NCERT Solutions for Class 9 Geography Chapter 4 Climate

NCERT TEXTBOOK QUESTIONS WITH ANSWERS

Q. 1. Choose the correct answer from the four alternatives given below: plains in summers is known as:

(i) Which one of the following places receives the highest rainfall in the world?

(a) Silchar (b) Mawsynram
(c) Cherrapunji (d) Guwahati

Ans. (b) Mawsynram.

(ii) The wind blowing in the northern plains in summers is known as:

(a) Kal Baisakhi
(b) Loo
(c) Trade Winds
(d) None of the above

Ans. (b) Loo.

(iii) Which one of the following causes rainfall during winters in northwestern part of India ?

(a) Cyclonic depression
(b) Retreating monsoon
(c) Western disturbances
(d) South-west monsoon

Ans.(c) Western disturbances.

(iv) Monsoon arrives in India approximately in:

(a) Early May (b) Early June
(c) Early June (d) Early August

Ans. (c) Early June.

(v) Which one of the following characterizes 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

Ans. (c) Cool days and cold nights.

Q. 2. (i) What are the controls affecting the climate of India?

Ans. The climate of India is affected by the following geographical factors:

(i) Monsoon winds: India's climate is controlled by monsoon winds. In summer, monsoons are on shore winds. These winds

give most of rainfall to the country. In winter the monsoon winds blow from land to sea as N.E. Monsoons. These are dry winds.

(ii) Extent of the country: India is a vast country. The northern part lies in the temperate region and experiences hot summers and cool winters. The southern part lies nearer the equator and has hot season throughout the year.

(iii) Location of the Himalayas: The Himalayas act as a climatic barrier. This mountain wall protects India from the cold winds of Central Asia in winter. The Himalayas check the on-shore. S.W. Monsoons and force these to give rainfall.

(iv) The Indian Ocean: India lies at the head of the Indian Ocean. S.W. Monsoons originate from this ocean in summer and give rainfall over most of the country. Cyclones also originate over this ocean.

(v) The western disturbances: The western disturbances (cyclones) originate from the Mediterranean Sea and enter India in winter These provide rainfall in north-west parts of India in winter.

(vi) Distance from the sea: The coastal areas experience maritime climate. These areas have equable climate. But the areas in the interior experience extreme or continental type of climate such as north-west India.

(vii) Relief of the land: Relief influences the distribution of temperature and rainfall in India. Mountainous areas have low temperatures. The windward slopes such as Western Ghats receive heavy rainfall while the leeward slopes (Deccan Plateau) lie in the rain-shadow and are dry.

(ii) Why does India have a monsoon type of climate?

Ans. India has a monsoon type of climate because:

(i) It is strongly governed by the monsoon winds.

(ii) Pre-monsoon, monsoon and post-monsoon duration is called here seasons.

(iii) India exists in the tropical area (viz. half of it is lying at south to the Tropic of Cancer between 20°N and 20°S).

(iv) Here are atmospheric conditions of pressure and surface winds, upper air circulation and western disturbances and tropical cyclones.

(v) Here is an active carioles force that deflects winds towards the right in the Northern Hemisphere and left in the Southern Hemisphere.

(vi) Here acts the ENSO (El Nino Southern Oscillations).

(iii) Which part of India does experience the highest diurnal range of temperature and why?

Ans. These are the north-western parts (Haryana, Punjab, UP., Delhi etc.) of India. Here temperature rises up to 48 Celsius. This is because:

(i) Low pressure condition intensifies in north-western parts of India during May-June.

(ii) The south-west monsoon enters in peninsular India and it increases humidity in its north-western parts.

(iii) Hot, dry winds namely Loo, starts blowing and dust storms spurt as south-westerly winds blow violently to compensate the low pressure condition formed in north-western parts of the country.

(iv) Which winds account for rainfall along the Malabar coast?

Ans. Malabar coast falls in the Arabian Sea branch of monsoon or western trade winds that do heavy rainfall in Malabar. Collision of rain bearing clouds against elevated landforms of Western Ghats causes rain there (Malabar) during July month every year.

