

CLIMATE

1. What generally happens to air temperature as we move from the equator to the poles?

- (a) it decreases**
- (b) it increases
- (c) it remains constant
- (d) None of the above

2. Monsoon arrives in India approximately in:

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

3. Which one of the following warm ocean currents replaces the Peruvian cold currents?

- (a) Kuroshio
- (b) El Nino**
- (c) South Pacific Currents
- (d) Gulf Stream

4. Which is the coldest place in India?

- (a) Dras**
- (b) Srinagar
- (c) Shimla
- (d) Jaipur

5. Which of the following states suffer from loo?

- (a) Tamil Nadu
- (b) Uttar Pradesh**
- (c) Gujarat
- (d) None of these

6. What is the full form of ITCZ

- (a) International Tropical Convergence Zone
- (b) Interstate Tropical Convergence Zone
- (c) International Tropical Convergent Zone
- (d) Inter Tropical Convergence Zone**

7. The amount of present in the atmosphere is called Humidity

- (a) Smog
- (b) Dust
- (c) Pollution
- (d) Water Vapours**

8. 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

9. Which of the crop is associated with the winter rainfall?

- (a) Zaid
- (b) Rabi**
- (c) Kharif
- (d) None of these

10. Mawsynram place on the earth is also famous for its stalagmites and stalactite caves.

- (a) Coldest
- (b) Hottest
- (c) Wettest**
- (d) Driest

11. The term monsoon originates from

- (a) German
- (b) Hindi
- (c) Latin
- (d) Arabic**

12. Which of the following forces is responsible for the deflection of winds from its normal path?

- (a) Centripetal Force
- (b) Coriolis Force**
- (c) Applied Force
- (d) Gravitational Force

13. Mango showers helps in ripening of

- (a) Apples
- (b) Mangoes**
- (c) Bananas
- (d) Coconut

14. Which one of the following causes rainfall during winters in north-western part of India?
- (a) Cyclonic depression
 - (b) Western disturbances**
 - (c) Retreating monsoon
 - (d) Southwest monsoon
15. Mawsynram is located in which of the hills?
- (a) Garo Hills
 - (b) Jaintia Hills
 - (c) Khasi Hills**
 - (d) Shillong Hills
16. Which of the following areas is not an area of low precipitation?
- (a) Western parts of Gujarat
 - (b) Leh in Jammu & Kashmir
 - (c) Deccan Plateau
 - (d) Assam**
17. Fast flowing and narrow air currents are called
- (a) Monsoon
 - (b) Cyclone
 - (c) Jet Streams**
 - (d) Anticyclone
18. Wind generally blow from areas of
- (a) Low Pressure to High Pressure
 - (b) High Pressure to Low Pressure**
 - (c) Low Pressure to Moderate Pressure
 - (d) None of these
19. How many seasons do we have in India?
- (a) 2
 - (b) 3
 - (c) 4**
 - (d) 5
20. In which latitude of tropical areas are monsoon experienced?
- (a) 20°N and 20°E
 - (b) 20°N and 20°S**
 - (c) 20°N and 20°W
 - (d) 20°E and 20°W

21. Which one of the following is an element of weather?

- (a) Climate
- (b) Temperature
- (c) Humidity
- (d) Both (b) & (c)**

22. Which imaginary line passes through the centre of our country?

- (a) Equator
- (b) Tropic of Capricorn
- (c) Tropic of Cancer**
- (d) None of these

23. The state of the atmosphere over an area at any point of time is called

- (a) Temperature
- (b) Climate
- (c) Weather**
- (d) Air Pressure

24. Which of the following control is not affecting the climate of India?

- (a) Altitude
- (b) Cyclones**
- (c) Latitude
- (d) Pressure & Winds

25. The seasonal reversal in wind direction during a year is called

- (a) Monsoon**
- (b) Cyclone
- (c) Jet Streams
- (d) Anticyclone

1. Which of the following is not an element of weather and climate?

- (a) Atmospheric pressure
- (b) Temperature
- (c) Humidity
- (d) Altitude

2. Which of the following terms refers to the sum total of weather conditions and variations over a large area for a long period of time (more than thirty years)?

