

Climate

Fastrack Revision

- Climate refers to the sum total of weather conditions and variations over a large area for a long period of time, whereas weather refers to the state of the atmosphere over an area at any point of time.
- India has a 'monsoon' type of climate. In Asia, this type of climate is found in the South and the South-East. Despite an overall unity in general pattern, variations in climatic conditions are observed in the country, as discussed below:
 - In summer season, the mercury occasionally touches 50°C in some parts of the Rajasthan desert, whereas it may be around 20°C in Pahalgam in Jammu and Kashmir.
 - At Drass in Jammu and Kashmir, it may be as low as -45°C in winters and Thiruvananthapuram, on the other hand, may have a temperature of 22°C .
 - The annual precipitation varies from over 400 cm in Meghalaya to less than 10 cm in Ladakh and Western Rajasthan.
- There are six major controls of the climate of any place, viz., latitude, altitude, pressure and wind system, distance from the sea, ocean currents and relief features. The effect of these factors on India's climate is as follows:
 - **Latitude:** The Tropic of Cancer passes through the middle of the country, from the Rann of Kutch in the West to Mizoram in the East. Because of this, India's climate has tropical as well as sub-tropical climates.
 - **Altitude:** India has mountains to the North, which have an average height of about 6,000 metres. The Himalayas prevent the cold winds of Central Asia from entering the subcontinent. Because of these mountains this subcontinent experiences comparatively milder winters as compared to the rest of Central Asia.
 - **Pressure and Winds:** India lies in the region of North-easterly winds. These winds originate from the sub-tropical high-pressure belt of the Northern hemisphere, blow South, get deflected to the right due to Coriolis force and move on towards the equatorial low-pressure area. These winds blow over the warm oceans, gather moisture and bring widespread rainfall over the mainland of India.
- The monsoon type of climate is characterised by a distinct seasonal pattern. The weather conditions change from one season to another. The four main seasons found in India are discussed below:

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During this season, the North-East 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 Cold Weather Season (Winter):** It begins from mid-November in Northern India and stays till February. December and January are the coldest months in the Northern part of India. The temperature decreases from South to North. The average temperature of Chennai on the Eastern coast is between 24°C to 25°C and in the Northern Plains it ranges between 10°C to 15°C . Days are warm and nights are cold.
- **The Hot Weather Season (Summer):** It starts from March and lasts till the end of May. The influence of the shifting of the heat belt can be seen clearly from temperature recordings. In May, temperature of 45°C is common in the North-western parts of the country.

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A striking feature of the hot weather season is the 'loo'. These are strong, gusty, hot, dry winds blowing during the day over the North and North-western India. Sometimes they even continue until late in the evening. Direct exposure to these winds may even prove to be fatal.

- **Advancing Monsoon (The Rainy Season):** By early June, the low-pressure condition over the Northern Plains intensifies. It attracts the trade winds of the Southern hemisphere. These South-East trade winds originate over the warm sub-tropical areas of the Southern oceans. They cross the equator and blow in a South-westerly direction entering the Indian Peninsula as the South-West monsoon. As these winds blow over warm oceans, they bring abundant moisture to the subcontinent.
- **Retreating Monsoon (The Transition Season):** It starts in October and November and causes rainfall in South India. The months of October-November form a period of transition from hot rainy season to dry winter conditions. The retreat of the monsoon is marked by clear skies and rise in temperature. While day temperatures are high, nights are cool and pleasant.
- Rainfall is unevenly distributed in our country. Parts of Western coast and North-eastern India receive over about 400 cm of rainfall annually. However, it is less than 60 cm in Western Rajasthan and adjoining parts of Gujarat, Haryana and Punjab.
- Monsoon acts as a unifying bond in India. The Indian landscape, its animal and plant life, its entire agricultural calendar and the life of the people, including their festivities, revolve around this phenomenon.



