

CBSE Class IX Social Science
NCERT Solution
Geography Chapter 4
Climate

Question 1. Choose the correct answer from the four alternatives given below.

(i) Which one of the following places receives the highest rainfall in the world?

- (a) Silchar**
- (b) Mawsynram**
- (c) Cherrapunji**
- (d) Guwahati**

Answer : (b) Mawsynram

(ii) The wind blowing in the northern plains in summers is known as:

- (a) *Kaal Baisakhi***
- (b) *Loo***
- (c) Trade Winds**
- (d) None of the above**

Answer : (b) Loo

(iii) Which one of the following causes rainfall during winters in north-western part of India.

- (a) Cyclonic depression**
- (b) Retreating monsoon**
- (c) Western disturbances**
- (d) Southwest monsoon**

Answer : (a) Cyclonic depression

(iv) Monsoon arrives in India approximately in:

- (a) Early May**

- (b) Early July
- (c) Early June
- (d) Early August

Answer : (c) Early June

(v) Which one of the following characterises the cold weather season in India?

- (a) Warm days and warm nights
- (b) Warm days and cold nights
- (c) Cool days and cold nights
- (d) Cold days and warm nights

Answer : (c) Cool days and cold nights

Question 2. Answer the following questions briefly.

(i) What are the factors affecting the climate of India?

Answer: The elements affecting the climate are temperature, atmospheric pressure, wind, humidity and precipitation.

(ii) Why does India have a monsoon type of climate?

Answer: The monsoon type of climate is characterised by a distinct seasonal pattern. The weather conditions greatly change from one season to the other. These changes are particularly noticeable in the interior parts of the country. The coastal areas do not experience much variation in temperature though there is variation in rainfall pattern. 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.

(iii) Which part of India does experience the highest diurnal range of temperature and why?

Answer : The north-western part of India experiences the highest diurnal range of temperature. In the Thar desert, the day temperature may rise to 50 °C and drop down to near 15 °C the same night. On the other hand, there is hardly any difference in day and night temperatures in the Andaman and Nicobar Islands or in Kerala .

(iv) Which winds account for rainfall along the Malabar coast?

Answer: Malabar Coast gets rains from depressions and cyclones.

(v) What are Jet streams and how do they affect the climate of India?

Answer : Jet streams are a narrow belt of high altitude (above 12000 m) westerly winds in the troposphere.

(a) Their speed varies from about 110 km/h in summer to about 184 km/h in winter.

(b) A number of separate jet streams have been identified.

(c) The most constant are the mid latitude and subtropical jet streams.

(d) Jet streams over the Indian peninsula during the summer affect the monsoon.

(e) The subtropical westerly jet stream blow south of the Himalayas and is responsible for the western cyclonic disturbances experienced in the north and north western parts of the country.

(f) An easterly jet stream blows over peninsular India. It affects the coastal regions of the country and is responsible for tropical cyclones during the monsoon as well as during the October to November period.

(vi) Define monsoons. What do you understand by “break” in monsoon?

Answer : Monsoon refers to the seasonal reversal in the wind direction. Monsoon ‘break’ refers to the occurrence of wet and dry spells during the rainy season. The monsoon rains take place only for a few days at a time.

(vii) Why is the monsoon considered a unifying bond?

Answer : The seasonal alteration of the wind systems and the associated weather conditions provide a rhythmic cycle of seasons.

Monsoon rains are unevenly distributed and typically uncertain. The Indian landscape, plant and animal life, agriculture, the people and their festivities, all revolve around the monsoon. All the Indian people eagerly await the arrival of the monsoon. It binds the whole country by providing water which sets all agricultural activities in motion. That is why the monsoon is considered a unifying bond.

Question 3. Why does the rainfall decrease from the east to the west in Northern India.

Answer : Rainfall decreases from the east to the west in Northern India because there is a

decrease in the moisture of the winds. As the moisture bearing winds of the Bay of Bengal branch of the south west monsoon move further and further inland, the moisture gradually decreases and results in low rainfall when moving westwards. Consequently, states like Gujarat and Rajasthan in western India get very little rainfall.

Question 4. Give reasons as to why.

(i) Seasonal reversal of wind direction takes place over the Indian subcontinent?

Answer : Seasonal reversal of wind direction over the Indian subcontinent takes place due to pressure differential. There is a phenomenon in which a warm ocean current flows past Peruvian coast in place of cold Peruvian current known as El Nino. El Nino has a major role to play in the seasonal reversal of wind direction over the Indian subcontinent.

(ii) The bulk of rainfall in India is concentrated over a few months.

Answer : In summer, a low pressure area develops over interior Asia as well as over north western India.

(a) This causes a complete reversal of the direction of winds during summer. Air moves from the high pressure area over the southern Indian ocean, crosses the equator and turns right towards the low pressure areas over the Indian subcontinent.

(b) These are known as the south-west monsoon winds.

(c) These winds blow over warm oceans, gather moisture and bring widespread rainfall over the mainland of India.

(d) The duration of the monsoon is between 100-120 days from early June to mid September. Thus, we can say that rainfall in India is concentrated over a few months.

(iii) The Tamil Nadu coast receives winter rainfall.

Answer : During the winter season, -the north-west 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. The Tami Nadu coast receives winter rainfall because of movement of low-pressure conditions to the Bay of Bengal. Thus, the retreating monsoon gets confronted by the cyclones and depression in the Bay of Bengal and causes rainfall in Tamil Nadu during winters.

