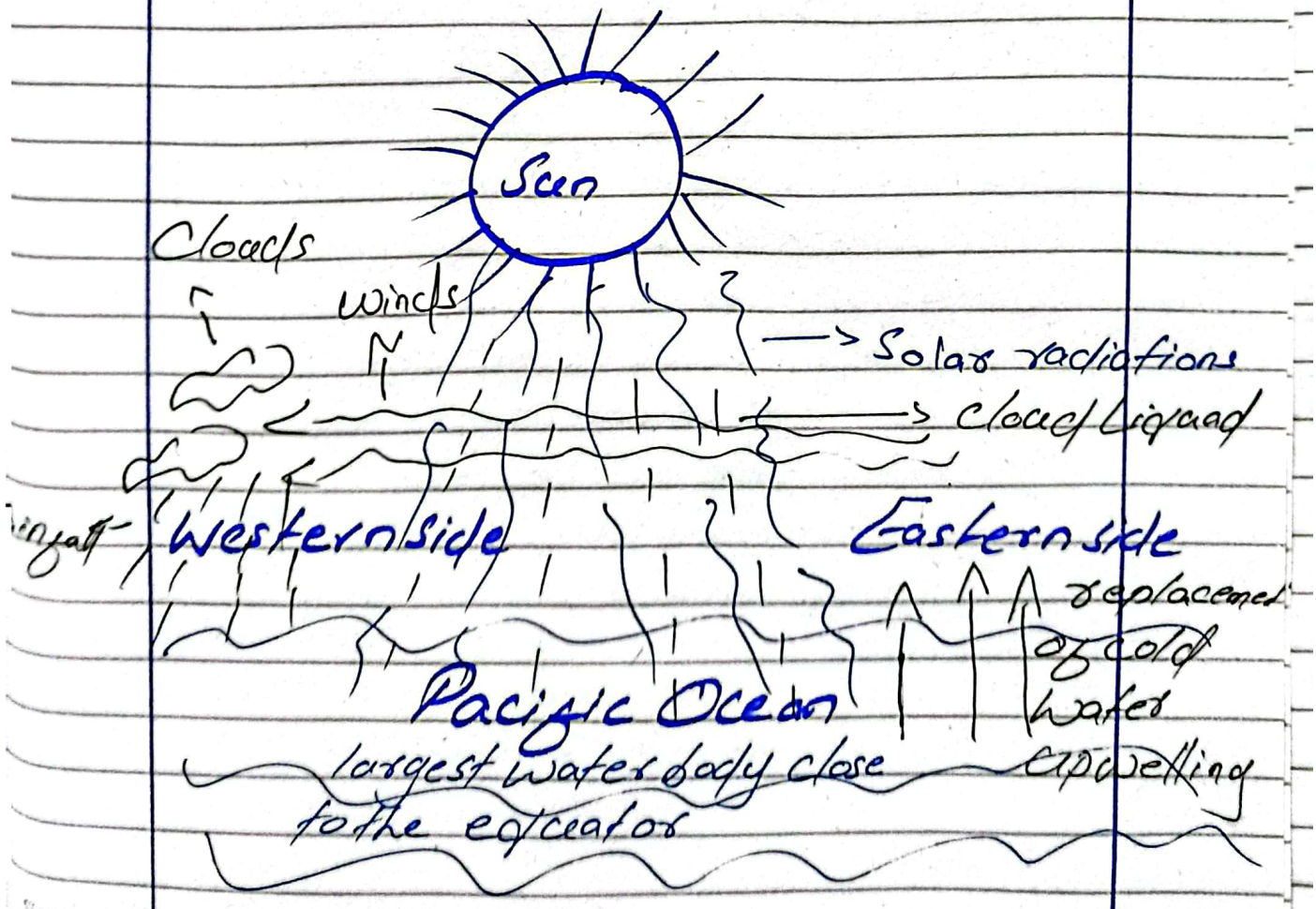
- Percipitation
- Temperature
- Humidity
- Fog
- Winds
- Snowfall
- Mist

LA-NINA and EL-NINO phenomenon in the context of Global climate distribution:

Global climate:

The term "Global climate" is used to refer general state of world's climate with different climate Zones. with different types of weather in different parts of the world.