- (a) Atmosphere
- (b) Annual range of temperature
- (c) Climate

(d) Monsoons

3. Which of the following statements defines weather?

- (a) Envelope of air surrounding earth
- (b) State of the atmosphere over an area at any point of time
- (c) Atmospheric conditions over a large area for a long period of time
- (d) Generalized monthly atmospheric conditions.

4. Which one of the following terms is used for the state of atmosphere over an area at any point of time?

- (a) Weather
- (b) Winds
- (c) Climate
- (d) Pressure

5. In which of the following places of India precipitation is in form of snowfall?

- (a) Shillong
- (b) Drass
- (c) Chandigarh
- (d) Haridwar

6. Which of the following places of India experiences the highest summer temperature?

- (a) Pahalgam
- (b) Leh
- (c) Thiruvananthapuram
- (d) Jaisalmer

7. Which of the following is the rainiest station?

- (a) Shillong
- (b) Mumbai
- (c) Chennai
- (d) Kolkata

8. Which one of the following is the driest station?

- (a) Mumbai
- (b) Leh
- (c) Bengaluru
- (d) Delhi

9. Most parts of India receive rainfall during which of the following months?

- (a) December to February

- (b) March to May
- (c) June to September
- (d) October to November

10. In which of the following months does the Tamil Nadu coast get most of its rainfall?

- (a) December to February
- (b) March to May
- (c) June to September
- (d) October to November

11. Which of the following places in India experiences a very high diurnal range of temperature?

- (a) Kolkata
- (b) Jodhpur
- (c) Chennai
- (d) Delhi

12. In which of the following places of India there is very little difference between day and night temperatures?

- (a) Guwahati
- (b) Nagpur
- (c) Thiruvananthapuram
- (d) Delhi

13. In which of the following places are houses built on stilts?

- (a) Assam
- (b) Rajasthan
- (c) Goa
- (d) Kerala

14. Which one of the following is not one of the six major controls of the climate of any place?

- (a) Latitude
- (b) Temperature
- (c) Pressure and wind system
- (d) Distance from the sea

15. Latitude and altitude of a place determine which of the following climatic elements of a place?

- (a) Pressure and wind system
- (b) Temperature

- (c) Rainfall pattern
- (d) All the above

16. Which of the following places have cooler climate even during summers?

- (a) Allahabad
- (b) Mumbai
- (c) Mussoorie
- (d) Amritsar

17. Which of the following places of India experiences extreme type of climate?

- (a) Shillong
- (b) Bengaluru
- (c) Chennai
- (d) Delhi

18. Due to which of the following factors does Pune receive much lesser rainfall as compared to Mumbai?

- (a) It is located on the leeward side of Western Ghats
- (b) It is located on windward side of Western Ghats
- (c) Continentality
- (d) Distance from the sea

19. Which of the following latitudes passes through the middle of our country, giving it the characteristics of tropical as well as subtropical climate?

- (a) Tropic of Capricorn
- (b) Tropic of Cancer
- (c) Equator
- (d) 82°30'N

20. The Indian subcontinent experiences comparatively milder winters as compared to Central Asia due to which of the following factors?

- (a) The Tropic of Cancer
- (b) The surrounding seas
- (c) The Himalayas
- (d) Ocean currents

21. Which of the following atmospheric conditions govern the climate and associated weather conditions in India?

- (a) Pressure and surface winds
- (b) Upper air circulation
- (c) Western cyclonic disturbances and tropical cyclones
- (d) All the above

22. Which of the following winds brings widespread rainfall over the mainland of India?

- (a) Northeasterly
- (b) Westerlies
- (c) Southwest monsoon winds
- (d) Sea breeze

23. Which of the following is a component of upper air circulation?

- (a) North-easterlies
- (b) Jet stream
- (c) South-west monsoon
- (d) KalBaishakhi

24. From which of the following pressure belts do the north-easterly trade winds originate?

- (a) Equatorial low pressure belt
- (b) Subtropical high pressure belt of the Northern Hemisphere
- (c) Subtropical high pressure belt of the Southern Hemisphere
- (d) Temperate low pressure belt of the Northern Hemisphere

25. Due to which of the following reasons is the southwest monsoons rain bearing winds?

- (a) They blow from low pressure area of north-eastern India towards the seas
- (b) They are seasonal winds
- (c) They blow over warm Indian Ocean and gather moisture
- (d) They strike the Himalayas