(v) What are Jet streams and how do they affect the climate of India?

Ans. These are winds that blow above 12,000 meters over the troposphere. These are actually, westerly winds blowing at higher altitude. Their velocity (speed) recorded in summer is about 110 km/h and about 184 km/h. in winter. These blow at the mid-latitude and over sub-tropical regions (north half of India).

These streams are located over 27-30° north latitude. These create westerly disturbances These disturbances are formed in the north and north-western parts (i.e., Punjab, Haryana, U.P., Delhi, Gujarat and Mumbai) of India. These are called the sub-tropical westerly jet streams. In summer, these move towards extreme north and therefore, replaced by an easterly jet stream called the tropical easterly jet. These do heavy rain over peninsular India consisting of coastal plains, Western and Eastern Ghats, Central Highland and Deccan plateau bloc.

(vi) Define monsoons. What do you understand by "break" in monsoon?

Ans. Monsoons are generally rain bearing and directing winds. This term has been derived from the Arabic word "mausim" first

used by the Arab traders who used to come India for trading through sea routes. It means season. We therefore, can state them seasonal reversal of the wind system in monsoon.

"Monsoon Break refers to the happening of wet and dry spells during the rainy season. Monsoon rains take place only for a few days at a time. They are interspersed with rainless intervals.

(vii) Why is the monsoon considered a unifying bond?

Ans. The term "unifying bond" implies an attachment or affection of something with

another. Such conditions are formed when we talk of monsoon's attachment with India. The cold winds from north side do not strike India as there exists a natural barrier of the Himalayas. In other places except India, are covered with the extreme cold wind in the same latitude. Similarly, the peninsular India is covered by the seas from three sides. This arrangement also ensures a moderate temperature in India. Again the seasonal reversal of the wind system provides a rhythmic cycle of seasons. India's folk songs, lores, stories, manner of dress and diet etc., are added to the monsoon. Hence, we can state that monsoon in India acts as an unifying bond.

Q. 3. Why does the rainfall decrease from east to the west in Northern India?

Ans. This is because:

(i) The Bay of Bengal branch of monsoon is deflected after its reach at Assam and it therefore, do rain over the Ganga plains**.**

(ii) The Arabian sea branch and the Bay of Bengal branch both do rain simultaneously in the western part of Northern India and not north India.

(iii) Thus both the branches of monsoon are depleted water and the rain gradually decreases towards north side. For example, Rajasthan and parts of Gujarat receive scanty rainfall.

Q. 4. Give reasons as to why:

(i) Seasonal reversal of wind direction takes place over the Indian sub-continent.

Ans. The causes of wind reversal in Indian sub-continent are:

(a) Intensive heating during summer over northern plains causes the heat low around the Arabian sea.

(b) Monsoon trough is found at I.T.C.Z. normally positioned about 5°N of the equator.

(c) Formation of high pressure area at 20°S over the Indian Ocean.

(d) Strong vertical air currents and high pressure formed due to immence heat over the Tibetan plateau.
(e) Movement of the westerly jet to the north of the Himalayas and the tropical easterly jet over the Indian peninsula.

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

Ans. The bulk of rainfall in India is received during the four months of the rainy season i.e. June, July, August and September. This is the period of South-West Monsoons blowing from sea to land. These sea to land Winds are the rain giver, as these moisture-laden winds are on-shore winds. The tropical cyclones add to the amount of rainfall. Easterly tropical jet stream, too, helps in the monsoonal rain during this period.

(iii) The Tamilnadu coast receives winter rainfall.

Ans. Konkan Coast faces On-Shore S.W. Monsoons during summer. These moist laden winds give heavy rainfall (more than 300 cms). But these winds do not give much rainfall on the Coromandel Catastasis lies in the rain shadow of Western Ghats. Coromandel Coast also receives winter rainfall from N.E. Monsoons, but on Konkan Coast these winds are off-shore and do not give any rainfall. Thus Coromandel Coast gets rainfall in both the seasons, but the total amount is less than that of Konkan Coast. Total rainfall at Chennai is 128 cms, but it is 180 cms at Mumbai.

