Assignment No.02

Question no.01:

Relationship between our earth and atmosphere?

Answer:

Earth is the only planet in the solar system with an atmosphere that can sustain life. The blanket of gases that surrounds our home planet not only contains the air that we breathe but also protects us from blasts of heat and radiation emanating from the sun. It warms the planet by day and cools it at night.

Earth's atmosphere is divided into five main layers: the exosphere, the thermosphere, the mesosphere, the stratosphere and the troposphere, according to NASA. The atmosphere thins out in each higher layer until the gases dissipate in space. There is no distinct boundary between the atmosphere and space, but an imaginary line about 62 miles (100 kilometers) from the surface, called the Karman line, is usually where scientists say atmosphere meets outer space.

According to NASA, the gases in Earth's atmosphere include:

- Nitrogen — 78 percent
- Oxygen — 21 percent
- Argon — 0.93 percent
- Carbon dioxide — 0.04 percent
- Trace amounts of neon, helium, methane, krypton and hydrogen, as well as water vapor

Layers or earth:

The **troposphere** is the layer closest to Earth's surface. It is 4 to 12 miles (7 to 20 km) thick and contains half of Earth's atmosphere. Air is warmer near the ground and gets colder higher up. Nearly all of the water vapor and dust in the atmosphere are in this layer and that is why clouds are found here.

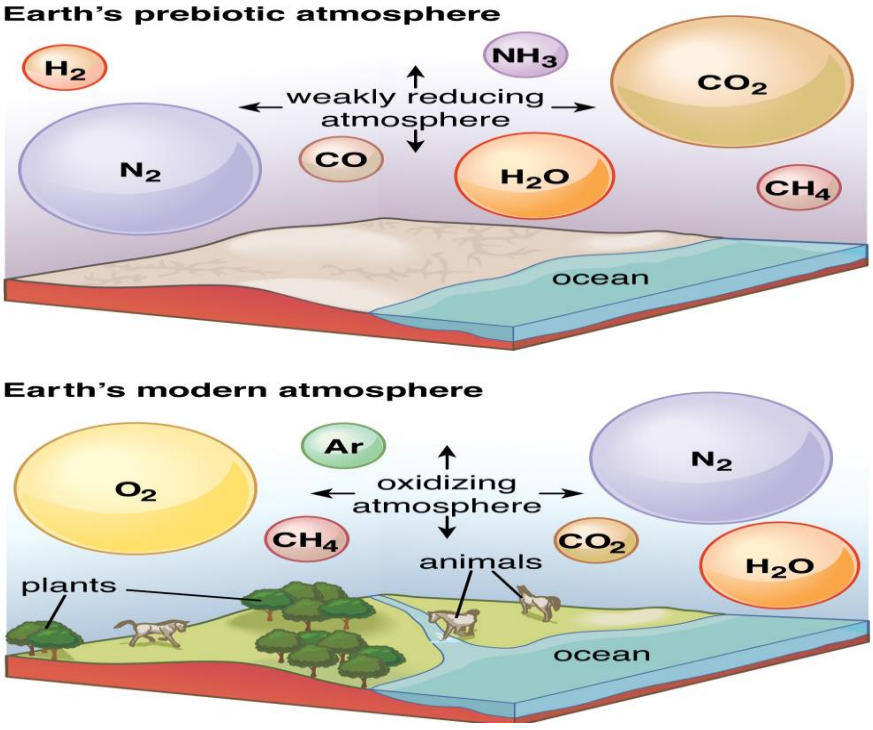
The **stratosphere** is the second layer. It starts above the troposphere and ends about 31 miles (50 km) above ground. Ozone is abundant here and it heats the atmosphere while also absorbing harmful radiation from the sun. The air here is very dry, and it is about a

thousand times thinner here than it is at sea level. Because of that, this is where jet aircraft and weather balloons fly.

The **mesosphere** starts at 31 miles (50 km) and extends to 53 miles (85 km) high. The top of the mesosphere, called the mesopause, is the coldest part of Earth's atmosphere, with temperatures averaging about minus 130 degrees F (minus 90 C). This layer is hard to study. Jets and balloons don't go high enough, and satellites and space shuttles orbit too high. Scientists do know that meteors burn up in this layer.