26. Which of the following prevents the southwest monsoon winds from escaping from India?

- (a) The surrounding seas
- (b) The Himalayas
- (c) Low pressure over Central Asia
- (d) The Indian deserts

27. The word monsoon is derived from a word which literally means which of the following?

- (a) Seasons
- (b) Wind pattern
- (c) Change
- (d) Mausumbi

28. In which of the following stations of India's mainland do the monsoons arrive first?

- (a) Thiruvananthapuram
- (b) Kolkata
- (c) Chennai
- (d) Delhi

29. By which of the following dates do southern parts of our islands receive their first monsoon showers?

- (a) First week of April
- (b) First week of May
- (c) First week of June
- (d) Mid-October

30. Which of the following stations of India experiences snowfall in winter?

- (a) Aurangabad
- (b) Guwahati
- (c) Ooty
- (d) Srinagar

31. Which of the following causes rainfall in West Bengal during the hot weather season?

- (a) Mango showers
- (b) KalBaishakhi
- (c) Southwest monsoon
- (d) Retreating Monsoon

32. 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

33. The term monsoon is originated from?

- (a) German
- (b) Hindi
- (c) Latin
- (d) Arabic

34. Kal Baisakhi is associated with

- (a) Punjab

- (b) Kashmir
- (c) Karnataka
- (d) Bengal

35. The peninsular part of India experiences peak summers earlier than northern India because:

- (a) There is less rainfall in the peninsula during that time.
- (b) Cold waves from Central Asia sweeps through the northern plains during the time.
- (c) Due to northward movement of the sun, the global heat belt shifts northward
- (d) Clouds do not form in those months

36. Bengal, Orissa and Andhra Pradesh coasts are frequented by cyclones because

- (a) The level coastline makes the cyclones penetrate these areas earlier
- (b) These areas are close to a volcano
- (c) Low pressure conditions in northwest India lead to the creation of depression over Andaman Sea
- (d) Heavy rainfall in these parts encourage strong wind conditions

37. Mango showers occur in which one of the following group of two states?

- (a) Bihar and West Bengal
- (b) Tamil Nadu and Andhra Pradesh
- (c) Karnataka and Kerala
- (d) Maharashtra and Andhra Pradesh

38. Which is the coldest place in India?

- (a) Drass
- (b) Srinagar
- (c) Shillong
- (d) Bikaner

39. Which area is not an area of low precipitation?

- (a) Western Rajasthan and Gujarat
- (b) Leh in Jammu and Kashmir
- (c) Deccan plateau
- (d) Assam

40. In winter the western cyclonic disturbances originate from which sea?

- (a) Mediterranean Sea
- (b) Indian Ocean
- (c) Caspian Sea

(d) Arabian Sea

41. Which one of the following states suffers from loo?

- (a) Tamil Nadu
- (b) Uttar Pradesh
- (c) Gujarat
- (d) None of these

ANSWERS

- 1. (d) Altitude**
- 2. (c) Climate**
- 3. (b) State of the atmosphere over an area at any point of time**
- 4. (a) Weather**
- 5. (b) Drass**
- 6. (d) Jaisalmer**
- 7. (a) Shillong**
- 8. (b) Leh**
- 9. (c) June to September**
- 10. (d) October to November**
- 11. (b) Jodhpur**
- 12. (c) Thiruvananthapuram**
- 13. (a) Assam**
- 14. (b) Temperature**
- 15. (d) All the above**
- 16. (c) Mussoorie**
- 17. (d) Delhi**
- 18. (a) It is located on the leeward side of Western Ghats**
- 19. (b) Tropic of Cancer**
- 20. (c) The Himalayas**
- 21. (d) All the above**
- 22. (c) Southwest monsoon winds**
- 23. (b) Jet stream**
- 24. (b) Subtropical high pressure belt of the Northern Hemisphere**
- 25. (c) They blow over warm Indian Ocean and gather moisture**
- 26. (b) The Himalayas**
- 27. (a) Seasons**
- 28. (a) Thiruvananthapuram**
- 29. (a) First week of April**
- 30. (d) Srinagar**
- 31. (b) KalBaishakhi**

- 32. (d) October to November**
- 33. (d) Arabic**
- 34. (d) Bengal**
- 35. (c) Due to northward movement of the sun, the global heat belt shifts northward**
- 36. (c) Low pressure conditions in northwest India lead to the creation of depression over Andaman Sea**
- 37. (c) Karnataka and Kerala**
- 38. (a) Drass**
- 39. (d) Assam**
- 40. (a) Mediterranean Sea**
- 41. (c) Gujarat**

QUESTIONS ANSWERS

Q.1: Give reasons as to why,

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

(ii) The Tamilnadu coast receives winter rainfall.

