4. Climate

Exercise

1. Question

Write the names of the States/Regions inappropriate columns:

Bihar, Tocantins, Pernambuco, Alagoas Eastern Maharastra, Western part of Rajasthan, Gujarat, Rio Grande Do Norte,Paraiba, Western Ghats, Eastern Himalayas, Western Andhra Pradesh, Roroima, Amazon, West Bengal, RioGrande do Sul, Santa Catarina, Goa

States /Regions	India	Brazil
High rainfall		
Moderate rainfall		
Low rainfall		

(Note: Can you think of an easier method of answering this question?)

Answer

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

2. Question

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.

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

(c) India faces tropical cyclones frequently.

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

Answer

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

The temperature in Brazil is generally high due to this and rainforests are also present because of the equatorial line *passing* through it.

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

India lies in the northern hemisphere and Brazil in the southern hemisphere. The seasons in the Northern Hemisphere are the opposite of those in the Southern Hemisphere.

(c) India faces tropical cyclones frequently – **Right**

The eastern coast is more prone to cyclones, and about 80 percent of the total cyclones generated in the Indian Ocean strike the east coast of India. There are two probable reasons for it: The Western Disturbances and the tropical cyclones originating in the Andaman Sea travelling N.W. and reaching the Indian Coromandel Coast.

(d) Brazil gets a lot of rainfall because of the southwest monsoon winds – **Wrong**

Brazil gets rainfall because of the South East trade winds and the North East trade winds.

3 A. Question

Give geographical reasons:

The northeastern part of the Brazilian Highlands receives very less rainfall.

Answer

Parts of the Brazilian highlands extend upto the northern coast and forms an escarpment. The escarpments act as an obstruction to the winds coming from the sea and cause the orographic type of rainfall in the coastal region. Beyond the highlands, the effect of these winds gets reduced. As a result, the rainfall is minimal.

3 B. Question

Give geographical reasons:

Snowfall doesn’t always occur in Brazil.

Answer

Most of the part of Brazil lies in the tropical zone. The equator passes through the northern part of the country, and the temperature is high in this region. The average temperature in the Amazon valley is 25 ° - 28° C. The climate is cooler in the Highlands. Because of the proximity to the sea, the coasts experience mild and humid climate.

3 C. Question

Give geographical reasons:

Convectional type of rainfall is not prominent in India.

Answer

Convectional type of rainfall is the type of rainfall in which the warm air rises up and expands then, reaches a cooler layer and saturates, then condenses mainly in the *form* of cumulus or cumulonimbus clouds. It mostly occurs in the equatorial regions. Rainfall in India is mostly brought by the southwest monsoon winds.

3 D. Question

Give geographical reasons:

Tropical cyclones occur rarely in Brazil.

Answer

Tropical cyclones are localized, very intense low-pressure wind system, forming over tropical cyclones. In the coastal regions near the equator in Brazil, differences in temperatures are negligible. The winds move in the vertical direction in this region. Similarly, the convergence zone of the trade winds is weak here. These are a few conditions which need to be fulfilled for the formation of tropical cyclones, and since they are not fulfilled, tropical cyclones rarely visit the coasts of Brazil.

3 E. Question

Give geographical reasons:

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

Answer

Manaus lies in the northern region of Brazil. The equator passes through this part of the country. Regions near the equator experience a small range of temperatures. The average temperature in the Amazon valley is 25 ° - 28° C. The summer tends to be a little cooler due to the precipitation.

3 F. Question

Give geographical reasons:

India receives precipitation from the North-East Monsoon winds too.

Answer

Very cold winds blowing from the north are obstructed by the Himalayas. Similarly, the South–West Monsoons retreat from the Shiwalik and Himachal ranges of the Himalayas. Because of the obstruction caused by the Eastern and Western Ghats, it rains more in the coastal areas. The rainfall reduces in the leeward side

of the hills. Orographic type of rainfall occurs because of the natural obstruction of the Himalayas. These winds return from the Himalayan ranges, and their retreating journey starts. While blowing from the north-east towards the Indian Ocean, these winds bring rainfall again to some parts of the Peninsula. This is the Retreating Monsoon season in India.

