Revision Notes

Chapter - 4

CLIMATE

- General weather conditions over a period of thirty years period is said to be the climate of a place.
- Weather refers to the state of the atmosphere over an area at any point of time.
- 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

- Latitude, altitude and pressure and winds affect Indian climate.
- The Tropic of Cancer passes through the middle of the country from the Rann of Kuchchh to Mizoram.
- Air temperature generally decreases from equator to poles.
- Temperature and air pressure decreases as on moves from surface of the earth to





higher altitudes.

- 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.
- The sea exerts a moderating influence on climate. People far away from sea experience extreme weather conditions. This is known as 'continentality'.
- Ocean currents also affect the climate of the coastal areas.
- An apparent force caused by the earth's rotation is the Coriolis Force.
- The wind direction changes as per the season. They are from north east to south wet in winter whereas completely reverse in summer bringing moisture.
- 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 Arab traders who noticed these winds named it as monsoon.

Following facts are important to understand mechanism monsoons -

- 1. The differential heating and cooling of land and water.
- 2. 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.
- 3. The presence of the high pressure area, east of Madagascar.
- 4. The intense heating of Tibetan plateau during summer.
- 5. The movement of the westerly jet stream to the north of the Himalayas and the presence of of the tropical easterly jet stream over the Indian peninsula during summer.
 - Apart from his changes in the pressure conditions over the southern oceans also affect monsoon.
 - The periodic change in pressure conditions known as 'Southern Oscillation' or SO





- affects monsoon too.
- 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.
- Sudden increase and continuation of the monsoon for several days is called as 'burst'.
- The Arabian 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.

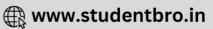
Distribution of Rainfall

- 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.
- The dust storms in northern India are common.
- The localised thunderstorms, associated with violent winds, torrential downpours, often accompanied by hail. In west Bengal they are known as 'Kaal Baisakhi'.
- From June onwards the monsoon occupies most of the Indian Peninsula and central part within a month.
- Monsoon has 'breaks' in rainfall, thus it has wet and dry spells.
- The alternation of dry and wet spells vary in intensity, frequency and duration causing heavy floods in one part and droughts in the others.
- By the beginning of October the monsoon withdraws from Northern plains.
- The conditions of high temperature and humidity, the weather becomes rather oppressive during the day and is called as October heat.
- Rainfall in India ranges from 400 cm in western coast and northeastern India to 60 cm in Western Rajasthan and adjoining area.

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.