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

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

Ans:

(i) The bulk of rainfall in India is concentrated over a few months starting from June to September. Because, during these four months, the rain-bearing winds called the South-West Monsoons, blow northwards in two streams from the Arabian Sea and the Bay of Bengal. These winds blow from the oceanic high pressure areas towards the low pressure areas of land and make a heavy rainfall.

Winds blowing from the Arabian Sea cause heavy rainfall exceeding 300 cm along the Western Ghats. Winds blowing from the Bay of Bengal cause heavy rainfall in the hills of Assam, Meghalaya, Mawsynram.

(ii) In winter there is a high pressure on the Indian mainland while the pressure over the Indian Ocean remains low then. So, winds start blowing from Indian mainland towards the sea in winter. These winds are called retreating monsoons which blow in the months of October and November from the land towards the sea from northeast direction.

When these dry winds cross over the Bay of Bengal, they pick up moisture and when they strike against the Eastern Ghats they cause heavy rain on the east coast of India. Hence, southern part of east coast of India or the Tamil Nadu coast receives more rain during the winter months from October to November.

(iii) In India a gradual climatic transition from hot rainy season to dry winter season takes place during the months of October and November. In the later half of October, temperature starts falling rapidly especially in North India and the low pressure conditions starts shifting towards the Bay of Bengal by November. This shift causes cyclonic depression in the Andaman Sea. These tropical cyclones cause heavy and wide-spread rains on the Eastern Coasts of India. so they often become destructive and the densely populated deltas of the Godavari, the Krishna, the Kaveri are frequently struck by these cyclones causing heavy damage to life and property every year.

(iv) Drought in Rajasthan and Gujarat: There is often low rain in Rajasthan (Thar Desert) and Gujarat because there is no relief or obstruction here to check the monsoons coming from the Arabian Sea. The Aravalli Hills lie parallel to the direction of the monsoons as such the monsoons bypass Rajasthan and Gujarat

unobstructed and so, without giving any rain. Moreover, in the summer the temperature of the Thar Desert or Western Rajasthan is so high that the monsoon winds that pass over this region get dried and unable to cause any rain.

Drought in the Leeward side of Western Ghats: There is often low rainfall in the Leeward side of Western Ghats because that area comes under the rain shadow area.

Q.2: What is an 'Equable Climate'? Give example.

Ans: Equable Climate:

Equable climate is one which is neither too hot in summer nor too cold in winter. The coastal regions, influenced by the cool sea breeze are known for their equable or moderate climate. Hence the climate of coastal regions is known as Equable Climate.

Q.3: What is 'Extreme Climate'? Give examples.

Ans: Extreme Climate:

The climate in which the summer is extremely hot and winter is too cold, is known as Extreme Climate, also known as Continentality. This type of climate is found in the arid regions of Rajasthan, South-west Punjab.

Continentality increases with increase in distance of a place from sea.

Q.4: What is 'Rain Shadow'?

Ans: Rain Shadow:

That side of the mountain which does not get much rain is known as rain shadow.

The winds after crossing the summits of the mountains descend along the slopes on the other side of the mountains. During this process the descending winds get warmed up and dry. The other reason is that the moist wind may not cross over the other side of the mountains which are too high as is the case with the Himalayas which render Tibet as dry region.

Q.5: What are the elements of Weather and Climate?

Ans: The basic elements of both weather and climate are same –

Temperature

Humidity

Rainfall

Pressure

Winds and

Cloudiness or Sunshine

Q.6: Which place in India records the highest rainfall in the world?

Ans: Mawsynram

Q.7: Which part of India experiences the highest range of temperature in a day?

Ans: Thar Dessert in Rajasthan.

Q.8: Name the season in which Eastern Coast (Coromondal) receives rainfall.

Ans: Winter season.

Q.9: What are Jet Streams?

Ans: Jet Streams:

Jet Streams are fast blowing westerly winds that blow in a narrow zone in high altitudes of above 1200 meter in the troposphere. A number of separate Jet streams have been identified with their speeds varying from 110 km/hr to 184 km/hr.