(iv) The delta region of the eastern coast is frequently struck by cyclones.

Answer : The delta region of the eastern coast is frequently struck by cyclones because the cyclonic depressions which originate over the Andaman Sea generally cross the Eastern coasts of India and cause heavy and widespread rain.

(a) These cyclones are often very destructive. The thickly populated deltas of the Godavari, the Krishna and the Kaveri are frequently struck by cyclones which cause great damage to life and property.

(b) Sometimes these cyclones arrive at the coasts of Odisha, West Bengal and Bangladesh.

(v) Parts of Rajasthan, Gujarat and the leeward side of the Western Ghats are drought-prone.

Answer : Parts of Rajasthan, Gujarat and the leeward side of the Western Ghats are drought prone because they receive scanty rainfall. Even during the monsoon months the monsoon winds when rising over the Western Ghats give rain to that area. By the time they reach Rajasthan and Gujarat there is very less moisture left in these winds and so these areas are drought prone.

Question 5. Describe the regional variations in the climatic conditions of India with the help of suitable examples.

Answer : There is regional variation in the climatic conditions of India. Temperature and Precipitation vary from place to place and season to season.

i) Temperature differentials- In summers the temperature rises up to 50°C in parts of Rajasthan, whereas it may be around 20°C in Pahalgam in Kashmir.

→ In winters, night temperature in Drass in Kashmir may be minus 45°C, whereas Tiruvananthapuram in Kerala may have a temperature of 20°C.

→ In Andaman and Nicobar Islands the difference between day and night temperature may be hardly 7° to 8°C.

ii) Seasonal Contrasts- Coastal areas experience less contrast in the temperature, whereas seasonal contrasts are more in the interior of the country.

iii) Rainfall variations- There is decrease in rainfall generally from east to west in the northern plains.

→ Most part of India get rainfall from June – September, whereas Coromandel Coast gets rainfall in winter season.

Question 6. Discuss the mechanism of monsoons.

Answer : Following are the factors responsible for the mechanism of monsoon:

- i) Differential Heating- The Sun causes differential heating and cooling of land and water. This creates low pressure on the landmass of India and high pressure over the ocean surface.
- ii) ITCZ- The Inter Tropical Convergence Zone (ITCZ) is normally positioned about 5°N of the equator. It shifts over the Ganga plains during summers. It is also known as the monsoon trough during the monsoon season.
- iii) Pressure- The high pressure area, east of Madagascar is approximately 20°S of the Indian Ocean. This area affects the Indian Monsoon.

The difference in pressure over Tahiti and Darwin is computed to predict the intensity of the monsoons. Tahiti (18°S/149°W) lies in the Pacific Ocean and Darwin (12°30'S/131°E) lies in northern Australia. If the pressure differences are negative, it means a below average and late monsoon.

- iv) Tibetan Plateau- The Tibetan plateau gets intensely heated during summer. This results in strong vertical air currents and formation of high pressure over the plateau. This high pressure zone is about 9 km above the sea level.
- v) Jet Stream- The westerly jet stream move to the north of the Himalayas, and the tropical easterly jet stream moves over the Indian Peninsula during summer.
- vi) SO- The periodic change in pressure conditions between Pacific Ocean and the Indian Ocean that is known as the Southern Oscillation or SO also affects the monsoon.

Question 7. Give an account of weather conditions and characteristics of the cold season.

Answer : Following are the features of the cold season:

- The winter season begins from mid-November and ends in February; in northern India.
- December and January are the coldest months in the northern part of India.
- The temperature ranges between 10°-15°C in the northern plains, while it ranges between 24°-25°C in Chennai and other coastal areas.
- The northeast trade winds prevail over the country in this season. As these winds blow from land to sea, most parts of the country experience a dry season.
- The weather is usually marked by clear sky, low temperatures and low humidity and weak variable winds.
- The inflow of the cyclonic disturbances from the west and the northwest is a characteristic

feature of the cold weather over the northern plains.

- These low-pressure systems originate over the Mediterranean Sea and Western Asia and move into India. They cause winter rains over the plains and snowfall in the mountains.
- The winter rainfall is in small amount but is very important for the rabi crop. This rainfall is locally known as mahawat.
- The peninsular region does not get a well-defined winter because of the moderating influence of the sea.

Question 8. Give the characteristics and effects of the monsoon rainfall in India.

Answer : Characteristics of the monsoon rainfall in India:

- The duration of the monsoon varies from 100 to 120 days from early June to mid-September.
- Around the time of its arrival, the normal rainfall increase suddenly and continues regularly for several days. This is called the 'burst' of the monsoon.
- They are distinguished from the pre-monsoon showers because of their increase in rainfall amount and regularity.
- The monsoon arrives at the southern tip of the Indian Peninsular generally by the first week of June.
- The rainfall is unevenly distributed across the country.

(IMAGE- emailed separately)

Effects of the monsoon rainfall in India:

- Agriculture in India largely depends on Indian monsoons for water. Late, Low or excessive rains have a negative impact upon crops.
- Due to uneven distribution of rainfall across the country, there are few places that are drought prone and few are flood affected.
- The monsoon provides India with a diverse climatic pattern. Hence, in spite of the presence of great regional variations, it has a unifying influence upon the country and its people.

Map skills

On an outline map of India, show the following.

- (i) Areas receiving rainfall over 400 cm.

- (ii) Areas receiving less than 20 cm of rainfall.
- (iii) The direction of the south-west monsoon over India.

Answer

