

Q. Comment, Green house effect is a blessing also discuss enhanced green house effect and its relation with global warming.

## Green house Effect

Need →

• Living  
Survival



The green house effect is a natural process where gases in Earth's atmosphere trap heat from the Sun keeping the planet warm enough to support life.

Evidence : NASA → without the greenhouse effect, Earth's temperature would be  $-18^{\circ}\text{C}$ , instead of the Present  $+15^{\circ}\text{C}$ .

## Enhanced Greenhouse Effect

causes →

• Burning of fossil fuels →

$\text{CO}_2$

• Agriculture →

Methane

• Use of refrigerators →

CFCs

• Deforestation →

Less  $\text{CO}_2$  absorption

• Industrial emissions →

Nitrous Oxide

It refers to the increased trapping of heat due to excessive greenhouse gases from human sources.

NASA → shows  $\text{CO}_2$  concentration rose from 280 ppm to over 420 ppm 2015



## Relation with Global Warming

→ Effects →

- Melting glaciers
- Rising sea levels
- Extreme heat waves
- Increased disease

The enhanced greenhouse effect leads directly to global warming

Evidence: World Meteorological Organization (WMO, 2023)

Global temperature has increased by  $1.2^{\circ}\text{C}$  since 1880 due to enhanced greenhouse gases





Q. CSS 2017

30

What do you mean by Ozone depletion and how we can prevent its depletion?

### 1. Definition:

Ozone depletion means the gradual thinning of the ozone layer in the Earth's stratosphere due to harmful human-made chemicals.

Why it is important:

The ozone layer protects life by absorbing harmful ultraviolet (UV) radiation from the Sun.

### 2. Causes of ozone depletion:

#### 1. Chloro fluorocarbons (CFCs):

Used in refrigerators, air conditioners, - release chlorine atoms that destroy ozone molecules.

#### 2. Nitrous oxide Emissions:

Emitted from fertilizers and vehicles - contributes to ozone destruction.

### 3. Evidence:

According to NASA: observe - Antarctic ozone hole.

#### • Environmental Impact:

Increase skin cancer, damage to crops and marine life due to <sup>higher</sup> (UV) exposure.



#### 4. Prevention Measures:

##### i. Ban on Ozone-Depletion Substances:

Implementation of the Montreal Protocol.

##### ii. Use of Eco-Friendly Alternatives:

Replace CFCs with hydrofluorocarbons.

##### iii. Reduce Nitrous oxide emissions:

Promote organic farming and clean energy transportation  
e.g. China E-transport.

##### iv. Public Awareness:

Encourage industries and people to avoid ozone-damaging products.

e.g. through media, Unilevels, Islamic education  
(Khutba in Juma).

#### 5. Conclusion:

Ozone depletion is a serious global environment issue.

but international cooperation and sustainable practices

have already shown positive results. The

ozone layer is gradually recovering according to

UNEP (2023 report).





2017

Q: What is an acid rain and how it is produced. Briefly describe the dangers associated with it?

### 1. Definition:

Acid rain is precipitation that contains higher levels of sulfuric and nitric acids.

~U.S. Environment Protection Agency (EPA)~

### 2. How acid rain is produced:

#### CHEMICAL REACTION

##### In Atmosphere

• These acids mix with oxygen and water vapour ( $H_2O$ ) to form

#### ACIDIC RAIN

• These acids mix with clouds, rain, snow, fog becomes acidic and fall on the earth.

Sulfuric acid

and nitric Acid.

#### EMISSION OF GASES

• Factories, Power Plants, and Vehicle release ( $SO_2$ ) and ( $NO_x$ )



# Dangers Associated With Acid Rain

## Damage Plants

- Removes nutrients from soils, burns leaves, and weakens trees.

## Water Pollution

- Makes lakes and rivers acidic, kills aquatic life and fishes.

## Damage to building

- Corrodes marbles, metals & stone e.g. Taj Mahal.

## Harm to human health

- Cause breathing problem.
- Polluted air harms lungs.

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2019

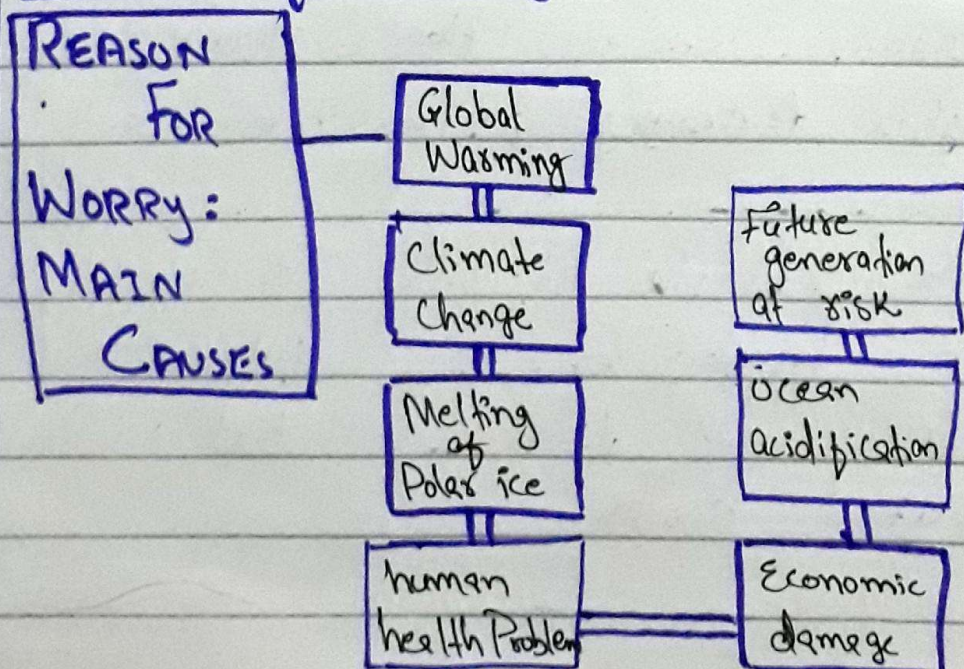
Q Why are Scientists worried about the increase of Carbon Dioxide in the atmosphere?

### 1. Carbon dioxide:

CO<sub>2</sub> is a green house gas naturally found in the air. It is produced by burning fossil fuels, deforestation, and industrial activities. However, the rise of CO<sub>2</sub> is changing earth's climate, warming oceans, and endangering life.

~ According to Intergovernmental Panel Climate Change IPCC: CO<sub>2</sub> levels are the highest in 800,000 years. It is the main reason for the earth's rising temperature.

### 2. Reason for worry → Main Causes:





- Global warming:  $\text{CO}_2$  traps heat from the sun in the air, makes the earth hotter every year, result, melting glaciers, heat waves, hotter summer.
- Climate change: Extra  $\text{CO}_2$  changes weather patterns causes flood, drought and storms.
- Melting of Polar ice: Heat melts polar ice, it increases sea levels which can flood cities and islands.
- Ocean acidification:  $\text{CO}_2$  mixes with sea water form acid, harming fishes, marine, and plants.
- Human health problem: Heat causes disease, food shortage, Air pollution can cause breathing problem.
- Economic Damage: floods, storms and droughts destroying farms, homes, and jobs.
- Future generation at risk: If  $\text{CO}_2$  keeps increasing increasingly future children will live on a hot, polluted earth.



### 3. Prevention measure <sup>to reduce</sup> of carbon dioxide