4 A. Question

Answer the following questions:

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

Answer

Very cold winds blowing from the north are obstructed by the Himalayas. Similarly, the South–West Monsoons retreat from the Shiwalik and Himachal ranges of the Himalayas. Because of high temperatures in summers, low-pressure areas develop in Punjab plains and the Thar desert of Rajasthan. This attracts winds coming from the high-pressure region in the Indian Ocean which starts blowing towards the mainland of India. These moisture-laden winds bring rainfall. Because of the obstruction caused by the Eastern and Western Ghats, it rains more in the coastal areas. The rainfall reduces in the leeward side of the hills. These winds blow parallel to the Aravalis. As a result, rainfall is low in parts of Gujarat and Rajasthan. Later, these winds move towards the Himalayas. Their moisture- -carrying capacity increases. Orographic type of rainfall occurs because of the natural obstruction of the Himalayas. These winds return from the Himalayan ranges, and their retreating journey starts. While blowing from the north-east towards the Indian Ocean, these winds bring rainfall again to some parts of the Peninsula. This is the Retreating Monsoon season in India. In general, the climate of India is hot throughout the year.

4 B. Question

Answer the following questions:

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

Answer

Very cold winds blowing from the north are obstructed by the Himalayas. Similarly, the South–West Monsoons retreat from the Shiwalik and Himachal ranges of the Himalayas. Because of high temperatures in summers, low-pressure areas develop in Punjab plains and the Thar desert of Rajasthan. This attracts winds coming from the high-pressure region in the Indian Ocean which starts blowing towards the mainland of India. These moisture-laden winds bring rainfall. Because of the obstruction caused by the Eastern and Western Ghats, it rains more in the coastal areas. The rainfall reduces in the leeward side of the hills. These winds blow parallel to the Aravalis. As a result, rainfall is low in parts of Gujarat and Rajasthan. Later, these winds move towards the Himalayas. Their moisture- -carrying capacity increases. Orographic type of rainfall occurs because of the natural obstruction of the Himalayas. These winds return from the Himalayan ranges, and their retreating journey starts. While blowing from the north-east towards the Indian Ocean, these winds bring rainfall again to some parts of the Peninsula. This is the Retreating Monsoon season in India. In general, the climate of India is hot throughout the year.

4 C. Question

Answer the following questions:

Discuss the factors affecting the climate of Brazil.

Answer

Considering the temperatures in Brazil, the northern part of Brazil is hot while the temperatures in the southern part are comparatively lower. Seasonal variations are found in this pattern. The factors affecting Brazil are temperature, rainfall, winds, atmospheric pressure, etc. Altitude, latitude, relief characteristics, vegetation, and continentality also affect the climate of Brazil. Near the equator on the Brazilian coast, temperature does not vary much. The average temperature in the Amazon valley is 25 ° - 28° C. The climate is cooler in the Highlands. Because of the proximity to the sea, the coasts experience mild and humid climate.

4 D. Question

Answer the following questions:

Compare the climates of Brazil and India.

Answer

Because of the vast latitudinal extent of Brazil, it experiences a wide range of climatic variations in climate.

For example, near the equator, it is hot while the temperate type of climate is found near Tropic of Capricorn. The average temperature in the Amazon valley is 25 ° - 28° C. The climate is cooler in the Highlands. Because of the proximity to the sea, the coasts experience mild and humid climate.

India's climate is 'monsoon' type. The sunrays are perpendicular upto the Tropic of Cancer, which passes through the middle of the country. As a result, average temperatures are higher throughout the year. Also, temperatures increase towards the south. In winters, the temperatures drop to - 40° Celsius in Jammu and Kashmir and parts of mountainous regions of Himalayas. The diversity in climatic conditions of India is due to the latitudinal location and altitude of the place. The Indian Ocean and the Himalayan ranges exert a great influence on the climate of India and the origin of Monsoons.

5. Question

With the help of the internet, obtain information regarding the annual average temperatures of the continental location of Brasilia and Bhopal and explain it with the help of a graph.