Practice Exercise

Multiple Choice Questions

- Q 1. Which one of the following is an element of weather and climate?
a. Atmospheric pressure b. Temperature
c. Humidity d. All of these
- Q 2. What do you mean by weather?
a. State of the atmosphere over an area at any point of time.
b. Envelope of air surrounding Earth.
c. Generalised monthly atmospheric conditions.
d. None of the above
- Q 3. Which among the following fluctuates very often even within a day?
a. Weather b. Climate
c. Atmospheric conditions d. Seasons
- Q 4. In which season, there is a high-pressure area North of the Himalayas?
a. Summer b. Winter
c. Spring d. Rainy
- Q 5. What is the annual precipitation in the Indian state of Meghalaya?
a. 300 cm b. 350 cm
c. 400 cm d. 450 cm
- Q 6. In which of the following seasons, the subtropical westerly jet stream moves North of the Himalayas with the apparent movement of the Sun?
a. Summer b. Winter
c. Rainy d. Spring
- Q 7. Which of the following areas do not experience much variation in temperature though there is variation in rainfall pattern?
a. Peninsular regions b. Coastal areas
c. High-pressure region d. Himalayan regions
- Q 8. Which type of climate is characterised by a distinct seasonal pattern?
a. Monsoon type of climate
b. Tropical savanna type of climate
c. Tundra type of climate
d. Rainforest type of climate
- Q 9. In which month dust storms are very common in Northern India?
a. April b. May
c. June d. July
- Q 10. The.....do not experience much variation in temperature though there is variation in rainfall pattern.
a. mountainous areas b. plain areas
c. coastal areas d. None of these
- Q 11. Which of the following months are the coldest months in the Northern part of India?
a. January and February
b. November and December
c. December and January
d. September and October
- Q 12. During cold weather season, which wind prevails over the country?
a. Monsoon wind
b. Westerlies wind
c. North-East trade wind
d. North-West trade wind
- Q 13. In which month the transition season changes the hot rainy season to dry winter season?
a. December to February b. February to March
c. June to July d. October to November
- Q 14. The term 'monsoon' is originated from:
a. German b. Arabic
c. Latin d. Hindi
- Q 15. Most parts of India receive rainfall during the months from:
a. June to September
b. May to July
c. September to March
d. None of the above
- Q 16. *Kaal Baisakhi* is associated with:
a. Punjab b. Odisha
c. Karnataka d. West Bengal
- Q 17. Which one of the following places receives the highest rainfall in the world?
a. Silchar b. Mawsynram
c. Cherrapunji d. Guwahati
- Q 18. Which place in India experiences a very high diurnal range of temperature?
a. Mumbai b. Jodhpur
c. Punjab d. None of these
- Q 19. In which place of India there is very little difference between day and night temperatures?
a. Bihar b. Bengaluru
c. Thiruvananthapuram d. All of these

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Due to coastal location, Thiruvananthapuram has a moderate climate i.e., very little difference between day and night temperatures.

- Q 20. What is the highest temperature recorded in March on the Deccan Plateau?
a. 35°C b. 36°C
c. 37°C d. 38°C
- Q 21. At which of the following places in India Dal Lake is located?
a. Jammu b. Kashmir
c. Ladakh d. Baramulla
- Q 22. Which one of the following places of India experiences the highest summer temperature?
a. Jaisalmer b. Punjab
c. Bihar d. All of these

wind blowing in the Northern plains in winters is known as:

- a. Kool Baisakhi
- b. Loo
- c. Trade winds
- d. None of these

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Loo are the strong, gusty hot, dry winds flowing during the day over the North and North-western India in Summer season.

- Q 24. 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. South-West monsoon
- Q 25. Which of the following climate controls is the most important?
- a. Latitude
 - b. Altitude
 - c. Pressure and Wind System
 - d. Continentality
- Q 26. In which place of India are houses built on stilts?
- a. Bihar
 - b. Assam
 - c. Goa
 - d. None of these
- Q 27. Which of the following blow South of the Himalayas over India all through the year except in Summer?
- a. Coriolis force
 - b. ITCZ
 - c. Jet-stream
 - d. Centripetal forces
- Q 28. An apparent force caused by the Earth's rotation is called:
- a. Coriolis force
 - b. Centrifugal force
 - c. Centripetal force
 - d. Jet-stream

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The coriolis force is responsible for the deflection of wind from its normal path.