Tamilnadu gets most of rain from North-East Monsoons in October and November. These Winds after picking up moisture from Bay of Bengal give more rain on the east coast. Thus Tamilnadu gets most of rain in winter when the fury of monsoons is over in most parts of the country.

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

Ans. Tropical cyclones are depressions originating over Bay of Bengal. These tropical cyclones are often very destructive. They cause heavy rains. These cyclones strike West Bengal and Bangladesh (Ganga Delta). These cross the
Eastern coast and affect the states of Orissa, Andhra Pradesh, Tamilnadu and Kerala. The thickly populated deltas of Mahanadi, Godavari, Krishna and Kaveri are their targets.

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

Ans. The western part of Rajasthan is desert. It gets an annual rainfall less than 20 cms. This is due to the following reasons:
(i) Rajasthan is under the influence of S.W. Summer monsoons. The Aravallis system lies parallel to the direction of S.W. monsoons coming from Arabian Sea. So these low mountain system is unable to check these winds. So western Rajasthan is practically dry. The southern parts get some rainfall.
(ii) This area lies at a great distance from the Bay of Bengal. The Bay of Bengal monsoons become dry and lose their moisture when they reach Rajasthan.
(iii) This area is away from the Himalayan region. So it does not come under the influence of monsoons giving rain in the sub-Himalayan region.
(iv) Gujarat has high variability of rainfall. So it is a drought prone area.
(v) The leeward slopes of Western Ghats remain in rain-shadow.

Q. 5. Describe the regional variations in the climatic conditions of India with the help of suitable examples.

Ans. In India, there are perceptible regional variations in climatic conditions within the country.
(a) In summer, the temperature may be 50°C or more in some parts of Rajasthan desert, whereas it may be around 20°C in Pahalgam in Jammu and Kashmir. On a winter night, the temperature at Dassin Jammu and Kashmir may be as low as -45°C, while Thiruvananthapuram may have a temperature of +20°C.
(b) In certain places there is a wide difference between day and night temperatures. In the Thar desert, the day temperature may be 50°C and drops down to near freezing point the same night. On the other hand, there is hardly any difference between day and night temperatures in the Andaman and Nicobar Islands or in Kerala.
(c) While precipitation is mostly in the form of snowfall in the upper parts of Himalayas, it only rains over the rest of the country.
(d) The annual precipitation varies from 400 cm in Meghalaya to less than 10 cm in Ladakh and Western Rajasthan.
(e) Most parts of the country receive rainfall from June to September, but Tamilnadu coast receives rainfall during autumn and early winter.

Q. 6. Discuss the mechanism of mansoons.

Ans. To understand the mechanism of monsoons the following facts are important

(a) The difference in the rate of heating and cooling of land and sea on a large scale. During summers a low pressure area develops on the Indian landmass while the seas around experience comparatively high pressure.

(b) The shift of the position of the Inter-Tropical Convergence Zone. This is the equatorial trough normally positioned about 5°N of the equator, also known as the monsoon trough during the monsoon season.

(c) The presence of 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 monsoons.

(d) The Tibetan high level plateau gets intensely heated during summers which results in strong vertical currents and formation of high pressure over the plateau at about 9 kilometers above sea level.

(e) The movement of the westerly jet to the north of the Himalayas and the presence of the tropical easterly jet over the Indian peninsula during summers.

Apart from this, it has also been noticed that changes in the pressure conditions over the southern Oceans also affect the monsoons.

Q. 7. Give an account of weather conditions and characteristics of the cold Season.

Ans. I. Weather Conditions: The temperature, atmospheric pressure, wind,

Humidity and precipitation usually determine the weather conditions at any point of time (a day or a week) and the space. Weather is generally expressed as cool, hot, windy, calm, cloudy, bright, wet or dry. Actually, atmospheric conditions are called the weather. We experience hot weather in summers, cold weather in winters, wet weather in rainy season and cool and dry during October-November and the March and April respectively.