LA-NINA and EL-NINO Phenomenon in figure below:



Date

Due to the heat water changes its state and evaporate to the troposphere. Above figure process are called **LA-NINO and EL-NINO process.**

LA-NINA occurs when the surface temperature of Pacific ocean cools down by 1-3 C°. As the ocean cools trade wind which below from eastern side to Western side. Trade winds push warm surface water towards the Western pacific, allowing the colder cat water to upwell called **upwelling of cold water.** Increased the rain in western pacific.

EL-NINO process occurs when the surface temperature of pacific ocean warms up to 1-3°c and trade winds which blow from eastern side to western side are weaken and weakened trade winds reduce the upwelling of cold water from deep ocean. The warmer temperature and reduced upwelling lead to increased rainfall in the eastern pacific and drought to western pacific.

Date

Question-3 (b)

Define Eutrophication. Explain its process, types and effects and give controlling measures.

Concept of Eutrophication

The term "eutrophic" means well-nourished; thus "Eutrophication refers to natural or artificial addition of nutrients to the the bodies of water (Sea, Oceans, rivers, Lakes) for the instigation may occur in excessive quantities. It is also related to the shallow water or we can another form or manifestation of water pollution. Also the excessive growth of Plant and algae in water bodies due to increasing levels of limiting growth factors causes Eutrophication.

Process of Eutrophication:

Due to addition of nutrients, Oligotrophic aquatic System (low concentration nutrients) converts into Mesotrophic Aquatic System (moderate level nutrients) which converts into Eutrophic aquatic system (excessive

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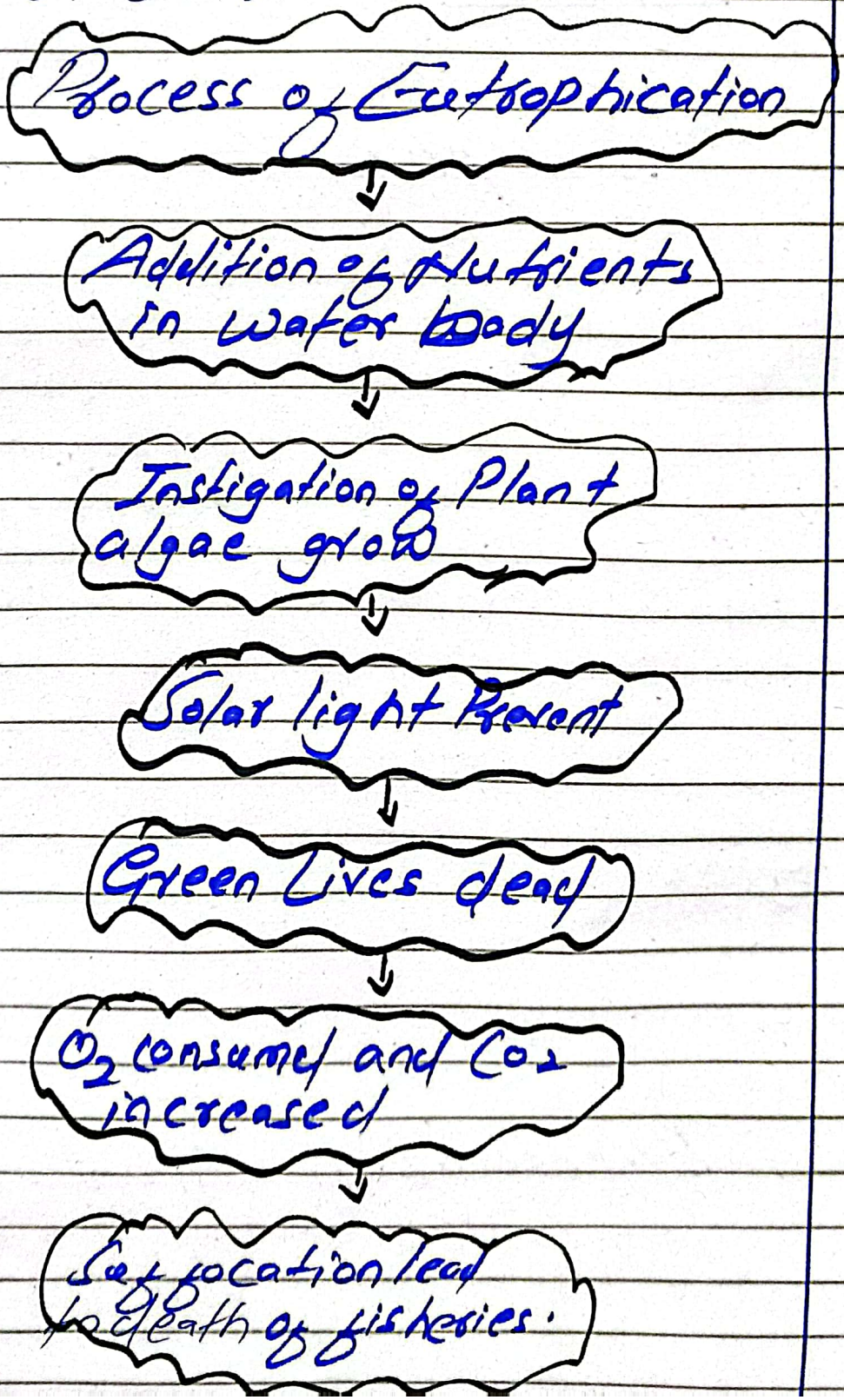
Date