- Q 29. By the beginning of which month, the monsoon withdraws from the Northern plains?
- a. September
 - b. October
 - c. November
 - d. December
- Q 30. Analyse the information and identify the term:
- It starts in October and November and causes rainfall in South India. It is marked by clear skies and rise in temperature. While day temperatures are high, nights are cool and pleasant. The land is moist. Owing to the conditions of high temperature and humidity, the weather becomes rather oppressive during the day. This is commonly known as October heat.
- Which season is described here?
- a. Cold weather season
 - b. Hot weather season
 - c. Advancing monsoon
 - d. Retreating monsoon

- Q 31. Read the following statements carefully and choose the correct option:

Statement (I): About seventy five percent of the working population of the Aravalli mountain region is engaged in agriculture.

Statement (II): The greater parts of Aravalis receive scanty rainfall.

- a. Statement (I) is correct and (II) is incorrect.
- b. Statement (I) is incorrect and (II) is correct.
- c. Both statements are incorrect.
- d. Both statements are correct.

- Q 32. Read the following statements carefully and choose the correct option:

Statement (I): The chemical weathering of rocks is common in warm and humid climate.

Statement (II): The drainage density is high in the warm and humid climate.

- a. Statement (I) is correct and (II) is incorrect.
- b. Statement (I) is incorrect and (II) is correct.
- c. Both statements are incorrect.
- d. Both statements are correct.



Assertion & Reason Type Questions

Directions (Q. Nos. 33-36): In the following questions given below, there are two statements marked as Assertion (A) and Reason (R). Read the statements and choose the correct option:

- a. Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
 - b. Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A).
 - c. Assertion (A) is true, but Reason (R) is false.
 - d. Assertion (A) is false, but Reason (R) is true.
- Q 33. **Assertion (A):** The monsoon is known for its uncertainties. While it causes heavy floods in one part, it may be responsible for droughts in the other.
- Reason (R):** It is often irregular in its arrival and its retreat.
- Q 34. **Assertion (A):** Houses in Rajasthan have thick walls and flat roofs.
- Reason (R):** This is to maintain the inner temperature of the houses and keep them cool for long time.
- Q 35. **Assertion (A):** The Thar desert of Rajasthan in India experiences the highest diurnal range of temperature.
- Reason (R):** At the Thar desert, the weather conditions drastically change from the day to the same night.

Condition (A): The pressure and wind conditions over India are unique.

Condition (R): Cold dry winds blow from a low pressure area to high pressure areas during winter.

Answers

- | | | | | |
|---------|---------|---------|---------|---------|
| 1. (d) | 2. (a) | 3. (a) | 4. (b) | 5. (c) |
| 6. (a) | 7. (b) | 8. (a) | 9. (b) | 10. (c) |
| 11. (c) | 12. (c) | 13. (d) | 14. (b) | 15. (a) |
| 16. (d) | 17. (b) | 18. (d) | 19. (c) | 20. (d) |
| 21. (b) | 22. (a) | 23. (b) | 24. (c) | 25. (a) |
| 26. (b) | 27. (c) | 28. (a) | 29. (b) | 30. (d) |
| 31. (b) | 32. (d) | 33. (b) | 34. (a) | 35. (a) |
| 36. (c) | | | | |



Source Based Questions

Source 1

Read the sources given below and answer the questions that follow by choosing the most appropriate option:

The pressure and wind conditions over India are unique. During winter, there is a high-pressure area North of the Himalayas. Cold dry winds blow from this region to the low-pressure areas over the oceans to the South. In summer, a low-pressure area develops over interior Asia, as well as, over North-western India. This causes a complete reversal of the direction of winds during summer. Air moves from the high-pressure area over the Southern Indian Ocean, in a South-easterly direction, 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. The upper air circulation in this region is dominated by a westerly flow. An important component of this flow is the jet stream.

