

Chapter-4

Climate

1 marks Questions

1. What is the weather conditions of an area for a long period of time called?

Ans. Climate.

2. What kind of climate is found in India?

Ans. Monsoon type.

3. Give two examples of precipitation.

Ans. Rain and Snowfall.

4. In which state houses are built on stilts?

Ans. Assam.

5. Give two factors that affect the climate of any place?

Ans. Latitude and Altitude.

6. What is extreme climate?

Ans. It means very hot during summers and very cold during winters.

7. Which force is responsible for deflection of winds towards the right in the Northern Hemisphere?

Ans. Coriolis force.

8. From where the western cyclonic disturbance originate in winter?

Ans. from the Mediterranean Sea.

9. What does ITCZ means?

Ans. Inter Tropical Convergence Zone.

10. What is Southern Oscillation?

Ans. It is a periodic change in pressure conditions.

11. What is El Nino?

Ans. It is Spanish word which means the child. It is the name of warm water current that flows past the Peruvian Coast.

12. When does the monsoon withdraw from the Northern half of the peninsula?

Ans. By mid October.

13. Which place receives the highest rainfall in the world?

Ans. Mawsynram.

14. What does October Heat stands for?

Ans. Hot days and cool night.

15. Give a feature of Mango Showers.

Ans. Mango Showers come in winters.

16. Name a rain shadow area.

Ans. The Deccan Plateau

17. What is climate?

Ans. It is the total of weather conditions and variations of an area for a long period of time. It includes study of temperature, rainfall, atmospheric pressure etc.

18. What is weather?

Ans. Weather refers to day to day changes in our atmospheric conditions. It also includes temperature, rainfall and atmospheric pressure.

19. What is loo?

Ans. These are strong, gusty, hot and dry winds.

20. What is the full form of ITCZ?

Ans. Inter Tropic Convergence Zone.

3 marks Questions

1. India lies in which climatic region? Explain.

Ans. There are many climatic regions in the world.

India's climate has characterized of Tropical as well as subtropical climates due to the tropic of cancer.

This passes through the middle of the country from the Rann of Kachchh in the west to Mizoram in the east.

Almost half of the country, lying south of the Tropic of Cancer belongs to the tropical area. All the remaining area lying north of the tropic of cancer belongs to the sub tropical area.

2. Which is the most remarkable feature of the cold weather season over northern plains?

Ans. The most remarkable feature of the cold weather season over the northern plains is the inflow of cyclonic disturbances from the west and northwest.

The low pressure systems originate over the Mediterranean Sea and western Asia moving in India along with the westerly flow.

They causes the much needed winter rains over the plains and snowfall in the mountains. Though the total amount of winter rainfall is known as 'mahawat, it is very helpful for the cultivation of Rabi crops.

3. "Transition period from hot rainy season to dry winter conditions linked with the occurrence of cyclonic depression over Andaman Sea." Explain.

Ans. The October –November months form a transition period from hot rainy season to dry winter conditions. The temperature rises and sky become clear as the monsoon retreat. By early November the conditions of the low pressure over north western India get transformed

to the Bay of Bengal. This shift is linked with the occurrence of cyclonic depressions which originate over Andaman Sea. These cyclones cause heavy and wide spread rain crossing the eastern coasts of India. Sometimes these tropical cyclones caused destruction.

4. Will you interpret the climatic conditions, as the monsoon retreat?

Ans. The temperature rises and sky becomes clearer as the monsoon retreat.

The days are warmer while the nights are cooler and pleasant.

The land is still moist.

The weather becomes oppressive during the day owing to the conditions of high temperature and humidity.

5. Mention the factors which are responsible for the climatic variation in the following:

Jodhpur has annual rainfall of 37.7cm

Shilong has annual rainfall of 226.7 cm

The maximum temperature in during January in Thiruvananthapuram is 27.7degree C. while in Leh is -8.7 degree C.

Ans. Jodhpur has 37.7 cm of rainfall as the Arabian Sea Branch and winds blow parallel to the Aravalli Hills.

Shilong receives annual rainfall of 226.7 cm approximate, due to its relief feature. It is located on the windward side of the Meghalaya hills and receives heavy rainfall from the Bay of Bengal branch.

Thiruvananthapuram, the maximum temperature is due to its closeness to the equator and situated near the coastal area. The main reason of very low temperature in Leh because it is situated at very high altitude that is 3506 meters above sea level.

6. What does the word 'Monsoon' imply?

Ans. The word 'monsoon' is derived from the Arabic word 'mausim' which literally means season.