Q.10: What are the reasons behind the disasters like flood, cyclones etc. along the coastal regions of Orissa and Andhra Pradesh?

Ans: The cyclonic disturbances affecting the coastal belts of Orissa and Andhra Pradesh occur due to the tropical cyclones during the monsoons as well as in October – November.

During monsoons these disturbances are caused by tropical cyclones which are a part of easterly flow.

During October – November with the apparent movement of Sun towards the South, the low pressure trough, over the Northern plains, is shifted towards the Bay of Bengal. This shift is associated with occurrence of cyclonic depressions which originated over the Andaman Sea. These cyclones while crossing the Eastern Coasts cause heavy and wide-spread rainfall. Sometimes these tropical cyclones arrive at the coasts of Orissa, Andhra, West Bengal and Bangladesh and cause great danger to life and property.

Q.11: Why Chennai has more rains only after the fury of the monsoons is over in most parts of the country?

Ans: There are several factors involved in Chennai weather patterns, all because of its geographical location. Chennai is located in the thermal equator area, which means it is much hotter at certain times of the year than other because the sun shines more directly on it at these times. The N.E. monsoons bring the most rains in mid September-December. Thermal currents are constantly lifting moist air from the ocean and Bay of Bengal. This NE flow of air cools these currents and cause significant rain not evident in other parts of India. Add to this that cyclonic disturbances in the Bay of Bengal can acerbate the weather situation. In short, the

weather in Chennai is like it is because Chennai is where it is.

Q.12: Write short notes on:

(a) Loo

(b) Kaal Baisakhi

(c) Mango Shower

(d) Mahawat

Ans:

(a) Loo: These are strong, gusty, hot, dry winds blowing during a day over the North and North-Western India. Direct exposure to these winds may even prove to be fatal.

(b) Kaal Baisakhi: During the months of April and May the localized thunderstorms associated with violent winds, torrential rains often accompanied by hail are known as the Kaal Baisakhi. This term is more popular in West Bengal.

(c) Mango Shower: Towards the close of the summer season, pre-monsoon showers are common especially, in Kerala and Karnataka. They help in early ripening of mangoes, and are often referred to “mango showers”.

(d) Mahawat: The total amount of rainfall over Northern plains during winter is locally known as ‘Mahawat’. It is important for the cultivation of the Rabi crops.

CLIMATE

Introduction:

Climate refers to the sum total of weather conditions and variations over a large area for a long period of time (more than thirty years).

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

The elements of weather and climate are the same, i.e. temperature, atmospheric pressure, wind, humidity and precipitation. The climate of India is described as the 'monsoon' type. In Asia, this type of climate is found mainly in the south and the southeast.

FACTORS AFFECTING INDIA'S CLIMATE:

There are six major controls of the climate of any place. They are:

1. LATITUDE
2. ALTITUDE
3. PRESSURE AND WIND SYSTEM
4. DISTANCE FROM THE SEA
5. OCEAN CURRENTS
6. RELIEF FEATURES

THE INDIAN MONSOON

The climate of India is strongly influenced by monsoon winds. The sailors who came to India in historic times were one of the first to have noticed the phenomenon of the monsoon. They benefited from the reversal of the wind system as they came by sailing ships at the mercy of winds. The Arabs, who had also come to India as traders named this seasonal reversal of the wind system 'monsoon'.

The monsoons are experienced in the tropical area roughly between 20° N and 20° S. To understand the mechanism of the monsoons, the following facts are important.

The differential heating and cooling of land and water creates low pressure on the landmass of India while the seas around experience comparatively high pressure.

The shift of the position of Inter Tropical Convergence Zone (ITCZ) in summer, over the Ganga plain (this is the equatorial trough normally positioned about 5°N of the equator. It is also known as the monsoon trough during the monsoon season).

The presence of the high-pressure area, east of Madagascar, approximately at 20°S over the Indian Ocean. The intensity and position of this high-pressure area affects the Indian Monsoon.

The Tibetan plateau gets intensely heated during summer, which results in strong vertical air currents and the formation of low pressure over the plateau at about 9 km above sea level.

The movement of the westerly jet stream to the north of the Himalayas and the presence of the tropical easterly jet stream over the Indian peninsula during summer.