- Q 1. Where does high-pressure area exist during winter in India?**
 a. South-easterly direction
 b. North of the Himalayas
 c. North-western India
 d. Coastal regions of India
- Q 2. What causes a complete reversal of the direction of winds during summer?**
 a. A low pressure area over Interior Asia
 b. A low pressure area over North-western India
 c. A high pressure area over North of Himalayas
 d. Both a. and b.
- Q 3.blow over the warm oceans, gather moisture and bring widespread rainfall over the mainland of India.**
 a. Easterlies
 b. Westerlies
 c. South-West monsoon winds
 d. Western cyclonic winds

- Q 4. In which season does the heat belt shift Northwards?**
 a. Summer season b. Winter season
 c. Rainy season d. Spring season
- Q 5. Which winds dominate the upper air circulation in the South-West regions of India?**
 a. Easterly flow b. Westerly flow
 c. Monsoon winds d. Western disturbances
- Q 6. Name the component of westerly flow that dominates the upper air circulation in the mainland of India.**
 a. Jet-stream b. Ocean current
 c. Southern oscillations d. ITCZ

Answers

1. (b) 2. (d) 3. (c) 4. (a) 5. (b) 6. (a)

Source 2

Read the source given below and answer the questions that follow:

The cold weather season begins from mid-November in Northern India and stays till February. December and January are the coldest months in the Northern part of India. The temperature decreases from South to the North. The average temperature of Chennai, on the Eastern coast, is between 24°–25° Celsius, while in the Northern plains, it ranges between 10°C and 15° Celsius. Days are warm and nights are cold. Frost is common in the North and the higher slopes of the Himalayas experience snowfall.

During this season, the North-East 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.

In the Northern part of the country, a feeble high-pressure region develops, with light winds moving outwards from this area. Influenced by the relief, these winds blow through the Ganga valley from the West and the North-West. The weather is normally marked by clear sky, low temperatures and low humidity and feeble, variable winds.

- Q 1. When does cold weather season begin in India?**
Ans. Cold weather season begins from mid-November in Northern India and stays till February.
- Q 2. Name the winds that prevail over the country during winter season.**
Ans. During winter season, North-East trade winds prevail over the country. They blow from land to sea and so it is a dry season in most parts of the country.
- Q 3. What type of weather is seen in this season?**
Ans. The weather in this season is normally marked by clear sky, low temperatures, low humidity and feeble, variable winds.

Short Answer Type Questions

Q 1. Climate and weather are different concepts. Do you agree? Give reason.

Ans. Yes, I agree. Climate refers to the sum total of weather conditions over a large area for a long period of time, whereas weather refers to the state of atmosphere over an area at any point of time.

Q 2. What do you know about India's climate?

Ans. India's climate is tropical as well as sub-tropical.

Q 3. What is weather?

Ans. Weather refers to the state of the atmosphere over an area at any point of time.

Q 4. Name any two major controls of climate of a place.

Ans. Latitude and altitude are the two major controls of climate of a place.

Q 5. In which months does the Tamil Nadu coast get maximum rainfall?

Ans. The Tamil Nadu coast gets maximum rainfall in the months of October and November.

Q 6. Which side of mountains remains relatively dry?

Ans. The leeward side of mountains remains relatively dry.

Q 7. The weather of which parts of India is influenced by Western cyclonic disturbances?

Ans. The weather of the North and North-western regions of India is influenced by Western cyclonic disturbances.

Q 8. When and where does the monsoon arrive in India?

Ans. The monsoon arrives at the Southern tip of the Indian peninsula usually by the first week of June.

Q 9. What is the duration of the monsoon season in Rajasthan?

Ans. The advancing monsoon reaches Western Rajasthan in the beginning of July. Thus, the monsoon season in Western Rajasthan is from 1st July to 15th September.

Q 10. What are the thunderstorms called in West Bengal?

Ans. The thunderstorms are called Kaal Baisakhi in West Bengal.

Q 11. When does the withdrawal of the monsoon take place in the Northern plains of India?

Ans. By the beginning of October, the monsoon withdraws from the Northern plains of India.

Q 12. Which part of India receives the maximum rainfall during the rainy season?

Ans. The North-eastern part of India receives the maximum rainfall during the rainy season.

Q 13. What is known as 'October heat'?

Ans. The weather becomes oppressive during the day in the month of October. This is commonly known as 'October heat'.

Q 14. Which force is responsible for the deflection of wind from its normal path?

Ans. The Coriolis force is responsible for the deflection of wind from its normal path.

Q 15. In which season, 'loo' is experienced over the Northern Plains?

Ans. 'Loo' is experienced during summer season over the Northern Plains.

Q 16. Which area receives the highest rainfall in the world?