Weather phenomenon changes even in a day. We just feel suffocation due to humidity and scorching heat of July month. Suddenly clear sky is covered with clouds and it starts raining with lightning and strong wind. Something of such strange happens when cyclonic depression cause damages in deltas of the Mahanadi, Kaveri, Godavari and Krishna rivers.

II. Characteristics of the Cold Season: (i) It begins from mid-November in Northern India and pervades here till February. The mid-months, i.e., December and January are the coldest months.
(ii) The temperature gradually decreases during this period from south to the north. For example, in Chennai 20°-25°C while it is 10°15°C in northern plains.
(iii) Days are experienced warm while the nights are cold. Days are cut short while nights are longer.
(iv) Most part of the country remains dry (i.e., without winter rain) during this period and only Tamil Nadu coast including Coromandel coast receive heavy winter rains.
(v) Coastal areas enjoy moderate temperature throughout the year while the rest of the country experiences cold, heat, humid and moderate according to the cycle of the seasonal change. It means, reversal of winds or monsoon type climate has more seasonal variations to experience.

Q. 8. Give the characteristics and effects of the monsoon rainfall in India.

Ans. I. Characteristics of the Monsoon Rainfall:
(i) It gives water in glut to the entire territories of India except some leeward sides' rain shadow regions and Thar etc., deserts.
(ii) 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 also receive scanty rains.
(iv) The maximum rainfall is recorded in the north-eastern part of the country. For example, the heaviest rainfall in Mawsynram.
(v) Indian monsoon takes "breaks" viz. interspersed with rainless intervals. This happens because of the monsoon trough, i.e., determiner of the spatial distribution of rainfall.
(vi) The frequency and intensity of tropical depressions also determine the amount and duration of monsoon rains.
(vii) The monsoon trough over the northern plains, becomes weaker causing the months of October-November, a period of transition from hot rainy season to dry winter conditions.

II. Effects of the Monsoon Rainfall:
(i) When the rains are heavy, the rivers get flooded causing heavy damage in the plains year after year.
(ii) A dry spell would cause as much misery as the river floods.

(iii) The characteristics of monsoon has a very destabilizing effect on Indian economy that continues to be predominantly agricultural and severely dependent on rained irrigation.

MAP SKILLS

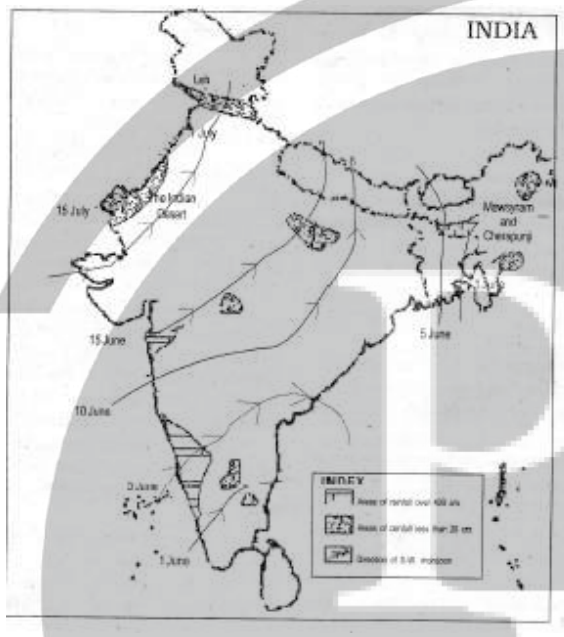
On an outline map of India, show the following:

(i) Areas receiving rainfall over 400 cm.

(ii) Areas receiving less than 20 cm of rainfall.

(iii) The direction of the south-west monsoon over India.

Ans.



PROJECT ACTIVITY

(i) Find out which songs, dances, festivals and special food preparations are associated with certain seasons in your region. Do they have some commonality with other regions of India?

