Environmental Studies

(1)

Layers of Earth's Atmosphere :

Earth's atmosphere has a series of layers, each with its own specific traits. Moving upward from ground level, these layers are named the troposphere, Strathosphere, mesosphere Thermosphere and exosphere.

a) **Troposphere** : It is the lowest layer of our atmosphere. Starting at ground level, it extends upward to about 10 km above sea level. We humans lives in troposphere, and nearly all weather occurs in this lowest layer. Air pressure drops, and Temperature get colder, as you climb higher in the troposphere.

b) **Strathosphere:** The next layer up is called the Strathosphere. It extends from the top of the troposphere to about 50Km above the ground.

→ The infamous layer is found within the Stratosphere.
→ Ozone molecules in this layer absorb high-energy ultraviolet (UV) light from the Sun, converting the UV energy into the heat.
→ Strathosphere is very dry; air these contains little water vapour. Bcoz of this, few clouds are found in this layer. almost all clouds occur in the lower.

c) **Mesosphere** : Above the strathosphere is the Mesosphere. It extends upward to a height of about 85Km above our plannet. Most meteors burn up in the mesosphere. Unlike the strathospher temperatures once again grow colder as you rise up through the mesosphere. The air in mesosphere is far too thin to breathe, air pressure at the bottom of the layer is well below 1% of the pressure at sea level, and continues dropping as you go higher.

d) **Thermosphere** : The layer of very rare air above the mesosphere is called the Thermosphere. High energy X-rays and UV radiations from the Sun are absorbed in the thermosphere, raising its temperature to hundreds or at times

d) thousands degrees. However, the air in this layer is so ~~that~~ thin that would feel freezing cold to us! In many ways the thermosphere is more like outer space than a part of the atmosphere. Many Settellites actually orbit earth within the Thermosphere.

e) Exosphere :- Although some experts consider the Thermosphere to be the uppermost layer of our atmosphere, other consider the exosphere to be the actual "final frontier" of earth's gaseous envelope.

As you might imagine, the "air" in the exosphere is very very, very thin, making this layer even more space-like than the Thermosphere. In fact, air in the exosphere is constantly though very gradually - "leaking" out of Earth's atmosphere into outer space.

f) Ionosphere → The ionosphere is a series of regions in parts of the mesosphere and thermosphere where high energy radiation from the Sun has knocked electrons loose from their parent atoms and molecules.

Pollution: Pollution refers to undesirable changes occurring in the physical, chemical and biological composition of natural environment consisting of air, water and soil.

Pollutants: The agents which cause environmental pollution are called pollutants.

(3)

TYPES of pollution :-

1) Air pollution
2) Water "
3) Noise "
4) Soil "

(A) **Air Pollution:-** Air pollution is a result of industrial and certain domestic activity. Air pollution may be defined as the presence of any solid, liquid or gaseous substance including noise and radioactive radiation in the atmosphere in such concentration that may be directly and indirectly injurious to humans or other living organisms, plants.

Sources of air pollution

A) Industrial chimni waste.] major source
(i) Petroleum refinery
Natural resources

In Petroleum refinery chief gases are SO_2, N_2O ---

(B) **Thermal power station** → In which heat energy is converted to electric power. The fuel is used that is Coal.

Since Sulphur is present in Coal so that is produced macabre gases. In Coal it is mostly carbon but also contains hydrogen, sulphur, Oxygen and N_2.

Some power station → Indraprastha
→ Badarpur
→ Vindhyachal Thermal power plant (MP)
→ Mundra " " Gujrat

1) Automobile ; 1) exaust system
2) Fuel tank & Carborator

Variety of Air pollutants :

A) Carbon Compound-

CO_2 → A greenhause gas emitted from combustion but it also a gas vital to living organisms.

CO → It is a colourless, odourless, non-irritating but very poisonous gas. It is a product by incomplete combustion of fuel such as natural gas, coal or wood.
→ from automobile exaust

B) Sulphur Compound :- SO_2 is produced by volcanoes and in various industrial process. Since coal and petroleum often contain S compounds, their combustion generates Sulphurdioxide.