Ans. Mawsynram in the Southern region of Khasi hills, receives the highest rainfall in the world.

Q 17. Why does Nashik receive much less rainfall than Mumbai?

Ans. Nashik is located on the leeward side of the Western Ghats, whereas Mumbai is located on the windward side. Leeward sides of mountain ranges receive much less rainfall than the windward sides.



Short Answer Type Questions

Q 1. Differentiate between climate and weather.

Ans. Climate refers to the sum total of the weather conditions and variations over a large area for a long period of time.

On the other hand, weather refers to the state of atmosphere over an area at any point of time.

Q 2. Write a short note on 'loo' and 'dust storms'.

Ans. **Loo:** It is a striking feature of the hot weather season. It is basically strong, gusty, hot, dry winds blowing during the day, over the North and North-western India. Sometimes, they even continue until late in the evening. Direct exposure to these winds may prove fatal.

Dust Storms: They are very common during the month of May in Northern India. These storms bring temporary relief as they lower the temperature and may bring bright light rain and cool breeze.

Q 3. Which town, out of Jaisalmer, Leh, Shillong and Thiruvananthapuram, will be the hottest during daytime in June?

Ans. Jaisalmer will be the hottest because it is in Western Rajasthan, which receives the monsoon in July only. Shillong and Leh are in mountainous regions, whereas Thiruvananthapuram is on the sea coast, the sea having a moderating influence on its temperature.

nal reversal of wind direction takes place in the Indian sub-continent'. Substantiate your answer with two reasons.

Ans. A seasonal reversal of wind direction takes place in the Indian sub-continent because:

- (i) During summer, a low-pressure area develops over the interior Asia as well as over the North-western India.
- (ii) This causes a complete reversal of the direction of winds during summer.

Q 5. Monsoon is known for its uncertainties and vagaries. Explain.

Ans. Monsoon is known for its uncertainties and vagaries: This can be explained with the help of the following points:

- (i) While it causes heavy floods in one part, it may be responsible for droughts in the other.
- (ii) The rainfall is unevenly distributed across the Indian landscape. Early in the season, the windward side of the Western Ghats receives heavy rainfall. i.e., more than 250 cm.
- (iii) The rain shadow areas of Deccan Plateau and parts of Madhya Pradesh, Rajasthan, Gujarat and Leh receive scanty rainfall.
- (iv) The maximum rainfall is recorded in the North-eastern part of the country.

Q 6. Why does the rainfall decrease from the East to the West in Northern India?

Ans. When the Bay of Bengal branch of South-West monsoon is obstructed by the Nepal and Eastern Himalayas, maximum amount of rainfall is received in West Bengal, Bihar, etc. When these winds advance towards West, they go on shedding moisture. In Kolkata, the amount of rainfall is 105 cm. In Delhi, it is only 59 cm. Further it goes on decreasing and in Ambala, it is lesser than 40 cm.
So, because of constant shedding of moisture, rainfall decreases from the East to West in Northern India.

Q 7. 'Parts of Rajasthan, Gujarat and the leeward side of the Western Ghats are drought prone'. Give two reasons.

Ans. Parts of Rajasthan, Gujarat and the leeward side of the Western Ghats are drought prone because of:

- (i) Rajasthan and Gujarat receive scanty rainfall during the rainy season. Winds carry moisture upwards over the mountain but the low temperature causes the air to lose much of its moisture as precipitation which causes rainfall on the windward side of the Western Ghats.
- (ii) By the time, they reach the leeward side of the mountain, they become dry.

Q 8. The delta region of the Eastern coast is frequently struck by cyclones. Give reasons.

Ans. In mid-October, the temperature begins to fall at a rapid speed in Northern India. This season does not

bring rainfall regularly. The low-pressure conditions of the North shift to the Bay of Bengal by November. When there is a dry season, tropical cyclones develop on the Andaman Sea. Some cyclones also develop during the season of Retreating Monsoons. They are very intense and cause havoc on Odisha, Andhra Pradesh and Tamil Nadu coasts, during October and November.

Q 9. Why is the monsoon considered a unifying bond?