Monsoon refers to the seasonal reversal in the wind direction during a year.

The climate of India is the monsoon type.

Such type of climate is found mainly in the south and Southeast Asia.

7. Why the houses in Rajasthan have thick wall and flat roofs?

Ans. The houses in Rajasthan have flat roofs and thick walls because of the harsh and extreme climatic conditions.

It is very hot in summer and very cold in winter,

The thick walls keep the houses cold in summer and hot during severe winters.

Such type of flat roofs and thick walls protect the people from extreme climate.

8. What are the factors which affect the climate of an area?

Ans. Latitude

Altitude

Pressure and wind system

Distance from the sea

Ocean currents

Relief features.

9. How does the distance from sea affect the climate of an area?

Ans. The distance from the sea makes a great impact on the climate of an area.

Areas near the coast have moderate climate.

On the other hand areas far away from the sea have extreme climate.

The annual range of temperature at Mumbai is never high where it may be as high as 20°C at Delhi.

10. How does the latitude affect the climate of an area?

Ans. India's climate has characteristics of tropical as well as subtropical climate due to the tropic of cancer which passes through the middle of the country from the Rann of Kutch in the west to Mizoram in the east.

Almost half of the country, lying south of the Tropic of Cancer belongs to the Tropical area.

All the remaining area, north of tropic lies in the sub-tropics.

11. How does the altitude affect the climate of an area?

Ans. There is about 6000 meters average height of the mountain of India, which lies to the north.

The coastal area of India has a maximum elevation about 30 meters. Himalayas prevent the cold winds from central Asia from entering the subcontinent.

Due to these mountains the sub-continent experiences milder winters as compared to central Asia.

12. How does the pressure and winds affect the climate of an area?

Ans. The following atmospheric conditions govern the climate and associated weather conditions of India:

Pressure and surface winds

Upper air circulations

Western cyclonic disturbances

Tropical cyclones.

13. What do you mean by Coriolis force?

Ans. An apparent force caused by the earth's rotation.

Coriolis force is responsible for deflecting winds towards the right in the northern hemisphere and towards the left in the southern hemisphere.

This also known as Ferrel's Law.

14. What are jet streams?

Ans. These are narrow belt of high altitude (Above 12000 meter) westerly winds in the troposphere.

Their speed varies from about 110 km per hour in summer to about 184 km per hour in winter.

A number of separate Jet streams have been identified.

The most constant are mid latitude and the subtropical Jet streams.

15. What is ITCZ?

Ans. The inter Tropical Convergence Zone is a broad trough of low pressure in equatorial latitudes.

This is where the north east and the southeast trade winds converge.

This convergence zone lies more or less parallel to the equator but moves north or south with the apparent movement of the sun.

16. What is El Nino?

Ans. This is the name given to the periodic development of a warm ocean current along the coast of Peru as a temporary replacement of the cold Peruvian current.

‘El Nino’ is a Spanish word meaning ‘the child’, and refers to the baby Christ, as this current starts flowing during Christmas.

The presence of the El Nino leads to an increase in sea surface temperature and weakening of the trade winds in the region

17. What is Burst of the monsoon?

Ans. The monsoon starts by early June in India.

At the arrival of the monsoon, the normal rainfall becomes heavy rainfall and continues for many days.

This sudden increase in rain fall is termed as the ‘burst’ of the monsoon.

18. Name the four seasons of India.

Ans. The hot weather season. (March to may)

Advancing Monsoon season-Rainy season(June to September)

The Retreating monsoon season (October to November)

The cold weather season (December to February)

19. What are the features of ‘Loo’?

Ans. Loo is the striking feature of hot weather season.

These are strong gusty, hot dry winds blowing during the day over the north and north western India.

These are very hot winds so the direct exposure to these winds is very harmful.

20. Write some features of 'Mango Shower'.

Ans. Towards the close of summer season, pre monsoon showers are common, especially in Kerala and Karnataka.

This spell of rainfall pours down at the end of the summer in hot weather season.

They help in early ripening of mangoes.

These are called as 'mango showers'.

21. Why does Mawsynram gets the heaviest rainfall in the world?

Ans. Mawsynram is located at 25°18' N and 91°35' E in the state of Meghalaya.

It is 16 km west of Chirapunji. It gets the heaviest rainfall in the world.

The warm moist air coming from the Bay of Bengal during the monsoon is forced to rain here due to the Khasi hills.

The Khasi hills forced the rain bearing winds to rainfall here.

22. Explain October heat?

Ans. The months of October and November are dry months.