Answer

Following is the average monthly temperature for Brasilia -

January28° / 18°14

February28° / 18°

March28° / 18°

April28° / 17°

May27° / 15°

June26° / 12°

July26° / 12°

August28° / 13°

September30° / 16°

October29° / 18°

November28° / 18°

December28° / 18°

Following is the average monthly temperature for Bhopal –

January25° / 11°

February28° / 13°

March34° / 18°

April38° / 22°

May41° / 26°

June37° / 26°

July30° / 24°

August29° / 23°

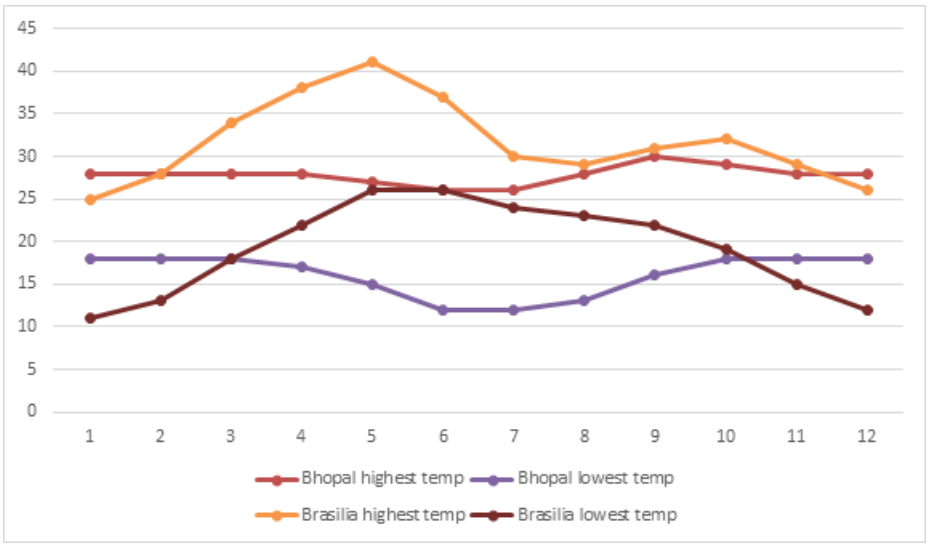
September31° / 22°

October32° / 19°

November29° / 15°

December26° / 12°

The above-mentioned data mentions high/low temperatures for both the places.



Bhopal:

* Tropical climate

* Driest month – April

* Most precipitation – August

* Warmest month – May

* Average temperature – around 25 degree Celsius

Brasilia:

* Tropical climate

* Driest month – June

* Most precipitation – January

* Warmest month – September

* Average temperature – around 25 degree Celsius

Intext Questions

1. Question

Study the graphs given in fig 4.4 and answer the following questions.

(i) In which month is the highest temperature found in all the four cities?

(ii) In which month does it rain the most in the given cities?

(iii) When does Brazil have its rainy season?

(iv) Which city has the maximum range of temperature? How much is it?

(v) What type of climate will be found in Rio De Janeiro?

Answer

(i) The highest temperature in:

a. Manaus: August-October

b. Belem: June- December

c. Porto Alegre: January- February

d. Rio de Janeiro: February

(ii) The highest rainfall in:

a. Manaus: March

b. Belem: March

c. Porto Alegre: August- September

d. Rio de Janeiro: January, February, December

(iii) Brazil has its rainy season during the months of December to April.

(iv) Porto Alegre has the highest range of temperature, ranging from 30 to 140 degrees Fahrenheit.

(v) Rio de Janeiro has a tropical savannah climate.