Ans. Monsoon is considered as a unifying bond because of the below mentioned reasons:

- (i) These monsoon winds bind the whole country by providing water to initiate the agricultural activities in motion.
- (ii) The river valleys which carry this water also unite as a single river valley unit.
- (iii) The Indian landscape, its animal and plant life, its entire agricultural calendar and the life of the people, including their festivities, revolve around this phenomenon.
- (iv) Year after year, people of India from North to South and from East to West, eagerly await the arrival of the monsoon.



Long Answer Type Questions

Q 1. How do pressure and surface winds affect the climatic conditions of a particular place?

Ans. The pressure and surface winds affect the climatic conditions in the following manner:

- (i) Winds move from a high-pressure area to a low-pressure area. During winter, there is a high-pressure area North of the Himalayas. Therefore, cold dry winds blow from this region to low-pressure areas over the oceans to the South.
- (ii) In summer, a low-pressure system attracts the South-East trade winds of the Southern hemisphere. On crossing the equator, these trade winds due to the Coriolis force, turn right towards the low-pressure areas over the Indian sub-continent.
- (iii) After crossing the equator, these winds start blowing in a South-westerly direction, and enter the Indian Peninsula as the South-western monsoon. These are known as the South-West monsoon winds.
- (iv) These winds blow over the warm oceans, gather moisture and bring widespread rainfall over the mainland of India. The upper air circulation in this region is dominated by a westerly flow. The rainfall received by India is largely due to the South-West monsoon winds.

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

Following examples bring forth the regional variations in the climatic conditions in India:

- (i) In summer, the temperature occasionally reaches 50°C in some parts of the Rajasthan desert, whereas it may be around 20°C in Pahalgam in Jammu and Kashmir.
- (ii) On a winter night, the temperature at Drass in Jammu and Kashmir may be as low as -45°C. Thiruvananthapuram, on the other hand, may have a temperature of 22°C.
- (iii) Coastal areas experience less contrasts in temperature conditions. Seasonal contrasts are more in the interior of the country.
- (iv) The annual precipitation varies from over 400 cm in Meghalaya to less than 10 cm in Ladakh and Western Rajasthan.
- (v) Most parts of the country receive rainfall from June to September. But some parts like the Tamil Nadu coast get a large portion of its rain during October and November.

Q 3. Discuss the main features of the hot weather season in India.

Ans. The main features of the hot weather season in India are as follows:

- (i) The season starts from March and continues upto June.
- (ii) Temperature starts rising by the middle of March and by mid-May, the mercury touches 41°C to 42°C.
- (iii) There are variations in the temperature. In North-West, it is around 45°C, but in South it is 26°C to 30°C.
- (iv) Towards the end of May, an elongated low-pressure area is developed. It is called the monsoon low-pressure trough.
- (v) The locally formed dust storms and thunder storms bring a variable amount of rainfall to different parts of the country especially in Punjab, Haryana, etc.

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 Kerala and Western Ghats also experience the pre-monsoon showers in this season. Locally, they are known as the 'Mango showers.'

Q 4. Discuss the major features of Retreating Monsoon.

Ans. Following are the major features of Retreating Monsoon:

- (i) It occurs in the months of October and November.

- (ii) The monsoon trough or the low-pressure trough over the Northern Plains becomes weaker and it is gradually replaced by a high-pressure system.
- (iii) South-West monsoon winds become weak and start withdrawing.
- (iv) The retreat of the monsoon is marked by clear skies and rise in temperature.
- (v) Day temperature is high while nights are cool and pleasant. The weather becomes rather oppressive during the day, which is commonly known as 'October heat.'

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 Tropical cyclones and other local winds prevail during this period. The deltas of the Godavari, the Krishna and the Kaveri receive rainfall from the tropical cyclones.

Q 5. 'India has diverse climatic conditions'. Explain by giving two examples each of temperature and precipitation.

Ans. Although there is an overall unity in the general climatic pattern in India, there are some perceptible regional variations in temperature and precipitation conditions. These variations are as under:

Regional variation in temperature conditions

- (i) In summer, the mercury occasionally touches 50°C in some parts of Rajasthan desert, whereas it may be around 20°C in Pahalgam in Jammu and Kashmir.
- (ii) On a winter night, temperature at Drass in Jammu and Kashmir may be as low as -45°C. Thiruvananthapuram, on the other hand, may have a temperature of 22°C.

