

4. Climate

Q. 1 Write the names of the states / regions in appropriate column :

Bihar, Tocantins, Pernambuco, Alagoas, Eastern Maharashtra, Western part of Rajasthan, Gujarat, Rio Grande Do Norte, Paraiba, Western Ghats, Eastern Himalayas, Western Andhra Pradesh, Roraima, Amazonas, West Bengal, Roraima, Rio Grande do Sul, Santa Catarina, Goa

Ans.

States/Regions	India	Brazil
High rainfall	Western Ghats, Eastern Himalayas, Goa, Eastern Maharashtra	Amazonas, Rio Grande do Sul
Moderate rainfall	West Bengal Western Andhra Pradesh	Santa Catarina, Roraima.
Low rainfall	Bihar, Western part of Rajasthan Gujarat.	Tocantins, Pernambuco Alagoas, Rio Grande Do Norte, Paraiba.

Q. 2 State whether Right or Wrong. Rewrite the wrong sentences :

(a) The fact that Brazil lies on the equator affects its climate in a big way.

Ans. Right.

(b) India and Brazil have the same seasons at the same time.

Ans. Wrong

Correct sentence : India and Brazil do not have the same seasons at the same time.

(c) India faces tropical cyclones frequently.

Ans. Right.

(d) Brazil gets a lot of rainfall because of the southwest monsoon winds.

Ans. Wrong.

Correct sentence : Brazil gets a lot of rainfall because of the southeast and northeast trade winds.

Q 3. Give geographical reasons:

(a) The northeastern part of Brazilian Highlands receives very less rainfall.

Ans. (1) The winds blowing from the Southern Atlantic Ocean in the southeast and the northeast direction are obstructed by the Brazilian Highlands.

(2) These winds move upward along with the slopes of the Brazilian Highlands. At higher altitude, the condensation process takes place and windward side of Brazilian Highlands

receives more rain.

(3) When these winds cross the top of Brazilian Highlands, go to other side of the mountain, these winds are dry. As its effect, the leeward side of the Brazilian Highlands gets less rainfall. Therefore, the northeastern part of Brazilian Highlands receives very less rainfall.

(b) Snowfall doesn't always occur in Brazil.

Ans. (1) Snowfall generally occurs in the temperate and polar zone due to polar winds. It also

occurs in the mountainous and hilly regions of high altitudes.

(2) Brazil is not located in the polar region. Most of its part is located in the tropical zone.

(3) There are no mountainous regions in Brazil.

Therefore, snowfall doesn't always occur in Brazil.

(c) The average annual temperature in India is generally high.

Ans. (1) The Tropic of Cancer passes through the middle of India.

(2) India is included in the tropical region.

(3) In winters, the temperature drop below 0° Celsius in some parts of India. However, during summers, the temperature increases up to 50° Celsius in some parts of India. Thus, the average annual temperature in India is generally high.

(d) Convectional type of rainfall is not prominent in India.

Ans. (1) The convectional rainfall is prevalent in equatorial regions. In the areas near equator, the warm air rises up and expands. This air reaches at a cooler layer and saturates, then condenses mainly in the form of clouds.

(2) In the equatorial regions, the precipitation due to convectional rainfall occurs in the afternoon.

The equator passes from the northern part of Brazil.

Almost every day, the northern part of Brazil receives the rainfall of very short duration but in the form of heavy showers.

(3) The location of India is not near the equator.

Therefore, convectional type of rainfall is not prominent in India.

(e) Tropical cyclones occur rarely in Brazil.

Ans. (1) In the northern coastal region near equator, the differences in the temperatures are negligible.

(2) In this region, the winds move vertically.

(3) The convergence zone of the trade winds is also found to be weak in this region.

Therefore, tropical cyclones occur rarely in Brazil.

(f) There is not much difference in the range of temperature in Manaus.

Ans. (1) The location of Manaus is near equator.

(2) As its effect, Manaus receives perpendicular sunrays almost throughout the year.

(3) The variations between the annual average maximum and minimum temperatures is comparatively less. Therefore, there is not much difference in the range of temperature in Manaus.

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(f) India receives precipitation from the northeast monsoon winds too.

Ans. (1) India receives most of its precipitation from the southwest monsoon winds. These

winds enter the mainland of India from the southern regions and gradually flow towards the northern regions of India.