HINTS : A. Dances :

(i) Bharatnatyam : This dance has been able to retain the principles enunciated in Bharata's Natya Bhasha. It has survived in the precincts of South Indian temples. It is a solo dance by women. It begins will Alarlppels (a prelude) followed by series of dance moods, rendered in varying style and tempo. Kerala, Tamil Nadu states are the regions where this dance is performed.

(ii) Manipuri: As the name itself implies, this dance is originated from Manipur state of India. Only movement of body and not codified gestures and expressions are incorporated with this dance. The dancer puts on a gorgeous dress covering her face with a neil and a skirt embedded With mirrors.

(iii) Kathkalli: This dance is performed in Kerala state. A story is expressed through the gestures and expressions with this dance. It embodies in a high degree the principles laid down in the ancient Hindu scriptures of dance and drama.

(iv) Kathak: It is performed in north India (Delhi, Haryana, U.P., Rajasthan etc.). It was patronized by the rulers of the north Indian princely states during the British regime.

We can sum-up these dances in context to the states they performed as under:

Dance	State
(i) Bihu	Assam
(ii) Kathkali	Gujarat
(iii) Garba	Punjab
(iv) Bhangra	Sikkim
(v) Ghamha	Himachal
(vi) Himachali Dance	Pradesh
(vii) Mainpuri	Mainpuri
(viii) Odissi	Orissa
(ix) Bharatnatyam	Tamil
(x) Kathak	Nadu
(xi) Tribal	U.P.
(xii) Jighia	Orissa Bihar



B. Languages:

(i) Hindi: Throughout India barring some southern states.

(ii) Urdu: It is spoken in Muslim majority states.

(iii) Bengali: It is spoken mostly in West Bengal and some parts of Orissa and Bihar. (iv) Gujarati: In Gujarat state,

(v) Marathi: In Maharashtra state.
(vi) Dravidian Languages: It is a group of Tamil, Telugu, Kannada and Malayalam spoken in
the states of Tamil Nadu, Andhra Pradesh, Karnataka and Kerala.

C. Festivals:

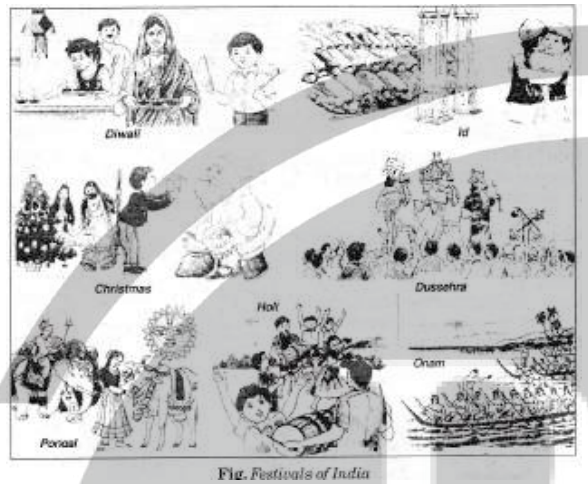


Fig. *Festivals of India*

Note: Students are advised to ask their parents, teachers or read concerned literature on Indian folk lore and seasonal cuisines. Generally, every child knows what types of diets/foods are prepared by his mother commiserating with the changing seasons. Similarly, there are songs like Chaiti, Malhar, Sravani, Barakha-Geet and Viraha etc. Thus, they may enhance their knowledge about the songs, cuisines, festivals and seasonal arts associated with the changing seasons particularly in their respective villages, districts and states.

(ii) Collect photographs of typical rural houses, and clothing of people from different regions of India. Examine whether they reflect any relationship with the climatic condition and relief of the area.

Hint: This question directly relates to the students' self-doing for the sake of self-experience to be gained. Student's should keep a diary for every session, i.e., year and enter in the same, the places they visit in company of parents and teachers. They should snap photos of people, landscapes, discuss on these topics with Sabhapati/Sarpanch of village and thus, obtain important information. At the end of session, they should write an article or mussing on the hill area, basins, plains etc. and make it interesting with proper illustrations of dress, including

climate and its impact on the living conditions of the people so met during excursion, picnic, pilgrimage, tour etc. throughout the year.