Regional variation in precipitation conditions

- (i) The annual precipitation varies from over 400 cm in Meghalaya to less than 10 cm in Ladakh and Western Rajasthan.
- (ii) Most parts of the country receive rainfall from June to September. But some parts like the Tamil Nadu coast gets a large portion of its rain during October and November.
- (iii) While precipitation is mostly in the form of snowfall in the upper parts of Himalayas, it rains over the rest of the country.

Thus, it can be concluded that India has diverse climatic conditions.

COMMON ERROR

Sometimes, students do not quote examples related to temperature and precipitation but only give concerned explanation.



Chapter Test

Multiple Choice Questions

- Q 1. In the second half of which month, the Mercury begins to fall rapidly in Northern India?
a. September b. October
c. November d. July
- Q 2. Towards the close of the summer season, pre-monsoon showers are common in:
a. Kerala b. Karnataka
c. Tamil Nadu d. Both a. and b.
- Q 3. Why are the thickly populated deltas of the Godavari, the Krishna and the Kaveri frequently struck by cyclones?
a. Due to the occurrence of cyclonic depressions which originate over the Andaman Sea.
b. Because the low pressure conditions get transferred to the Bay of Bengal by early November.
c. Both a. and b.
d. None of the above
- Q 4. 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. South-West monsoon
- Q 5. What is the average temperature of Chennai on the Eastern coast?
a. $23^{\circ}\text{--}24^{\circ}$ b. $24^{\circ}\text{--}25^{\circ}$
c. $25^{\circ}\text{--}26^{\circ}$ d. $26^{\circ}\text{--}27^{\circ}$

Assertion and Reason Type Questions

Directions (Q. Nos. 6-7): In the following questions given below, there are two statements marked as Assertion (A) and Reason (R). Read the statements and choose the correct option:

- a. Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
b. Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A).
c. Assertion (A) is true, but Reason (R) is false.
d. Assertion (A) is false, but Reason (R) is true.
- Q 6. Assertion (A): The Indian subcontinent experiences milder winters.
Reason (R): The Himalayas act as barriers against the cold arctic winds and stop them to enter in India.
- Q 7. Assertion (A): Thiruvananthapuram has an equable climate.
Reason (R): Thiruvananthapuram is situated close to the sea and its climate is moderated by the sea.

Source Based Question

- Q 8. Read the source given below and answer the questions that follow:
During October-November, with the apparent movement of the Sun towards the South, the

monsoon trough or the low-pressure trough over the Northern plains becomes weaker. This is gradually replaced by a high-pressure system. The South-West monsoon winds weaken and start withdrawing gradually. By the beginning of October, the monsoon withdraws from the Northern Plains.

The months of October-November form a period of transition from hot rainy season to dry winter conditions. The retreat of the monsoon is marked by clear skies and rise in temperature. While day temperatures are high, nights are cool and pleasant. The land is still moist. Owing to the conditions of high temperature and humidity, the weather becomes rather oppressive during the day. This is commonly known as 'October heat'. In the second half of October, the mercury begins to fall rapidly in Northern India.

- (i) Write any two characteristics of Retreating Monsoon.
(ii) What is the period of transition?
(iii) What do you understand by October heat?

Very Short Answer Type Questions

- Q 9. In which season does the heat belt shift Northwards?
Q 10. Why do coastal areas experience less contrast in temperature conditions?
Q 11. How is the intensity of monsoons predicted?
Q 12. Which phenomenon is responsible for the rise of the South-West monsoon?

Short Answer Type Questions

- Q 13. Which town, out of Jaisalmer, Leh, Shillong and Thiruvananthapuram, will be the hottest during daytime in June?
Q 14. Why does the rainfall decrease from the East to the West in Northern India?
Q 15. How does the change in pressure conditions over the Southern oceans affect the monsoons?
Q 16. Why are the delta regions of Eastern India struck by cyclones?

Long Answer Type Questions

- Q 17. How do tropical cyclones influence distribution of rainfall in India?
Q 18. 'India has diverse climatic conditions'. Explain by giving two examples each of temperature and precipitation.