(2) These winds are obstructed by the Himalayan ranges in the north. As its effect these winds start their return journey and start flowing backward towards the Indian Ocean.

(3) In their return journey, these winds blow from northeast to southwest direction. As its effect, these winds bring retreating monsoon in India.

Thus, India receives precipitation from the northeast monsoon winds too.

4. Answer the following questions:

(a) Describe in brief the changes occurring in the climatic conditions of India while going from south to north.

Ans. The changes occurring in the climatic conditions of India while going from south to north are as follows:

(1) In India, as we go from south to north, the temperatures keep dropping.

(2) For example, in peninsular region located in the southern part of India, the average temperature is found to be ranging between 25°C and 30°C. On the other hand, mountainous regions located in the northern part of India, the average temperature is found to be ranging between 5°C and 10°C.

(3) In India, as we go from south to north, the amount of rainfall also keeps decreasing.

(4) For example, in Chennai (located in the southern part of India), the amount of the maximum average rainfall in the month of November is nearly 410 mm. On the other hand, in Delhi (located in the northern part of India), the amount of the maximum average rainfall in the month of August is nearly 250 mm.

(b) Explain the importance of Himalayas and the Indian Ocean with respect to the climate of India.

Ans. The importance of Himalayas and the Indian Ocean with respect to the climate of India can be explained as follows:

(1) The Indian Ocean and Himalayan ranges play an important role in formation of southeast monsoon winds.

(2) In summers, the temperature in Punjab Plains and the Thar desert is found to be high. As its effect, the areas of low pressure are developed.

(3) On the other hand, the areas of high pressure are found in the Indian Ocean. This leads to formation and flowing of southeast monsoon winds from the Indian Ocean to the mainland of India.

(4) These winds are moisture-laden and so they bring rainfall in India.

(5) Himalayas saves India by obstructing the passage of very cold winds from the north into India in winter.

(6) The southwest monsoon winds flow from the south to the north and reaches towards the Himalayas.

(7) These winds are obstructed by the Himalayas.

Due to obstruction, these winds change their direction and start flowing from the northeast to the Indian Ocean.

(8) The return journey of these winds bring the retreating monsoon in peninsular region of India.

c) Discuss the factors affecting climate of Brazil.

(1) Proximity to the factors affecting to equator, Brazilian Highlands, the Great Escarpment are the main factors affecting climate of Brazil.

(2) Due to proximity to equator, the temperatures in the northern part of Brazil is comparatively higher. On the other hand, the temperatures in the southern part of Brazil is comparatively lower.

(3) The average temperature in the Amazon river basin in the northern part near equator is 25°C to 28°C. The overall climate in this region is found to be hot, humid and unhealthy.

(4) The amount of annual average rainfall in Amazon river valley is nearly 2000 mm. The amount of annual average rainfall is nearly 1000 mm to 1200 in the southeast coastal region.

(5) The temperature is comparatively low in the Brazilian highlands. Brazilian highlands receives moderate amount of rainfall, i.e. nearly 600 mm to 1200 mm.

(6) The Great Escarpment and the Brazilian Highlands obstruct the trade winds blowing from the southeast and the northeast directions. This leads to heavy rainfall in the windward sides of the Great Escarpment, i.e. in the eastern coastal region of Brazil.

(7) The winds blowing beyond the Highlands become dry and therefore it rains less on the leeward side of the Great Escarpment and the Brazilian Highlands.

(8) As its effect, the northeast part of Brazil receives the minimum rainfall. The temperature is also found to be high in this region. This region is a rain shadow region. It is known as 'Drought Quadrilateral'.

(d) Compare the climates of Brazil and India.

Ans. The climates of Brazil and India can be compared with the help of the following points :

(1) Brazil's climate is of tropical type. On the other hand, monsoon type of climate is seen in India.

(2) In Brazil, the temperature is comparatively higher in the northern part and lower in the southern part. On the other hand, In India, the temperature is comparatively lower in the northern part and higher in southern part.

(3) In Brazil, the amount of rainfall is comparatively higher in the northern part and lower in the southern part. On the other hand, In India, the amount of rainfall is comparatively lower in the northern part and comparatively higher in the southern part.

(4) In Brazil, mild and humid climate is found near the coastal regions. On the other hand, in India, hot and humid climate is found near the coastal regions.