THE SEASONS: The monsoon type of climate is characterised by a distinct seasonal pattern. The weather conditions greatly change from one season. 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.

DISTRIBUTION OF RAINFALL

Parts of western coast and north eastern India Receive over about 400 cm of rainfall annually.

Less than 60 cm in western Rajasthan and adjoining parts of Gujarat, Haryana and Punjab.

Rainfall is equally low in the interior of the Deccan plateau, and east of the Sahyadris.

A third area of low precipitation is around Leh in Jammu and Kashmir.

The rest of the country receives moderate rainfall.
Snowfall is restricted to the Himalayan region.

The annual rainfall is highly variable from year to year.

Variability is high in the regions of low rainfall such as parts of Rajasthan, Gujarat and the leeward side of the Western Ghats.

Areas of high rainfall are liable to be affected by floods, areas of low rainfall are drought-prone.

Very short answer type questions mark-1

Q.1 Which type of climate prevails in India ?

Ans. Monsoon

Q.2 Which state receives the most of its rain during October and November?

Ans . Tamil Nadu

Q.3 Which of the following latitudes pass through the middle of the country?

Ans. Tropic of cancer

Q.4 Indian subcontinent experiences comparatively mild winters as compare to Central Asia because of

Ans. The Himalayas

Q.5What is ITCZ ?

Ans. Inter Tropical Convergence zone

Q.6In which of the following months the Monsoon retreats?

Ans. October

Q.7Which crop is benefited because of winter cyclonic disturbances?

Ans. Rabi Crops

Q.8What is Loo ?

Ans. Strong, Dusty, hot, dry winds blowing during the day over the north and western India

Q.9Which of the following two states are affected by pre monsoon showers ?

Ans. Kerala and Karnataka

Q.10Which is the Wettest city of India ?

Ans. Mawsynram

Q.11In which of the following hills Mawsynram located ?

Ans. Khasi Hills

Q.12Which one of the following causes rainfall during winters in north-western part of India?

Ans. Western disturbances

Q.13Monsoon arrives in India approximately in ...

Ans. Early June

Q.14Which one of the following characterises the cold weather season in India?

Ans. Cool days and cold nights

Short Answer Questions(3 Marks)

Q.1 Define Climate. What are the elements of climate?

Ans: Climate refers to the sum of total weather conditions and their variations over a large area for a long period of time (more than thirty years).

The elements of weather and climate are the same i.e. temperature, atmospheric pressure, wind, humidity and precipitation.

Q.2 What are the controlling elements of the climate of India?

Ans India's climate is controlled by latitude, altitude, pressure and winds, distance from the sea, ocean currents and physiography.

Q.3 Discuss the unifying role of the Indian monsoon.

Ans 1. There is great diversity of the climatic conditions in India due to different locations and land relief patterns. But these diversities are subdued by the monsoon, which blow over the whole country.

2. The arrival of the monsoon is welcomed all over the country.

3. Several festivals are celebrated welcoming the monsoonal rainfall in India.

4. The monsoonal rainfall provides water for agricultural activities.

5. Monsoon gives relief from the scorching heat. The entire life of the Indian people revolves around the monsoon.

Q.4 Distinguish between weather and Climate.

Ans

Weather	Climate
i. Weather refers to the state of the atmosphere at any point of time and place.	i. Climate refers to the sum of total weather conditions and variations over an area for a long period of time (more than 30 years).
ii. Weather conditions may vary at intervals of a few hours or a few days.	ii. Climate does not change so frequently.
iii. Weather data are the observations recorded at a specific time.	iii. Climate refers to the average value of several elements of weather, relating to a period of more than 30 years.

Q.5 Give three characteristics of monsoonal rainfall in India.

Ans Characteristics of monsoon rainfall are:-

1. Early in the season, the windward side of the Western Ghats receives heavy rainfall i.e. more than 250 cm.

2. The rain shadow areas of Deccan Plateau and parts of Madhya Pradesh receive scanty rainfall. The maximum rainfall is recorded in the north eastern part of the country.

3. The frequency and intensity of tropical depressions determine the amount and duration of monsoon rains.

Q.6 What are the western disturbances?

Ans Western Disturbance is the term used in India, Pakistan, Afghanistan and Nepal to describe an extra tropical storm originating in the Mediterranean that brings sudden winter rain and snow to the north-western parts of the Indian subcontinent. This is a non-monsoonal precipitation pattern driven by the Westerly. The moisture in these storms usually originates over the Mediterranean Sea and the Atlantic Ocean.