The **thermosphere** extends from about 56 miles (90 km) to between 310 and 620 miles (500 and 1,000 km). Temperatures can get up to 2,700 degrees F (1,500 C) at this altitude. The thermosphere is considered part of Earth's atmosphere, but air density is so low that most of this layer is what is normally thought of as outer space. In fact, this is where the space shuttles flew and where the International Space Station orbits Earth. This is also the layer where the auroras occur. Charged particles from space collide with atoms and molecules in the thermosphere, exciting them into higher states of energy. The atoms shed this excess energy by emitting photons of light, which we see as the colorful aurora borealis and aurora australis.

The **exosphere**, the highest layer, is extremely thin and is where the atmosphere merges into outer space. It is composed of very widely dispersed particles of hydrogen and helium.



Question no.02:

What are your views on existence on polar bear and sudden climatic changes ?how effect one to other?

Polar bears' primary habitat is sea ice. They use it as a platform to hunt seals. The map below shows the 19 different regions where polar bears live, extending across Arctic regions of Canada, Greenland/Denmark, Norway, Russian and the United States.

All 19 subpopulations of polar bears have experienced some degree of ice loss. Overall, sea ice loss poses the single biggest threat to polar bear numbers, according to the latest and most comprehensive review to date. It concluded:

> "Loss of Arctic sea ice owing to climate change is the primary threat to polar bears throughout their range… Our findings support the potential for large declines in polar bear numbers."

Every few years, the International Union for the Conservation of Nature (IUCN) publishes a "Red List" – an overview of the conservation status of threatened animal and plant species. The latest iteration, published in 2015, classifies polar bears as "vulnerable", meaning they are facing a high risk of extinction in the wild.

Climate change and polar bears

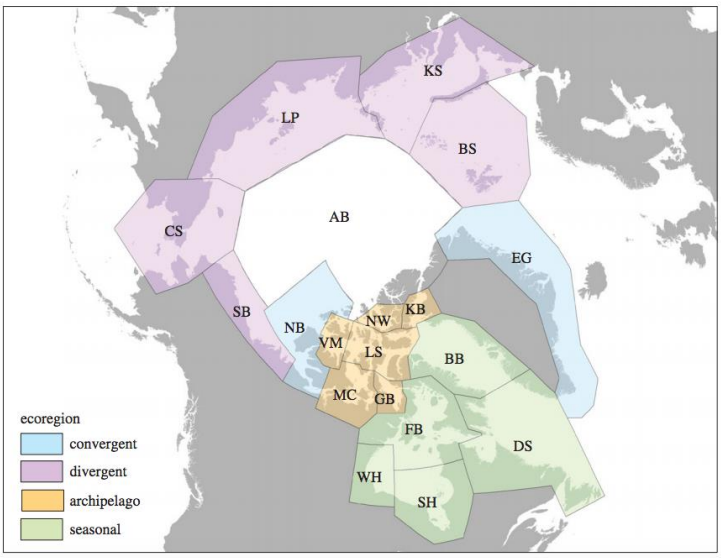
Temperatures in the Arctic are rising at least twice as fast as the global average and sea ice cover is diminishing by nearly four per cent per decade.

The loss of sea ice affects polar bears' ability to find food, studies show. Polar bears feed on ringed seals that live at the ice edge, getting two thirds of the energy they need for the entire year in late spring and early summer. With the ice retreating earlier in spring and forming later in winter, the bears have less time to hunt prey and have to go without food for longer.

Scientists have found this can result in a decline in body condition and lower average weight in adult females. Fewer cubs survive and the ones that do are smaller, research suggests.

While polar bears have shown some ability to adapt to changes in their surroundings – for example, by foraging for food on land – scientists project polar bears will become more food-stressed as sea ice diminishes and populations will decline.

There are other impacts of climate change on polar bears, too. Warming has been linked to increases in contamination and exposure to diseases. Unusually warm weather in winter can cause dens to collapse, which females build to birth and protect their young.



Complicating factors

The consequences of changing sea ice conditions are different in different regions of the Arctic, and not all polar bear populations will respond in the same way. Direct counts of polar bear numbers are also hard to come by in the more remote parts of the Arctic, which means that scientists know a lot more about some polar bear populations than others.

In the Southern Beaufort Sea and Western Hudson Bay sea-ice loss has been directly linked to past or present declines in the polar bear population. But elsewhere, other

factors such as hunting, shipping, oil and gas activities, tourism, prey availability and successful conservation come into play to greater or lesser extents.

