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NOTE- **THE CRUX NOTES HAS BEEN MADE FROM REFERED BOOK THEREFORE PARTICULAR CHAPTER HAS BEEN TAKEN ACCORDING TO UPSC SYLLABUS ,SO PLEASE DON'T GET CONFUSED BY CHAPTER NUMBERING**

ENVIRONMENT CHAPTERS FROM NCERT SCIENCE

CLASS VII – CHAPTER 7 – WEATHER, CLIMATE AND ADAPTATIONS OF ANIMALS TO CLIMATE

	• Rainfall is measured by an instrument called the **rain gauge**. It is basically a measuring cylinder with a funnel on top to collect rainwater. The day to-day condition of the atmosphere at a place with respect to the temperature, humidity, rainfall, wind speed, etc., is called the **weather** at that place. • temperature, humidity, and other factors are called the **elements of the weather** • The average weather pattern taken over a long-time, say 25 years, is called the **climate of the place** • The **western region** of India, for example Rajasthan, will show that the temperature is high during most part of the year. • But during winter, which lasts only for a few months, the temperature is quite low. • This region receives **very little rainfall**. • This is the **typical desert climate**. It is hot and dry. • The northeastern India receives rain for a major part of the year. • Therefore, we can say that the climate of the north-east is wet.
1. The polar regions	• The polar regions present an **extreme climate.** • These regions are covered with snow and it is **very cold** for most part of the year. • For **six months the sun does not set at the poles** while for the other six months the sun does not rise. • In winters, the temperature can be as low as **–37°C**. • Animals living there have adapted to these severe conditions. • Polar bears, the penguin many types of fishes, muskoxen, reindeers, foxes, seals, whales, and birds have been seen in this region. • Siberian crane that comes from Siberiato places like **Bharatpur in Rajasthan**

	and Sultanpur in Haryana.
2. The Tropical Rainforests	• The tropical region has generally a **hot climate** because of its location around the equator. • Even in the coldest month the temperature is generally higher than about **15°C.** • During **hot summers**, the temperature may cross **40°C.** • Days and nights are almost **equal in length** throughout the year. • These regions get **plenty of rainfall**. • An important feature of this region is the **tropical rain forests**. • Tropical rainforests are found in **Western Ghats and Assam in India, Southeast Asia, Central America and Central Africa.** • Because of continuous warmth and rain, this region supports wide variety of plants and animals. • The major types of animals living in the rainforests are **monkeys, apes, gorillas, lions, tigers, elephants, leopards, lizards, snakes, birds and insects.** • The **lion-tailed macaque (also called Beard ape)** lives in the rainforests of Western Ghats. • Many tropical animals have sensitive hearing, sharp eyesight, thick skin and a skin colour which helps them to camouflage by blending with the surroundings. • This is to protect them from predators.

CLASS IX – CHAPTER 14 – NATURAL RESOURCES

Resources on Earth	• The land, the water and the air, outer crust of the Earth is called the lithosphere, • Water covers **75% of the Earth's surface** comprise the **hydrosphere,** • Air-covers the earth is called the **atmosphere**, life-supporting zone of the Earth where the atmosphere, the hydrosphere and the lithosphere interact and make life possible, is known as the **biosphere.** • The air, the water and the soil form the **non-living or abiotic component** of the biosphere, carbon dioxide constitutes up to 95-97% of the atmosphere on Venus and Mars. • the **percentage of carbon dioxide** in our atmosphere is a mere fraction of a percent because carbon dioxide is 'fixed' in two ways: (i) Green plants convert carbon dioxide into glucose in the presence of Sunlight and (ii) many marine animals use carbonates dissolved in sea-water to make their shells. • air is a **bad conductor** of heat.

	• when air is heated by **radiation** from the heated land or water, it rises. • since land gets heated faster than water, the air over land would also be heated faster than the air over water bodies. • air rises, **a region of low pressure** is created and air over the sea moves into this area of low pressure, • During the day, the direction of the wind would be from the sea to the land • **Rainfall patterns** are decided by the **prevailing wind patterns.**
Air Pollution	• The fossil fuels like coal and petroleum contain small amounts of **nitrogen and sulphur**. • Presence of high levels of all these pollutants cause visibility to be lowered, especially in cold weather when water also condenses out of air. This is known as **smog** and is a visible indication of air pollution
Water	• A **Wonder Liquid Fresh** water is found frozen in the ice-caps at the two poles and on snow covered mountains. • All **cellular processes** take place in a water medium.
Water Pollution	• Water dissolves the fertilisers and pesticides that we use on our farms. • The type of soil is decided by the average size of particles found in it and the quality of the soil is decided by the **amount of humus and the microscopic organisms.** • Found in it the **topmost layer** of the soil that contains humus and living organisms in addition to the soil particles is called the topsoil. • **The quality of the topsoil** is an important factor that decides biodiversity in that area • The **large-scale deforestation** that is happening all over the world not only destroys biodiversity, it also leads to soil erosion.
Bio-geo chemical Cycles	**The Water-Cycle** • The whole process in which water evaporates and falls on the land as rain and later flows back into the sea via rivers is known as the water-cycle. • As water flows through or over rocks containing soluble minerals, some of them get dissolved in the water. • Thus rivers carry many nutrients from the land to the sea, and these are used by the marine organisms. **The Nitrogen-Cycle**

- **Nitrogen** gas makes up **78%** of our atmosphere and nitrogen is also a part of many molecules essential to life like **proteins, nucleic acids (DNA and RNA)** and some vitamins.
- Found in other biologically important compounds such as alkaloids and urea too. the **nitrogen-fixing bacteria** are found in the **roots of legumes** (generally the plants which give us pulses) in special structures called **root nodules.**
- Other than these bacteria, the only other manner in which the nitrogen molecule is converted to nitrates and nitrites is by a **physical process.**
- During lightning, the high temperatures and pressures created in the air convert **nitrogen into oxides of nitrogen**.
- These oxides dissolve in water to give **nitric and nitrous acids** and fall on land along with rain.
- Plants generally take up nitrates and nitrites and convert them into **amino acids** which are used to make proteins
- Once the animal or the plant dies, other bacteria in the soil convert the various compounds of **nitrogen back into nitrates** and
- A different type of bacteria converts the nitrates and nitrites into elemental nitrogen.

The Carbon-Cycle

- It occurs in the elemental form as **diamonds and graphite**
- it is found as **carbon dioxide in the atmosphere, as carbonate and hydrogen carbonate salts** in various minerals,
- While all life-forms are based on carbon-containing molecules like **proteins, carbohydrates, fats, nucleic acids and vitamins**.
- The **endoskeletons and exoskeletons** of various animals are also formed from carbonate salts. Carbon is incorporated into life-forms through the basic process of photosynthesis which is performed in the presence of Sunlight by all life-forms that contain **chlorophyll.**
- This process converts carbon dioxide from the atmosphere or dissolved in water into **glucose molecules.**

The Oxygen-Cycle

- In the crust, it is found as the oxides of most **metals and silicon**, and also as carbonate, sulphate, nitrate and other minerals.
- It is also an **essential component of most biological molecules** like carbohydrates, proteins, nucleic acids and fats (or lipids) Oxygen from the atmosphere is used up in three processes, namely **combustion, respiration and in the formation** of oxides of nitrogen.
- Oxygen is returned to the atmosphere in only one major process, that is, **photosynthesis.** The process of nitrogen-fixing by bacteria does not take place