Chapter-4 Geography
Climate

- General weather conditions over a period of thirty years period is said to be the climate of a place.
- Temperature, atmospheric pressure, wind, humidity and precipitation are elements of weather and climate.
- Generalised monthly atmospheric conditions determine the basis on which the year is divided into the seasons — summer, winter or rainy.
- India has a monsoon type of climate.
- Monsoon is basically a seasonal reversal in the wind through the year.
- There is huge difference in temperature from one region to another.
- Form of precipitation, its amount and distribution also differ from one part of India to another.
- Coastal areas observe lesser difference in temperature conditions. It is the interior of India that experiences temperature contrasts.
- Decrease in rainfall is seen from east to west in the Northern Plains. All this influences diversity in professions, food, dress and houses of people.

Climatic Controls

- The interplay of latitude, altitude, distance from the sea, pressure and wind system, ocean currents and relief features determine climatic conditions of a place.

Factors Affecting India's Climate

- The Tropic of Cancer passes through the middle of the country from the Rann of Kuchchh to Mizoram.
- The Himalayas prevent the cold winds from central Asia from entering the subcontinent.
- The climate and associated weather conditions in India are governed by various atmospheric conditions namely pressure and surface winds, upper air circulation, western cyclonic disturbances and tropical cyclones.
- An apparent force caused by the earth's rotation is the Coriolis Force.
- Jet streams are narrow belts of high-altitude (above 12,000 m) westerly winds in the troposphere.
- The western cyclonic disturbances are weather phenomena of the winter months, brought in by the westerly flow from the Mediterranean region.

The Indian Monsoon

- The climate of India is strongly influenced by monsoon winds.
- The Inter Tropical Convergence Zone (ITCZ) is a broad trough of low pressure in equatorial latitudes where the northeast and the southeast trade winds converge.
- Reversal in the pressure conditions and eastern Pacific Ocean having lower pressure than eastern Indian Ocean is a periodic change in pressure condition known as the southern oscillation.
- El Nino is a warm ocean current that flows past the Peruvian coast in place of the cold Peruvian current, every 2 to 5 years.

The Onset of the Monsoon and Withdrawal

- The monsoon are pulsating winds affected by different atmospheric conditions encountered by it, on its way over the warm tropical seas.
- Monsoon arrives at the southern tip of the Indian peninsula generally by first week of June.
- The Arbain Sea and the Bay of Bengal branches of the monsoon merge over the north western part of the Ganga plains.
- The withdrawal or the retreat of the monsoon is a more gradual process which begins in the northwestern states of India by early September.
- The retreating monsoon or the transition season sees the change from hot rainy season to dry winter conditions.
- The low pressure conditions over northwestern India get transferred to the Bay of Bengal by early November causing cyclonic depressions originating over the Andaman Sea.
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Distribution of Rainfall

- Owing to the nature of monsoons, the annual rainfall is highly variable from year to year.
- Areas of high rainfall are liable to be affected by floods while areas of low rainfall are drought prone.

The Seasons

- Four main seasons can be identified in India — the cold weather season, the hot weather season, the advancing monsoon and the retreating monsoon with some regional variations.
- In the cold weather season the northeast trade winds prevail over India.
- Days are warm and nights are cold.
- Frost is common in the north and the higher slopes of the Himalayas experience snowfall.
- The summer months' experience rising temperature and falling air pressure in the northern parts of the country.
- A striking feature of the hot weather season are strong, gusty, hot, dry winds blowing during the day over the north and northwestern India called loo.
- In the advancing monsoon, i.e. the rainy season, the north-western region of the country receives the maximum rainfall.
- Monsoon has 'breaks' in rainfall, thus it has wet and dry spells.
- The alternation of dry and wet spells varies in intensity, frequency and duration causing heavy floods in one part and droughts in the others.

Monsoon as a Unifying Bond

- The dependence of farmers on rain, a change in seasonal cycle, variance in temperature, the needs of humans, plants and animals, festival dates etc., all depend on monsoon in India. In this way monsoon is a unifying bond for Indians.