Q.7 What is El Nino? Mention any of its two effects.

Ans El Nino is a warm ocean current that flows over Peru in an interval of two to five years. The term El Nino, derived from Spanish, means 'the child', i.e. baby Christ. It flows in the month of December.

Its effects are ...

Surface temperature in sea is increased.
Trade winds in the region are weakened.

Q.8 What are the six controlling elements of the climate of India?

Ans India's climate is controlled by

- | | | |
|--------------------------|-------------------|-----------------------|
| 1. Latitude | 2. Altitude | 3. Pressure and winds |
| 4. Distance from the sea | 5. Ocean currents | 6. Physiography |

Q.9 What is a monsoon?

Ans The term Monsoon is derived from the Arabic word 'mausim', meaning season, applied by the Arabs to the seasonal winds of the Arabian Sea. Monsoon winds mean a complete reversal in the direction of wind over a large part of the land, causing seasons.

Q.10 What do you understand by the term 'burst of monsoon'? What are the two branches of Indian monsoon?

Ans Around the time of the arrival of the monsoons, the normal rainfall increases suddenly and continues constantly for several days. This is known as the 'burst of the monsoon'

Monsoon gets divided into two branches—

The Arabian Sea branch: The Arabian Sea branch reaches Mumbai, as the name suggests it strikes India from Arabian Sea side.

The Bay of Bengal branch: The Bay of Bengal branch also advances rapidly and arrives in Assam in the first week of June. **This branch is responsible for giving Meghalaya the highest rainfall in the world.**

Q.11 What is Inter Tropical Convergence Zone? Write two features.

Ans Intertropical Convergence Zone (ITCZ) is the area encircling the earth near the equator where winds originating in the northern and southern hemispheres come together. This is a low-pressure tropical trough.

In summer it is over the Ganga plain. This equatorial trough is normally positioned about 5°N of the equator. It is also known as the monsoon trough during the monsoon season.

This trough keeps on changing its position according to the time of the year.

Q.12 Explain any three factors that affect the climate of a place?

Latitude: Due to the curvature of the earth, the amount of solar energy received varies according to the latitude. As a result, air temperature decreases from the equator towards the poles.

Altitude: As one goes from the surface of the earth to higher altitudes, the atmosphere becomes less dense and temperature decreases. The hills are therefore cooler during summers.

Distance from the sea: The sea exerts a moderating influence on climate. As the distance from the sea increases, its moderating influence decreases and the

people experience extreme weather conditions.

Q.13 Write any three features of western cyclonic disturbances?

Ans Three features of western cyclonic disturbances are ...

1. The western cyclonic disturbances are weather phenomena of the winter months brought in by the westerly flow from the Mediterranean region.
2. They usually influence the weather of the north and north-western regions of India.
3. Tropical cyclones occur during the monsoon as well as in October - November, and are part of the easterly flow. These disturbances affect the coastal regions of the country.

Long Answer Questions (5 Marks)

Q.1 Discuss the mechanisms of the Indian monsoons.

Ans The mechanism of Indian Monsoons:-

1. The different heating and cooling of land and water: At the end of May, due to high temperature, low pressure is created on the landmass of India while seas around experience comparatively high pressure. It fixes the direction of the moisture laden wind from sea to land.
2. The shift of the position of Inter Tropical Convergence Zone (ITCZ) : In summer, low pressure trough is positioned over the Ganga plain, making the region suitable for the occurrence of rain.
3. The intensity and position of the high atmospheric pressure over the Indian Ocean affects the Indian monsoon.
4. The Tibetan plateau gets intensely heated during summer which results in strong vertical air currents and formation of high pressure over the plateau at about 9km above the sea level.
5. The movements of the westerly Jet Streams to the north of the Himalayas and the presence of the tropical easterly Jet Streams over the Indian Peninsula during the summer affects monsoon.

Q.2 Distinguish between South-west monsoon and North-east monsoon.

Ans

South-West Monsoon	North-East Monsoon
i) The season is from June to September.	i) This season starts from December and ends in February.
ii) It does not rain continuously. There are rainless intervals in this season.	ii) It does not possess any rainless intervals.
iii) It blows in India in two branches namely the Arabian Sea branch and Bay of Bengal branch.	iii) It does not have any branches.
iv) Major portion of annual rainfall in India is due to this type of monsoon.	iv) Minor portion of the annual rainfall in India is due to this type of monsoon.

