

NCERT SOLUTIONS

CLASS - 9th



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Class : 9th
Subject : Geography
Chapter : 4
Chapter Name : Climate

Q1 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
- (c) Cherrapunji
- (b) Mawsynram
- (d) Guwahati

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

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

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

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

(iv) Monsoon arrives in India approximately in:

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

(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. (i) (b) Mawsynram

(ii) (b) Loo

- (iii) (a) Cyclonic depression
- (iv) (c) Early June
- (v) (b) Warm days and cold nights

Page : 39 , Block Name : Exercise

Q2 Answer the following questions briefly.

- (i) What are the controls affecting the climate of India?
- (ii) Why does India have a monsoon type of climate?
- (iii) Which part of India does experience the highest diurnal range of temperature and why?
- (iv) Which winds account for rainfall along the Malabar coast?
- (v) What are Jet streams and how do they affect the climate of India?
- (vi) Define monsoons. What do you understand by “break” in monsoon?
- (vii) Why is the monsoon considered a unifying bond?

Answer. (i) There are six major controls of the climate of any place. They are latitude, altitude, pressure and wind system, distance from the sea (continentality), ocean currents and relief features.

(ii) The monsoon winds play an important role in the climate of India. Therefore, it is called the monsoon type of climate.

(iii) 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) The south west monsoon winds are responsible for the rainfall along the Malabar coast.

(v) 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) The monsoons are moisture laden winds from the southwest which bring heavy rainfall to southern Asia, in summer.

'Break' in monsoon means that the monsoon has alternate wet and dry spells. This means that the monsoon rains take place for a few days at a time. These wet spells are interspersed with dry spells related to the movement of the monsoon trough.

(vii) 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.

Page : 39 , Block Name : Exercise

Q3 . 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.

Page : 39 , Block Name : Exercise

Q4 Give reasons as to why.

- (i) Seasonal reversal of wind direction takes place over the Indian subcontinent?
- (ii) The bulk of rainfall in India is concentrated over a few months.
- (iii) The Tamil Nadu coast receives winter rainfall.
- (iv) The delta region of the eastern coast is frequently struck by cyclones.
- (v) Parts of Rajasthan, Gujarat and the leeward side of the Western Ghats are drought-prone.

Answer. (i) During winter, there is a high pressure area north of the Himalayas. Cold winds blow from this region to the low pressure areas over the oceans to the south.

(a) In summer, a low pressure area develops over interior Asia as well as over north-western India.

(b) This causes a complete reversal of the direction of winds during summer.

(ii) 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) 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.

Some amount of rainfall occurs on the Tamil Nadu coast from these winds as here they blow from sea to land.

(iv) 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 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.

Page : 39 , Block Name : Exercise

Q5 . Describe the regional variations in the climatic conditions of India with the help of suitable examples.

Answer. There are regional variations in the climatic conditions of India which can be understood with the help of the following examples

(a) The months of December and January are the coldest in Northern India where the temperature ranges between 10° - 15° .

(b) In summer, the mercury occasionally touches 50°C in some parts of the Rajasthan desert, whereas it might be around 20°C in pahalgam In Jammu and Kashmir.

(c) On a winter night temperature at Drass in Jammu and Kashmir may be as low as minus 40°C . Tiruvananthapuram on the other hand may have a temperature of 22°C .

(d) Annual precipitation varies from over 400 em in Meghalaya to less than 10 cm in Ladakh and western Rajasthan. In the Himalayas precipitation is in the form of snowfall.

(e) Coastal region does not experience much variation in temperature pattern due to the moderating influence of the sea.

Page : 40 , Block Name : Exercise

Q6 Discuss the mechanism of monsoons.

Answer. The climate of India is described as the monsoon type

(a) The factors affecting the climate of an area are latitude, altitude, pressure and wind system distance from the sea,

(b) Pressure and surface winds, and relief features,

(c) India lies in the region of north-easterly winds. These winds originate from the subtropical high pressure belt in the northern hemisphere, get deflected to the right due to the Coriolis force and move on towards the equatorial low pressure area.

(d) In summer, a low pressure area develops over interior Asia and north-western India. This causes complete reversal of the direction of the 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. These are known as the south-west monsoon winds. These winds blow over the warm oceans, gather moisture and bring widespread rainfall over the mainland of India.

(e) The upper air circulation in this region is dominated by a westerly flow.

(f) The duration of the monsoon is between 100-120 days from early June to mid September.

(g) The Southern Oscillation (SO) and jet streams also affect the monsoon.

Withdrawal or Retreat of Monsoon The withdrawal or retreat of the monsoon begins in the states of India by early September. By mid October, it withdraws completely from the northern half of the peninsula. By December, the monsoon has withdrawn from the rest of the country.

Page : 40 , Block Name : Exercise

Q7 Give an account of weather conditions and characteristics of the cold season.

Answer. 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.

(a) The weather is normally marked by clear sky, low temperatures, low humidity and feeble variable winds.

(b) Days are warm and nights are cold. Frost is common in the north and higher slopes of the Himalayas experience snowfall.

(c) 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.

- (d) 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.
- (e) Although, the total amount of winter rainfall locally known as 'Mahawat' is small, it is of immense importance for the cultivation of 'rabi' crops.
- (f) 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.

Page : 40 , Block Name : Exercise

Q8 Give the characteristics and effects of the monsoon rainfall in India.

Answer. Characteristics

- (a) The climate of India is described as the 'monsoon' type.
- (b) Monsoon refers to the seasonal reversal in the wind direction during the year.
- (c) The duration of monsoon is between 100-120 days from early June to mid September. Around the time of its arrival, the normal rainfall increases suddenly and continues constantly for several days. This is known as 'burst' of the monsoon.
- (d) The monsoon has a tendency to have 'breaks'; thus, it has wet and dry spells. In other words, monsoon rains take place only for a few days at a time.
- (e) The monsoon is known for its uncertainties.
- (f) The alternation of dry and wet spells vary in intensity, frequency and duration.
- (g) Distribution of Rainfall Parts of the western coast and north-eastern India receive over 400 cm of rainfall; however, it is less than 60 cm in western Rajasthan and parts of Gujarat, Haryana and Punjab. Kashmir also receives low rainfall.

The withdrawal of the monsoon begins when the south-west monsoon winds weaken and start withdrawing gradually. By the beginning of October, the monsoon withdrawal from the northern plains. By mid October, it withdraws completely from the northern half of the peninsula. By early December, the monsoon has withdrawn from the rest of India.

Effects of the Monsoon

- (a) India has traditionally been an agricultural country with more than 50% of its population dependent on agriculture.
- (b) A large part of the country's agriculture is mainly dependent upon the monsoon rains.
- (c) There is great variation in the rainfall received by the different parts of the country, somewhere it leads to floods and its absence in other parts leads to drought like conditions.

(d) The Indian landscape, its animal and plant life, the entire agricultural calendar and the life of the people, including their festivities revolve around this phenomenon (monsoon).

(e) The monsoon winds bind the whole country by providing water to set the agricultural activities in motion.

It is often irregular in its arrival and its retreat sometimes disturbs the farming schedule of millions of farmers all over the country.

Page : 40 , Block Name : Exercise

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