2. Question

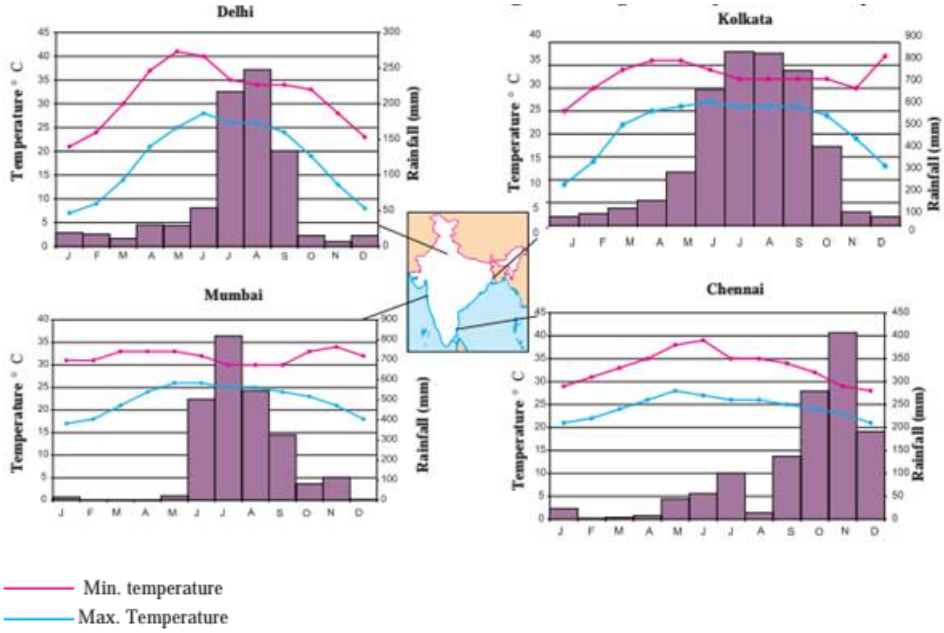
Considering the various factors affecting Brazil's climate, complete the adjoining table.

Answer

Regions	Climatic characteristics
Amazon Valley	Equatorial, hot and humid
Highlands	Subtropical
Pantanal	Tropical – Summers are hot and rainy, winters are dry and sunny, days are warm and nights are cool.
Northern Coastal Region	Tropical – Humid and dry
Southern Coastal region	Humid subtropical
The southernmost region of Brazil	Subtropical or temperate

3. Question

Study the graphs given in figure 4.5 and answer the following questions:



1. What difference do you find in the rainy seasons of Chennai and other cities of India? Why?

2. What similarity do you see in the temperature curves of Delhi and Kolkata?

3. Calculate the average range of minimum and maximum temperatures of all the four cities.

4. In which city is the range minimum? What can you infer from this?

5. In which city is the range maximum? What can you infer from this about its climate?

6. Based on the temperature and rainfall of Mumbai, comment upon its climate.

7. In which month does India experience the highest rainfall?

8. Classify the cities as cities with equable and extreme climates.

Answer

(i) Chennai ranks second in terms of the amount of rainfall. It receives winter rainfall which is not seen in other cities.

(ii) From the temperature curves, Delhi and Kolkata seem to have extreme temperatures.

(iii) Delhi min: 31.3 Max: 16.08

Kolkata min: 32.1 Max: 21.08

Mumbai min: 31.83 Max: 22.16

Chennai min: 33.1 Max: 24.41

(iv) The range is minimum in Delhi. The climate of Delhi is an overlap between monsoon-influenced humid subtropical and semi-arid with high variation between summer and winter temperatures and precipitation.

(v) The range is maximum in Chennai. Chennai has a tropical wet and dry climate. The city lies on the thermal equator and is also on the coast, which prevents extreme variation in seasonal temperature.

(vi) The Climate of Mumbai is a tropical, wet and dry climate. Mumbai's climate can be best described as moderately hot with high level of humidity.

(vii) India experiences the highest rainfall in the month of July.

(viii) Extreme: Delhi, Kolkata

Equable: Mumbai, Chennai

4. Question

Considering the location, the extent of Brazil and India, look for the differences in the elements of climate like temperature and rainfall as per direction. Write a short note on it.

Answer

The climatic conditions of India and Brazil are greatly influenced by their coastline.

1. India receives its rainfall from Southwest monsoon winds whereas Brazil gets its rainfall from Southeast and Northeast trade winds.

2. India experiences tropical and subtropical climate. This is because the Tropic of Cancer passes through the centre of India.

3. Northern Brazil has hot and humid climate while the Southern Brazil experiences temperate climate. Equator passes through the north of Brazil and the Tropic of Capricon passes through the southern Brazil.

5. Question

In which part of India are three crops grown in a year? How is this related to the rainfall over there?

Answer

Three types of crops such as Kharif, Rabi and Zaid are grown in a year in the northern and interior parts of India.