

Q1

Briefly describe the various segments of atmosphere. How these segments are maintaining the Earth Radiation Balance.

Atmosphere:

Atmosphere is a collection of different gases that envelops the earth like a blanket. Atmosphere is very important for the existence of life on earth. It provides oxygen and keeps the earth warm. So atmosphere supports life on earth.

Segments of Atmosphere:

Atmosphere is divided into four segments which are as follows.

Toposphere, Stratosphere, Mesosphere, and Thermosphere

i) Toposphere:

Toposphere is the sphere where we live. It is extended to 12 Km above the earth. Its temperature decreases as we move above.

Stratosphere :

This sphere is above the troposphere and below the Mesosphere.

This sphere contains ozone layer which protects us from the extreme heat waves from the earth. Depletion of ozone allows ultraviolet rays to pass and it causes skin burn and skin cancer. So it protect us from exposure to extreme heat waves rays.

Mesosphere :

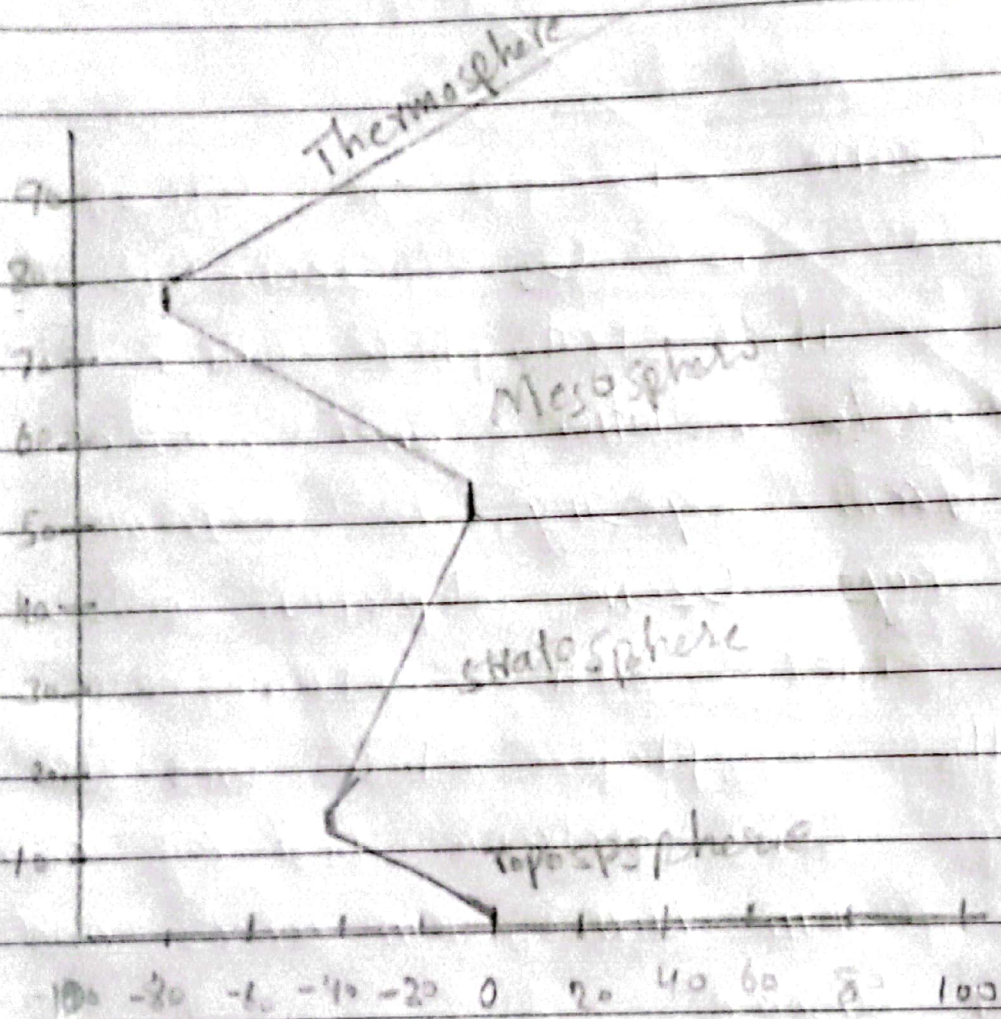
Meso-sphere is the sphere where temprature is at -83°C . This is the coldest layer. Because it does not observe the sun rays.

Most of the Meteors burns in this layers.

Thermosphere :

This is the hottest layer of the atmosphere. It absorbe most of the sun energy. The above it is the ionosphere where solar storms and auroras comes. It prevents

from exposure to these auras
and solar storms.



Atmosphere & its segments.



