Unit-IV

Global warming: global warming is the increase in temperature of earth surface(both land and water)and its atmosphere.it should be note that average temperature across the world have risen by 0.75 degree Celsius over the last 100 years.

Effect of global warming:

Desertification: increasing temperature across the world are making arid and semi-arid area more dry.

Rise in sea level: the earth sea level has risen by 21 cm since 1880. The rate of rise is accelerating. This is due to global warming.

Increases melting of ice: due to global warming the ice is melting at a much faster rate than in the past.

Stronger hurricanes and cyclones: tropical cyclones activity has seen upswing trend since 1970.

Greenhouse effect: greenhouse effect is a natural process that warms the earth surface and atmosphere. When solar energy reaches the earth atmosphere some of its reflected back to space and the rest is absorbed and re-radiated by green house gases which includes water vapor's, carbon dioxide, methane, nitrous oxide.

Mechanism of greenhouse effect: the earth atmosphere consists of four layers i.e. troposphere, stratosphere, mesosphere and thermosphere. Troposphere, there is layer of carbon dioxide gas and in the next upper layer i.e. stratosphere, there is a layer of ozone gas. When the sunlight consisting of UV rays, visible and infrared rays falls on the top of atmosphere, harmful UV rays are absorbed by the ozone layer present in stratosphere. The visible and infrared rays are of short wavelength and can easily pass through carbon dioxide layer and fall on the earth's surface. When these rays strike the earth's surface, it becomes hot and starts emitting long wavelength rays. These rays cannot pass through the carbon dioxide layer and atmosphere of the earth gets heated up.

Ozone layers: The ozone layer is a region in the stratosphere that absorbs most of the sun's harmful ultraviolet (UV) radiation. It's located 15–30 kilometres above the Earth's surface and protects life on Earth.

How does the ozone layer work?

The ozone layer acts as an invisible shield that protects life from the sun's UV radiation.

The ozone layer protects against UV-B radiation, which causes sunburn.

Long-term exposure to UV-B radiation can damage human health, plants, animals, and microbes

How has the ozone layer been affected by human activity?

Human activities have damaged the ozone layer.

Ozone-depleting substances (ODS) like those found in aerosol cans have thinned the ozone layer.

The ozone layer has slowly recovered due to efforts to reduce ODS emissions.

What are the effects of ozone depletion?

Ozone depletion can increase the risk of skin cancer and cataracts.

It can also damage marine organisms, plants, and plastics.

Acid rain: Acid Rain, as the name suggests, can be said as the precipitation of acid in the form of rain in the simplest manner. When atmospheric pollutants like oxides of nitrogen and sulphur react with rainwater and come down with the rain, then this results in Acid Rain.

Causes of Acid Rain: The causes of acid rain are Sulphur and Nitrogen particles which get mixed with the wet components of rain. Sulphur and Nitrogen particles which get mixed with water are found in two ways either man-made i.e as the emissions that are given out from industries or by natural causes like lightning strike in the atmosphere releasing nitrogen oxides and volcanic eruptions releasing sulphur oxide.

Effects of Acid Rain:

1. Acid rain is very harmful to agriculture, plants, and animals. It washes away all nutrients which are required for the growth and survival of plants. Acid rain affects agriculture by the way it alters the composition of the soil.
2. It causes respiratory issues in animals and humans.
3. When acid rain falls down and flows into the rivers and ponds it affects the aquatic ecosystem. It alters the chemical composition of the water, to a form which is actually harmful to the aquatic ecosystem to survive and causes water pollution.
4. Acid rain also causes the corrosion of water pipes, which further results in leaching of heavy metals such as iron, lead and copper into drinking water.
5. It damages the buildings and monuments made up of stones and metals.