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## Chapter – 4 Geography

### Air

- Our atmosphere is surrounded by a huge blanket of air called atmosphere.
  - **Composition of the Atmosphere:**
    - (i) Nitrogen and oxygen are the two gases which make up the bulk of the atmosphere.
    - (ii) Carbon dioxide, helium, ozone, argon and hydrogen are found in lesser quantities.
    - (iii) Apart from these gases, tiny dust particles are also present in air.
  - **Structure of the Atmosphere:**
    - (i) Our atmosphere is divided into five layers starting from the earth's surface.
    - (ii) The first layer is the Troposphere whose average height is 13 km.
    - (iii) The second layer is the Stratosphere which extends up to 50 km.
    - (iv) The third layer is the Mesosphere which extends up to the height of 80 km.
    - (v) The fourth layer is the Thermosphere which extends from 80 km to 400 km.
    - (vi) The uppermost layer of atmosphere is Exosphere which has very thin air.
  - **Weather and Climate:**
    - (i) Weather is the hour-to-hour, day-to-day condition of the atmosphere.
    - (ii) The average weather condition of a place for a longer period of time represents the climate of a place.
  - **Temperature:**
    - (i) The degree of hotness and coldness of the air is called temperature.
    - (ii) The temperature of the atmosphere changes not only between day and night but also from season to season.
    - (iii) an important factor that influences the distribution of temperature is insolation.
    - (iv) Insolation is the incoming solar energy intercepted by the earth.
    - (v) The amount of insolation decreases from the equator towards the poles.
  - **Air Pressure:**
    - (i) Air pressure is defined as the pressure exerted by the weight of air on the earth's surface.
    - (ii) Horizontally the distribution of air pressure is influenced by temperature of air at a given place.
    - (iii) In areas having lower temperature, the air is cold.
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(iv) The air always moves from high pressure areas to low-pressure areas.

- **Wind:**

- (i) The movement of air from high-pressure areas to low-pressure area is called wind.
- (ii) Winds can be broadly divided into three types: permanent winds, seasonal winds and local winds.
- (iii) On 25 October 1999, cyclonic winds originated as a depression and affected Odisha killing thousands of people.

- **Moisture:**

- (i) When water evaporates from land and another water bodies, it becomes water vapour.
  - (ii) Moisture in the air at any time is known as humidity.
  - (iii) When the water vapour rises, it starts cooling. The water vapour condenses causing the formation of droplets of water.
  - (iv) When these droplets of water become too heavy to float in air, they come down as precipitation.
  - (v) Precipitation that comes down to the earth in liquid form is called rain.
  - (vi) On the basis of mechanism, there are three types of rainfall: the convectional rainfall, the orographic rainfall and the cyclonic rainfall.
  - (vii) Rainfall is very important for the survival of plants and animals.
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