Sky become clear and due the dryness temperature begins to rise.

The days become very hot in October.

This period of high day-temperature is called the October Heat.

23. Write a short note on areas of very high rainfall of India.

Ans. The areas receiving an annual rainfall of more than 200 cm come under the areas of very heavy rainfall.

The Western Ghats, North-eastern parts of India are the areas getting rainfall more than 200 cm per annum.

Some areas such as Mawsynram and Chirapunji get rainfall more than 1000 cm per annum.

24. Write a short note on areas of high, low and very low rainfall of India?

Ans. The areas of heavy rainfall get 100-200 cm rainfall annually. Eastern slopes of Western Ghats, northern parts of India, Orissa, and Madhya Pradesh etc get 100-200 cm rainfall.

The area of low rainfall gets 60-100 cm rainfall. Maharashtra, western Madhya Pradesh, parts of Gujarat, Andhra Pradesh, Karnataka, eastern Rajasthan etc are the areas getting 50-100 cm rainfall annually.

The areas of very low rainfall getting less than 60 cm rainfall are termed as the very low rainfall areas. Desert areas of Rajasthan and Gujarat, Ladakh region of Jammu and Kashmir and Leeward side of the Western Ghats get less than 60 cm rainfall.

25. Write a short note on windward side.

Ans. The areas or the side of a mountain which gets more rain is called the windward side.

It receives more rain because it is front side of the mountain.

Mumbai is on the windward side. so gets heavy rainfall.

26. Write a short note on leeward side.

Ans. The sloped side of a mountain which is dry and gets less rain is called the leeward side.

It is dryer because when the clouds climb the mountains, they lose most of its water, so this part remains dry.

Pune is on the leeward side, so gets the less rainfall.

27. How Himalayas play a vital role in formulating the climate of India?

Ans. The Himalayas intercept the south west monsoon and cause rainfall in the northern India.

They prevent the cold wind of central Asia from entering into India.

The Himalayas check the monsoon wind and do not allow them to cross otherwise the North India would be a desert.

28. Write three features of Advancing Monsoon.

Ans. Monsoon advances in the month of June and covers the country in about a month.

The low pressure condition intensifies over the northern plains by the beginning of June. It attracts the trade winds of the southern hemisphere.

These south east trade winds originate over the warm subtropical areas of the southern oceans flowing towards south westerly direction, crossing the equator and entering in the Indian peninsula like the south west monsoon.

29. Write three features of Retreating Monsoon.

Ans. The monsoon trough or the low pressure trough becomes weaker over the northern plains with the apparent movement of the sun towards the south during October-November. This is replaced slowly by a high pressure system. The south-west monsoon winds begin withdrawing slowly and steady.

The monsoon withdraws from the northern plains in the beginning of October. The October-November months form a transition period from hot rainy season to dry winter season.

30. Why does Mumbai receive more rainfall in rainy season?

Ans. Mumbai receives more rainfall in rainy season from Arabian Sea branch from June-September.

Mumbai is located on the western coast which comes in the way Arabian Sea branch at its earliest.

It is located on the windward side of the Western Ghats which receives very heavy rainfall, more than 250 cm.

5 marks Questions

1. How far it is correct to say that both the pressure and the wind conditions over India are unique? What information would you use to support your answer?

Ans. Both the pressure and wind conditions over India are unique. The North of Himalayas has high pressure during winter season. Cold dry winds blow towards the low pressure areas over the oceans to the south.

The low pressure area develops over interior Asia as well as over northwestern India in summer season.

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

Air blows from the high-pressure area over the southern Indian Ocean which crosses the equator in the south-easterly direction.

It turns right towards the low pressure areas over the Indian subcontinent. These winds are called the southern monsoon winds. These winds blow over the warm oceans gathering moisture and bring widespread rainfall over the mainland of India

2. What ideas justify that how temperature varies from place to place and season to season in our country?

Ans. The variation of temperature occasionally touches 50°C in some part of Rajasthan Desert.

It reaches around 20°C in Pahalagam in Jammu and Kashmir.

On winter night's temperature at Drass in Jammu and Kashmir may be as low as -45°C.

On the other hand, Trivavathapuram may touch the temperature of 22°C.

The coastal areas experiences less contrasts in temperature conditions. There are many seasonal contrasts existing in the interior of the country.

3. What ideas justify that precipitation varies from place to place and season to season in our country?

Ans. This variation can be observed in its amount and seasonal distribution.

While precipitation is found mostly in the forms of snowfall in the upper parts of Himalayas, it rains over the rest of the country.

