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, helius, 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 Thermospehre 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.

(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.