Q.3 Distinguish between Equable climate and Continental climate.

Ans

Equable Climate	Continental Climate
i) Area which are neither too warm in summers nor not too cold in winters (with low range of temperature) are said to have an equable climate.	i) Places with higher range of temperature (extremes of temperature) Experience extreme climate, it is known as continental climate.
ii) Equable climates are characterized by well distributed rainfall throughout the year.	ii) Rainfall in extreme climate is restricted to summer months.
iii) This type of climate is found in places located close to the sea having the moderating influence of the sea.	iii) Interiors of continents/countries which have the least influence of the sea experience have this type of climate.
iv) Chennai, Cochin, Mumbai etc.	iv) Delhi, Kanpur, Bhopal etc.

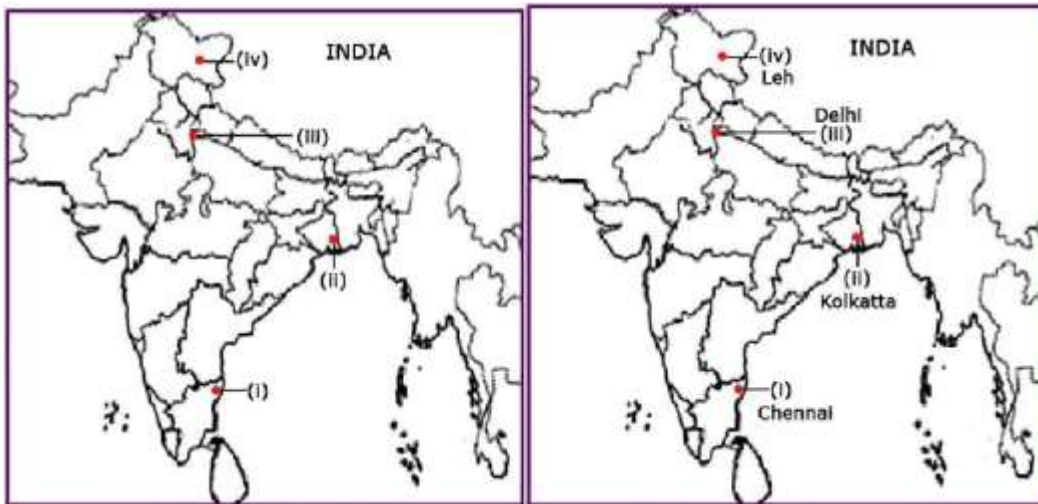
HOTS

- 1 Why the houses in Rajasthan have thick walls and flat roofs?
- 2 Why is it that the houses in the Tarai region and in Goa and Mangalore have sloping roofs?
- 3 Why houses in Assam are built on stilts?
- 4 How the location and relief are important factors in determining the climate of India

Map Questions (4 Marks)

Q.1 Four features from (i) to (iv) are shown in the given outline political map of India. Identify these features with the help of the following information and write their correct names in your answer book:

- (i) Capital of Tamil Nadu
- (ii) Capital of West Bengal
- (iii) India's capital
- (iv) Main city of cold desert



Q.2 Locate and label the following on the given outline political map of India:

- (i) Chennai
- (ii) Area receiving more than 400 cms of rainfall in Arabian Sea
- (iii) Leh
- (iv) Area receiving less than 20 cms of rainfall in Rajasthan

Q.3 Locate and label the following on the given outline political map of India:

- (i) Jaipur
- (ii) Area receiving less than 20 cms of rainfall in Jammu & Kashmir
- (iii) Mumbai
- (iv) Area receiving more than 400 cms of rainfall in Western coast of India

Q.4 Locate and label the following on the given outline political map of India:

- (i) Shillong
- (ii) An area receiving rainfall less than 20 cms in western region
- (iii) Nagpur
- (iv) An area receiving rainfall over 400 cms in Bay of Bengal

Q.5 Four features from (i) to (iv) are shown in the given outline political map of India. Identify these features with the help of the following information and write their correct names in your answer book:

Capital of Rajasthan, Tourist place in Ladakh, Capital of West Bengal, (iv) Capital of India