Q What do you mean by Ozone depletion and how can prevent its depletion:

Ozone depletion:

Ozone is a gas whose formula is O_3 . Ozone is found in stratosphere which absorbs ultraviolet radiation and protect us from exposing to extreme sun rays. Ozone depletion allows to enter sun's extreme rays in the toposphere where we are living. Sun's extreme heat rays can cause skin burn, skin cancer and other disease.

Ozone depletion means a region where ozone gas is not available in the sufficient amount. Ozone is less available as compared to other regions. Ozone depletion occurs when ozone reacts with a ~~cholet~~ chlorine atom and ² chlorine

atom break ozone atom into a single oxygen atom or O_2 . One chlorine atom has the capability to break 100,000 oxygen to ozone atoms.

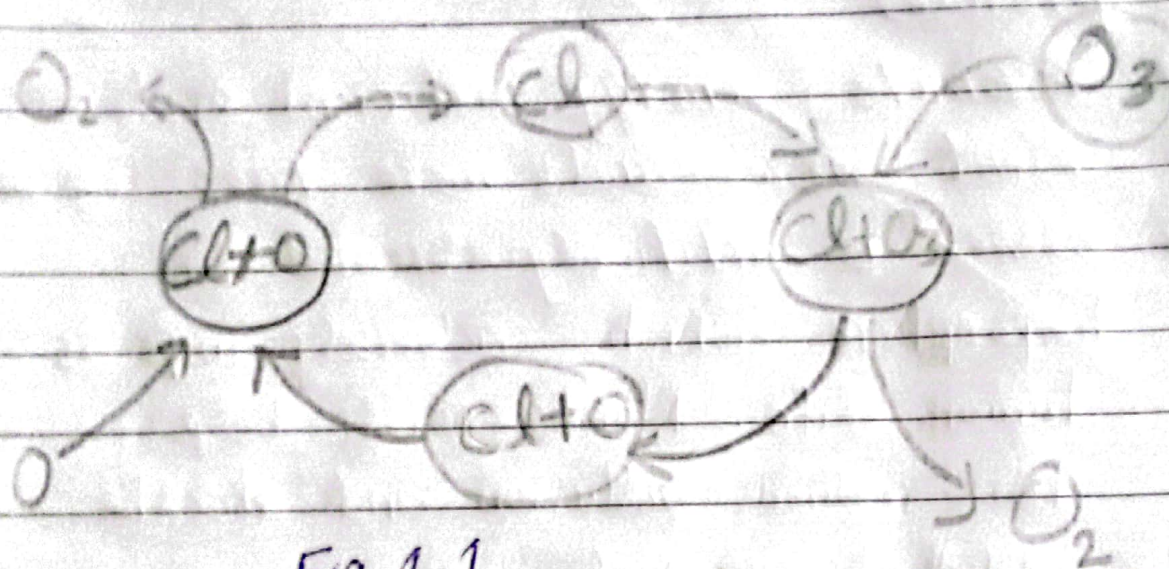


Fig 1.1

The above diagram shows that how a chlorine atom is reacting with many ozone atoms to destabilize it. In this ozone depletion occurs which is also called ozone hole.

* How ozone depletion can be prevented.

Ozone depletion can be prevented by using following steps.

- 1) Promote & those appliance which do not use CFC and HCFC.

ii) Do not use perfumes and other perfumes like sprays because they contains CFC carbons.

iii) Need to implement Montreal protocol

iv) Promote energy-efficient appliances.

v) Plant more and more trees because

the ozone is artificially created in troposphere which adversely impacts human life. Plants will help to reduce pollution and absorb pollutant particles.

Q What is 'Acid Rain'. Describe its causes and how it can be prevented.

Acid Rain:

Acid rain is a broad term which includes wet and dry deposition. If the value of pH of deposition is lower than approximately 5.8 then we called it acid rain.

When different types of chemicals moves up in the atmosphere, they react with water, clouds and other natural particles. So chemical particles dissolve in rain and other form of precipitation which increase the acidity of deposition. When acidic particles moves towards cold climate, then we see wet deposition. And when acidic particles moves towards dry weather and climate the it is observed in the form of dry deposition.

Acidic rains leads to several diseases, habitat damage, stopped the growth of plants and trees, and also erode metals, and cause damage to building etc.