The annual precipitation varies from over 400 cm in Meghalaya to less than 10 cm in Ladakh and western Rajasthan.

Our country mostly receives rainfall from June to September. But some parts of our country like Tamil Nadu coast get most of it's during October and November.

The rainfall decreases from east to west in Northern Plains.

4. Which parts of India receive heavy rainfall, moderate rainfall, low rainfall and scanty rainfall?

Ans. Areas of Heavy Rainfall: Assam, the Ganga Delta, the Western Ghats, Western Coastal areas and Mountainous regions of Himachal etc receives high rainfall.

Areas of Moderate Rainfall: Madhya Pradesh, Odisha, Chhotanagpur Plateau, West Bengal, Bihar, Eastern UP, North-eastern Punjab, eastern parts of Tamil Nadu and Eastern slopes of Western Ghats.

Areas of low rainfall: The Deccan Plateau, western UP, South-eastern parts of Punjab, Eastern Rajasthan and some part of Kashmir.

Areas of Scanty Rainfall: Western Rajasthan, Kachchh, South-eastern parts Haryana and north-eastern Kashmir.

5. What are the features of Monsoon?

Ans. The monsoons, unlike the trade winds, are not steady winds but are pulsating in nature.

The duration of the 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 called as the burst of the monsoon.

The monsoon arrives at the southern tip of the India Peninsula generally by the first week of June.

It has two branches- the Arabian Sea branch and the Bay of Bengal branch.

6. How do Jet Streams influence the climate of India?

Ans. The westerly flow dominates the upper air circulation. These Jet Streams are known as Subtropical westerly Jet Streams.

Jet streams are located approximately over 27°-30° North latitude.

These Jet streams blow south of the Himalayas' over India throughout the year except in summer.

The north and Northwest parts of the country experience the western cyclonic disturbances which are brought in by this westerly flow.

In summer the subtropical westerly Jet streams moves north of the Himalayas with the apparent movement of the sun.

The tropical easterly Jet Streams flows over peninsular India, approximately over 14° north during the summer months.

7. What are Western Cyclonic Disturbances?

Ans. The Western Cyclonic Disturbances are weather phenomena of the winter months.

They are brought in by the westerly flow from the Mediterranean region.

They usually influence the weather of the north and north western regions of India.

They bring rainfall in the states of Punjab, Haryana and western Uttar Pradesh.

Tropical cyclones occur during the monsoon as well as in October-November, and are part of the easterly flow.

This rainfall is very beneficial for the Rabi crops.

8. Evaluate spread of monsoon over the Indian sub-continent from Kerala to Jammu and Kashmir.

Ans. The monsoon arrives at the southern tip of the Indian peninsula generally by the first week of June.

Subsequently, it proceeds into two branches, Arabian Sea Branch and the Bay of Bengal branch.

The Arabian Sea branch reaches Mumbai about ten days later on approximately the 10th of June. The Bay of Bengal Branch also arrives in Assam in the first week of June.

By mid June the Arabian Sea branch of the monsoon arrives over Saurashtra, Kutch and

the central part of the country.

The Arabian Sea and the Bay of Bengal branches of the monsoon merge over the north western part of the Ganga plains.

By the first week of July, western Uttar Pradesh, Punjab, Haryana and Eastern Rajasthan experience the monsoon

9. What are the features of cold weather season in India?

Ans. The cold weather season remains from mid November to February in northern India. December and January are known as the coldest months in the northern parts of India. The temperature decreases from south to the North. In the eastern coast, the Average Temperature of Chennai is between 24° -25°C, while in the northern plains it ranges between 10° -15° C.

There is warmth in the day and coldness in the night.

There is snow fall on the higher slopes of the Himalayas and frost is common in the north.

The northeast trade winds flow over the country during this season. They blow from land to sea.

10. What are the features of hot weather season in India?

Ans. There is hot weather season from March to May in India.

The temperature recording taken during March- May at different latitudes clearly shows the influence of the shifting of the heat belt.

The Highest temperature is about 30° C in Gujarat and Madhya Pradesh in April. In May, the temperature commonly reaches at 45° C in the north western parts of the country.

Due to the moderating influence of the oceans, the temperature remains lower in peninsular India.

The Temperature rises and air pressure falls in the northern part of the country during summer month.

At the end of May, an elongated low pressure area develops in the region extending from the Thar Desert in the north-west to Patna and Chota Nagpur plateau in the east and south-east.

‘Loo’ is the most striking feature of the hot weather season