level of nutrients). Water losses its aesthetic and economic value. Organic debris and silt settles at bottom. Margins of aquatic body turns into marsh with small shallow pond at centre.



Date

Eutrophication

- Natural Eutrophication
- Cultural Eutrophication

1- Natural Eutrophication:

This type of Eutrophication is not influenced by the human activities is happens under the natural process. it is very gradual process

e.g:

Rainfall, water run off, deposition in water bodies.

2- Cultural Eutrophication:

this type of eutrophication is influenced by the human activities. it is an accelerated form of an natural eutrophication it takes days or weeks.

Date

Effects of Eutrophication:

Water quality damages

Water Pollution

Biodiversity loss

1- **Water quality damages:**
The color of water changes. toxins are added and eventually PH of water also changed.

2. **Water Pollution:**
Harms the aesthetic value of water smelly.

3- **Bio-diversity loss:**

Fisheries death, Zooplanktons and phytoplanktons loss.

Controlling Measures of Eutrophication:

1- Conversion or Minimize the Use of Agrochemicals:

Conversion to natural fertilizers or minimize the use Agrochemicals as they are used to fertilize the soil during rainfall run off with rain and enter in the water bodies.

2- Dumping of Solid waste:

Organic waste i-e food, plant and animal waste should dump in the dumping yard not to add in the water bodies.

3- Industrial Liquid waste:

Industries i-e food, textiles make the purifying system for industrial liquid waste.