C) Nitrogen Oxide (NO_X) → NO_2, HNO_2, N_2O, NO.
Especially Nitrogen dioxide are emitted from high temperature combustion. It is responsible for photochemical smog, acid rain etc. → are found in Automobile / Powerplant / Industry.

(D) O_3 → Due to human activity

(E) Flaro carban (Cholonfluro carban) . harmful to the ozone layer
emitted from products .
are found in → Pesticide medicine.

(F) Hydro Carbans → Main source, Automobile & industry.

(G) Toxic Metals → Pb, As, Cd,
↳ from metlergical Industry.

(H) Photo chemical products :. released by Automobiles
PAN → Peroxy acitile Nitride
PBN → Peroxy Benzere Nitride.

NH_3 → emitted from agricultural process. (5)

i) Particulate metals (fly ashes) – Particulate matter suspended in air are dust, and soot released from the industrial chimneys. Richest source :- Power plant & Industry.

(E) Biological Particulate metals

Natural resources of Air Pollution

1) Dust from natural resources, usually large areas of land with little or no vegetation.
2) Methane emitted by digestion of food by animals, for ex— cattle.
3) Smoke and CO from wild fires.

2→ Water pollution.

Water pollution occurs when harmful substances – often chemicals or microorganisms → contaminate a stream, river, lake, ocean, aquifer or other body of water, degrading water quality and rendering it toxic to humans or the environment.

→ water pollution sources

1) point source or non point source

→ Storm drainge, even though the water may enter watercourse by way of pipes or channels, is considered non point source pollution.

→ Point source pollution comes mainly from industrial facilities and municipal wastewater treatment plants.

(III) Insecticides and pesticides

(IV) Detergents and fertilizers]

→ Sewage And other water pollutants

Water bodies can be polluted by a wide variety of substances, including pathogenic microorganisms, putrescible organic waste, plant nutrients, toxic chemicals, sediments, heat, petroleum (oil) and radioactive substances.

* Domestic Sewage

It is a primary source of pathogens (disease-causing microorganisms) and putrescible organic substances. putrescible organic matter presents a different sort of threat to water quality.

As organics are decomposed naturally in the sewage by bacteria and other microorganisms, the dissolved oxygen content of the water is depleted.

Other pollutants -

1) Disease causing agent (Pathogens)
2) O_2 Depleting wastes
3) Inorganic plant nutrients
4) Water soluble inorganic chemicals
5) organic chemicals
6) water soluable radioactive isotopes
7) Dirty H_2O released by power plants & Industries

Ground Water pollution → causes of Ground H_2O pollution

→ Ground water gets polluted when contaminants - from pesticides and fertilizers to waste leached from landfills and septic systems.

→ Industrial waste storage located alone or near aquifers

→ mining waste

→

Effect of water pollution :-

i) on human health : Every year unsafe water sickens about 1 billion people. And low-income communities are disproportionately at risk bcoz their homes are often closest to the most polluting industries. (7)

(ii) on the environment :

(iii) With your actions : Reduce your plastic consumption

→ Properly dispose of chemical cleaners, oils and other items to keep them from ending up down the drain.

O_3 → in the strethosphere :-

19/11/19

[18/11/19]:

Water pollution resources and aspects and harmness, Pollutents

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⇒ 19/11/19.

Define Bio accumulation and in nature

⇒ Population Ecology → Define.

↳ It is a group of individuals of particular species.
It is study of individuals of the same species.
↳ various factor
↳ It is discussed under 3 categories →:

1) Describing population
including Number of a population.

2) Population Dyanmics
↳ Varian theory

(3) Regulation of population [Population density]

Population is group of organism.

→ age rate
→ birth ..
→ death rate

Ecology density → number of /unit area
Crude density →

Dispersion → individuals aggregation]

→ Age structure ⇒ Age pyramids

[Medical facility] → MANAV

population dynamics

└ community

↓

[Changing in community]

→ Climax community → most stable community

Monoclimax theory

⇒