

CHAPTER -4 CLIMATE

GEOGRAPHY

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Q1. What are the factors affecting the climate of India?

Ans. There are six major controls of the climate of any place. They are: Latitude, Altitude, Pressure and wind system, Distance from the sea, Ocean currents and Relief features

Factors Affecting India's Climate:

- **Latitude:** The Indian landmass is equally divided by The Tropic of Cancer. Hence, half of India has tropical climate and another half has subtropical climate.
- **Altitude:** While the average elevation in the coastal areas is about 30 metre, the average elevation in the north is about 6,000 metre. The Himalayas prevent the cold winds from Central Asia from entering the Indian subcontinent. Due to this, the subcontinent gets comparatively milder winters as compared to Central Asia.
- **Pressure and Winds:**
 - a) Pressure and surface winds
 - b) Upper air circulation
 - c) Western cyclonic disturbances and tropical cyclones
 - d) The south-west monsoon winds blow over the warm oceans , gather moisture and bring wide spread rainfall over the mainland of India.

Q2. Which part of India does experience the highest diurnal range of temperature and why?

Ans.

- In the Thar desert, the day temperature may rise to 50 degrees Celsius and drop down to near 15 degree Celsius in the same night
- This is because it is filled with sand which gets heated up quickly during day and cooled up very quickly during nights.
- There is no sea closer to this area and hence there is no moderating effect.

Q3. Which winds account for rainfall along the Malabar coast?

Ans. Malabar Coast gets rains from South-West Monsoon Winds.

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Q4. What are jet streams and how do they affect the climate of India?

Ans.

- Jet streams are the narrow belt of high altitude (above 12000m) westerly winds in the troposphere.
- They blow at a fast speed of about 110km/h in summers to about 184km/h in winters.
- The westerly jet streams are responsible for bringing western cyclonic disturbances to north west India resulting in rainfall in winters.
- The easterly jet stream blowing over north India result in the creation of tropic depressions.

Q5. Define monsoon. What do you understand by 'break' in monsoon?

Ans.

- The word 'monsoon' is derived from the Arabic word 'mausim' which means the seasonal reversal in wind direction during a year is called monsoon.
- Monsoon tends to have 'breaks' in rainfall. It means that there are wet and dry spells in between.
- The monsoon rains take place only for a few days at a time and then come the rainless intervals.

Q6. Why is the monsoon considered a unifying bond?

Ans.

- The monsoon is considered a unifying bond because:
- The Indian landscape, its flora and fauna, etc. are highly influenced by the monsoon.
- These monsoon winds bind the whole country by providing water for agricultural activities.
- The seasonal alteration of the wind systems and associated weather conditions provide a rhythmic cycle of seasons.
- Most of the festivals in India that are related to agricultural cycle.
- Year after year, people of India from north to south and from east to west, eagerly await the arrival of the monsoon.
- The river valleys which carry this water also unite as a single river valley unit.

Q7. Why does the rainfall decrease from the east to the west in northern

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India?

Ans.

- Rainfall decreases from the east to the west in Northern India because there is a decrease in the moisture content of the winds.
- As the moisture-bearing winds of the Bay of Bengal branch of the southwest monsoon move further and further inland, the moisture gradually decreases and results in low rainfall when moving westwards.
- The Maximum rainfall of the monsoon is received in the north-eastern part of the country.
- As a result, states like Gujarat and Rajasthan in western India get very little rainfall.

Q8. Give reasons as to:

I) Why the bulk of rainfall in India is concentrated over a few months?

Ans.

- The inflow of the south-west monsoon into India brings about a total change in the weather.
- Early in the season, the windward side of the Western Ghats receives very heavy rainfall.
- The Deccan Plateau and parts of Madhya Pradesh also receive some amount of rain in spite of lying in the rain shadow are.
- The maximum rainfall of this season is received in the north-eastern part of the country.
- Mawsynram in the southern ranges of the Khasi hills receives the highest average rainfall in the world. Rainfall in the Ganga valley decreases from the east to the west. Rajasthan and parts of Gujarat gets scanty rainfall.

II) Why the Tamil Nadu coast receives winter rainfall?

Ans.

- During winter season, the northeast trade winds prevail over the country.
- They blow from land to sea and hence, for most part of the country, it is a dry season.
- These winds cause rainfall in Tamil Nadu when they blow from sea to land.

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III) Why is the delta region of the eastern coast frequently struck by cyclones?

Ans.

- The Bay of Bengal is the centre of various pressure changes and hence there is always a chance of development of cyclone.
- The low – pressure conditions, over northern- western India, get transferred to the Bay of Bengal by early November.
- Due to this, the delta region of the eastern coast is frequently struck by cyclones.

IV) Why parts of Rajasthan, Gujarat and the leeward side of the Western Ghats are drought prone?

Ans.

- The distribution of rainfall is governed mainly by the relief of the country.
- In western Rajasthan, there is no relief to check the monsoons.
- Leeward side of the Western Ghats and Gujarat comes in the rain shadow area of the Aravali.
- Therefore, these areas get very low rainfall and are drought prone.

9) Describe the regional variations in the climatic conditions of India with the help of suitable examples.

Ans.

In India many regional variations in climatic conditions are found due to its vast size. The example given below illustrate the climatic differences:

- Barmer(Rajasthan) has recorded the highest the temperature 50° C in summer and 15° C at night while hilly region like Gulmarg(Kashmir) have a day temperature of 20°C in June.
The winter temperatures at Dras & Kargil (Leh) drops as low as - 45°C on the other hand Chennai may record only 20°C in December.
- The striking differences are found in rainfall pattern. Mawsynram (Meghalaya) annual rainfall of 1140 CM is the rainiest place in the world while Jaisalmer(Rajasthan) rarely gets more than 12 centimetre of annual rainfall and Leh gets only 10 cm rainfall.
- The dates of onset and withdrawal of monsoon differ in various parts. The West Coast get monsoon in the first week of June while interior parts like Punjab the monsoon by the first week of July.

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- The southern part of the country have uniformly high temperature throughout the year. There is no winter season in the south. on the other hand seasonal extremes are found in the north.

Q 10. Give an account of weather conditions and characteristics of the cold season.

Ans.

- The cold weather season begins from the November in northern India and stays till February. December and January are the coldest months in the northern part of India.
- The weather is normally marked by clear sky, low temperatures, low humidity and feeble variable winds.
- Days are warm and nights are cold.
- Frost is common in the north and higher slopes of the Himalayas experience snowfall.
- During this season, the north-east trade winds blow from land to sea and hence for most parts of the country it is a dry season. Some amount of rainfall occurs on the Tamil Nadu coast from these winds as they blow there from sea to land.
- A characteristic feature of the cold weather season over the northern plains is the inflow of cyclonic disturbances from the west and the north-west. The low pressure systems originate over the Mediterranean Sea and Western Asia and move into India along with the westerly flow. They cause the much needed winter rains over the plains and snowfall in the mountains.
- Although, the total amount of winter rainfall locally known as 'Mahawat' is small, it is of immense importance for the cultivation of 'rabi' crops.
- The peninsular region does not have a well defined cold season. There is hardly any noticeable change in temperature pattern during winter due to the moderating influence of the sea.

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