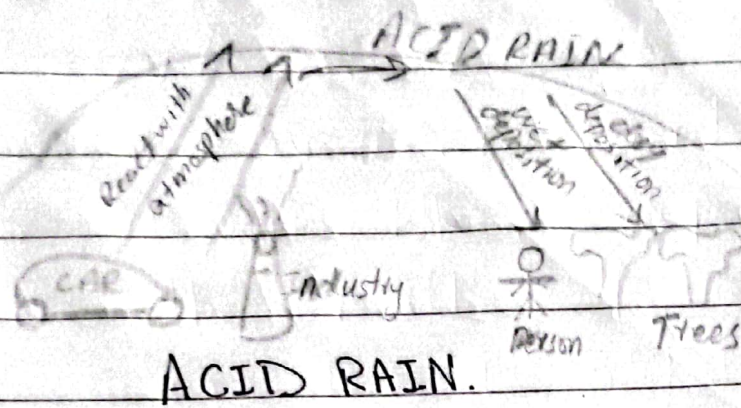
CAUSES OF ACID RAIN

1) When industries and vehicles release enormous amount of smoke in the air, it becomes the major reason of Acid Rain.

- ii) Agriculture activities such as smoking, insects kill sprays, pesticides and other such activities release dangerous particles in the air.
- iii) Bricks plants and other cement industries also release enormous amount of dangerous particles in the atmosphere.
- iv) Use of old technology devices and equipments also ~~refer~~ causes acid rain.
- v) Unavailability of trees is also a reason.

PREVENTION OF ACID RAIN

- i) Use Renewable energy source.
- ii) Promote walk, cycle and car pooling culture.
- iii) Plant more and more trees.
- iv) Replace old technology devices and equipments with new and energy efficient devices.
- v) Use latest technological devices to reduce the harmfulness of smoke.
- vi) Use standard rules and regulation to run industries.

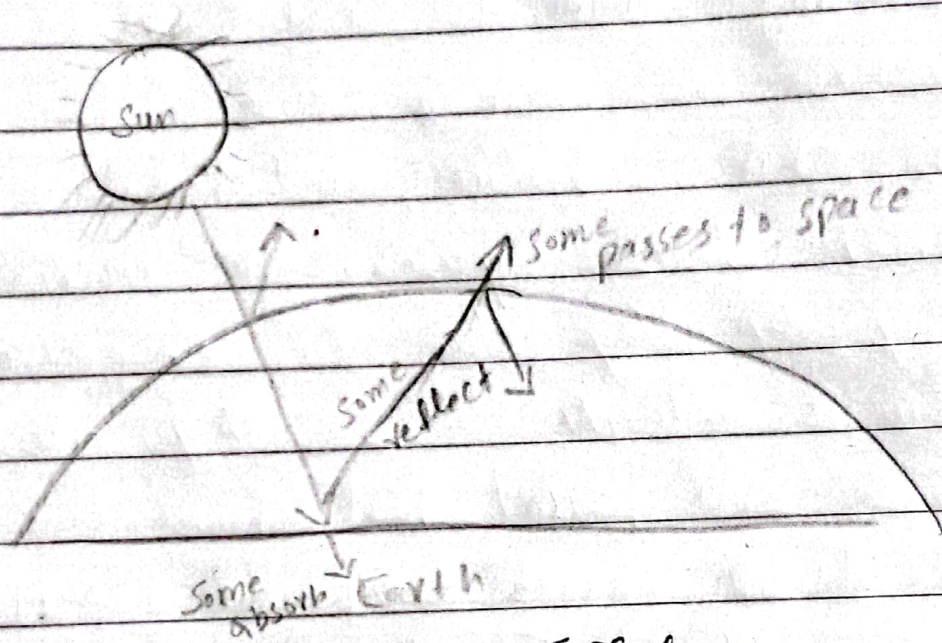


Comment, Green House Effect is a blessing. Also discuss enhanced Green House Effect and its relation with global warming.

Ans GREEN HOUSE IS A BLESSING

Green House Effect is a phenomenon in which our atmosphere allows sun's heat and rays on the earth but it releases very small amount of energy back to the space. It plays a very important role to keep our planet warm and liveable. Because green house effect provides us a suitable energy for our

• survival. Sun's rays plays an important in photosynthesis process. So we can eat reap food and use other natural product for our survival. So Green House Effect is important for us and it is a blessing



Green House Effect.

RELATION OF ENHANCED GREEN HOUSE EFFECT & GLOBEL WARMING.

Green House Effect is possible due to atmosphere and availability of CO_2 in the atmosphere. So As human activities are increasing day by day, so they are increasing

CO₂ and other gases which increase the temperature of earth day by day.

Resultant we face the wrath of Global warming. Recent wildfires in Hawaii, UK, Europe and US are the results of ~~will~~ Global warming. Due to Global warming, ~~Ex~~ excessive rains causes floods in China, India, and Pakistan etc.

Green house gases are increasing day by day due to excessive human activities. So they absorb more and more heat from the sun.

Resultant earth temperature is increasing.

This led to man-made disasters.

So we should reduce the production of Green House Gases such CO₂, methane etc. to reduce the temperature of earth. In this way, people would be able to live on planet Earth.