Date

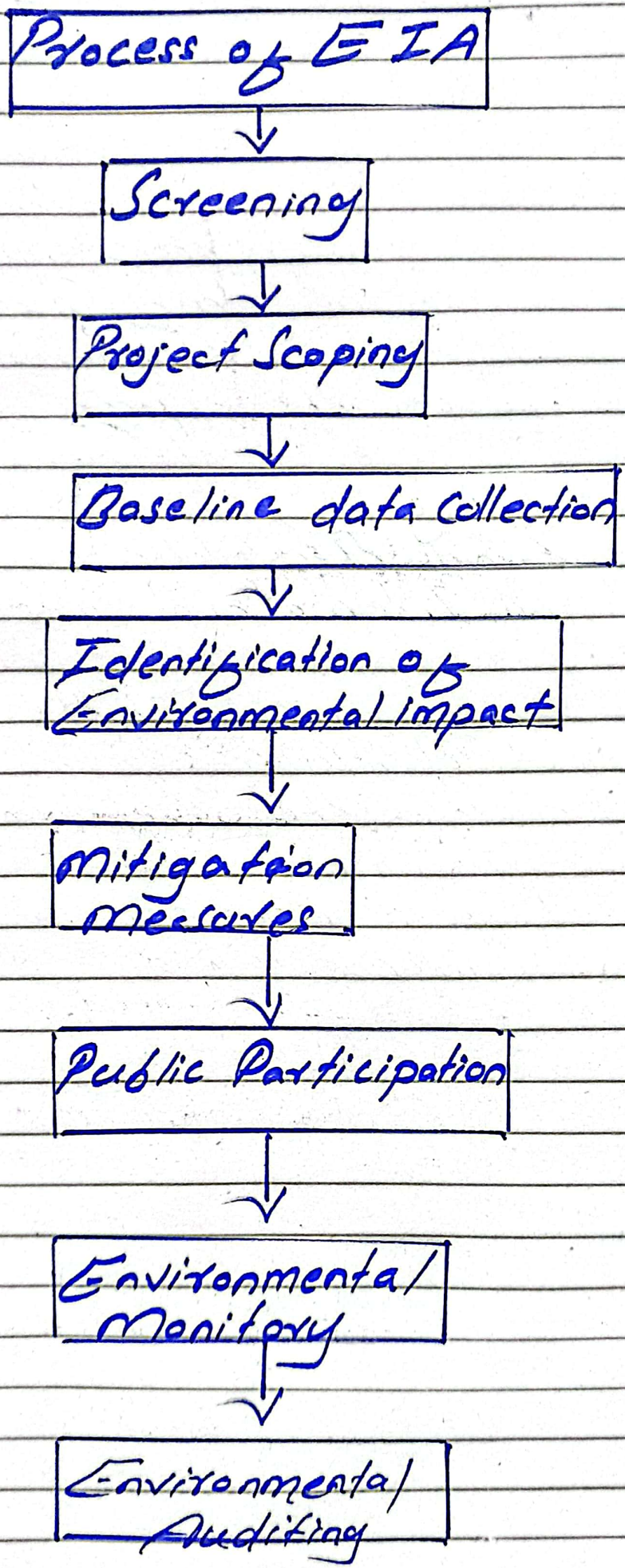
Question- 5 (a)

Explain the Process of EIA and shed the light on the importance of EIA.

Concept of Environmental Impact Assessment: (EIA)

EIA is the formal process of prevention to identify the impacts of certain projects or activities which are done by us on the environment is called EIA. EIA is mandatory for Industrial units and housing Schemes. EIA conduction and approval are two options, EIA may be conducted by Private Sector or Government and for second option for approval of EIA is an authority called **Environmental Protection Agency (EPA).**

Process of EIA



Date

Benefits of EIA:

1- It proposes the modifications in the designs to reduce environmental impact.
2- Predicts Significant impacts.
3- Helps in Identifiy the controling measures in environment.
4- Engages the effected Communities.
5- Influence on the decision making.
6- Avoids the violations of national and International rules.
7- Improves the project performance.
8- Helps in minimizing the use of natural resources.
9- Improves the Safe living Environment.
10- Helps in increasing the Community knowledge.

Date _____

Question-(5)(b)

Science can be instrumental in managing Pollution. Elaborate the Scientific measures/methods to control pollution (at least-1/2).

Understanding the Concept Pollution:

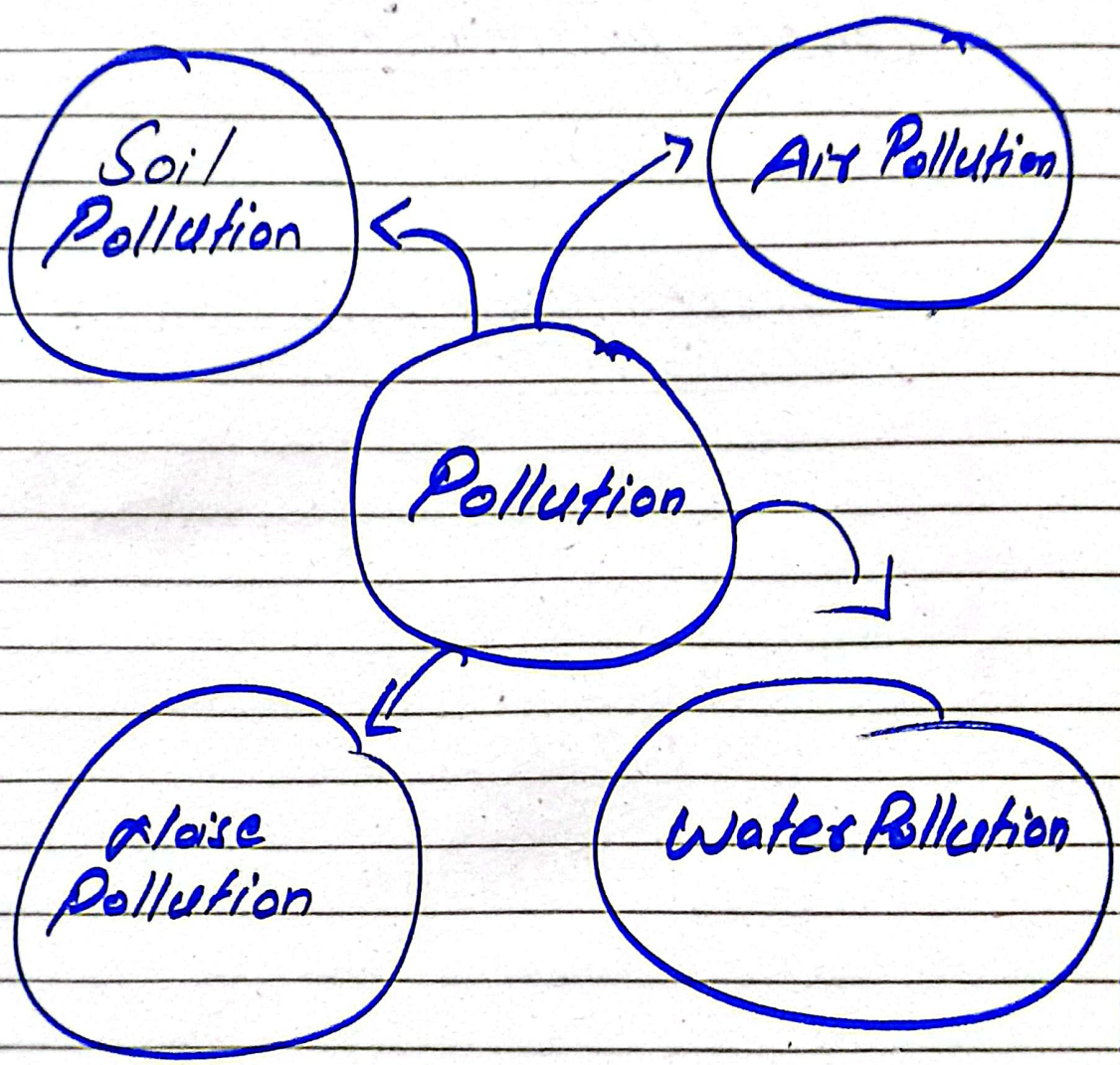
The term Pollution refers to an unwanted change in the environment caused by the introduction of harmful materials or production of harmful conditions (heat, cold and Sound) produces an impure, dirty or unclean state.

OR-

Undesirable change in the physical, chemical or biological characteristics of air, water and land, harmful to the men and animals.

Date

Types/Causes of Pollution



Date

Controling measures of the Pollutions:

1- Soil Pollution Control measures:

i- Stop deforestation
ii- Population and control Program
iii- Proper Waste management
iv- Infuse Biodiversity
v- Environmental Audits and Assessment
vi- Industrial waste Treatment
vii- Regulation and restriction on the use of Chemical fertilizers and pesticides.

2- Air Pollution Control measures:

Through technologies
i- Absorption and Wet scrubby method.
ii- Absorption method.
iii- Fabric filters and bag houses.
iv- Catholic Reactor methods.

Date

3- Noise Pollution Controling Measures:

i- Reduce the noise at source.
ii- Protect the reciptent
iii- Block the path of noise
iv- Increase the path length.

4- Water Pollution Controling measures:

i- Restrict the use of fertilizers and Pesticides in the Agriculture.
ii- Discharge of Industrial wase after proper treatment.
iii- Sufficient water supply to all sectors.
iv- Water quality standard of WHO must be followed.
vi- Discovering new water resources.