FOR DOING IT yourself

1. In Table-I (given on next page) the average mean monthly temperatures and amounts of rainfall of ten representative stations have been given. It is for you to study on your own and convert them into

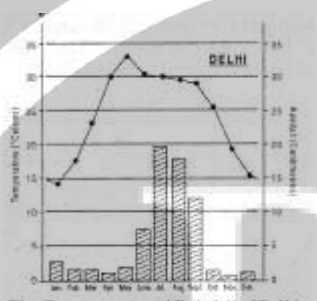
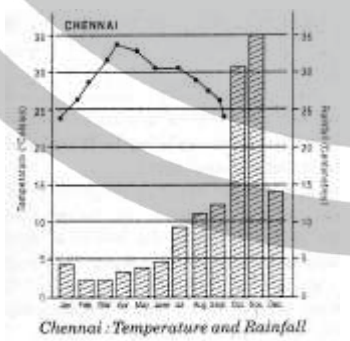


Fig. Temperature and Rainfall of Delhi

"temperature and rainfall' graphs. A glance at these visual representations will help you to grasp instantly the similarities and differences between them. One such graph (Figure attached) is already prepared for you. See if you can arrive at some broad generalizations' about our diverse climatic conditions. We hope you are in for a great joy of learning. Do the following activities.

Ans. It is absolutely for students to exercise yet we can give here only a hint by drawing graph of the average mean monthly temperature and amount of rainfall in Chennai with the help of the chart given at Page 41 of the N.C.E.R.T. Textbook.



Chennai : Temperature and Rainfall

2. Re-arrange the ten stations in two different sequences:

(i) According to their distance from the equator.
Ans.

Stations	**Distance from the equator**
1. Thiruvanantapuram	8°29′ N
2. Bengaluru	12°58′ N
3. Chennai	13°4 N
4. Mumbai	19° N
5. Nagpur	21°9 N
6. Kolkata	22°34'N
7. Shillong	24°34'N
8. Jodhpur	26°18' N
9. Delhi	29° N
10. Leh	34° N

(ii) According to their altitude above mean sea-level.
Ans.

Stations	**Altitude about mean sea-level**
1. Kolkata	**6 metre**
2. Bengaluru	**7metre**
3. chennai	**11 metre**
4. Mumbai	**61 metre**
5. Nagpur	**219 metre**
6. Kolkata	**224 metre**
7. Shillong	**312 metre**
8. Jodhpur	**909 metre**
9. Dlhi	**1461 metre**
10. Leh	**3506 metre**

3. (i) Name two rainiest stations.
Ans. Shillong and Mumbai,
(ii) Name two driest stations.
Ans. Leh and Jodhpur.
(iii) Two stations with most equable climate.
Ans. Thiruvanantapuram and Chennai.
(iv) Two stations with most extreme climate.

Ans. Jodhpur and Delhi.

(v) Two stations most influenced by the Arabian branch of southwest monsoons.

Ans. Mumbai and Thiruvanthapuram.

(vi) Two stations most influenced by the Bay of Bengal branch of south-west monsoons.

Ans. Kolkata and Shillong.

(vii) Two stations influenced by both branches of the south-west monsoons.

Ans. Chennai and Nagpur.

(viii) Two stations influenced by retreating and north-east monsoons.

Ans. Chennai and Bengaluru.

(ix) Two stations receiving winter showers from the western disturbances.

Ans. Delhi and Leh**.**

(x) The two hottest stations in the month of (a) February, (b) April, (c) May, (d) June.

Ans. (a) February: Thiruvanantapuram and Mumbai.

(b) April: Nagpur and Chennai.

(c) May: Nagpur and Jodhpur.

(d) June: Nagpur and Delhi.

TABLE-I

TABLE-I

Stations	Latitude	Altitude (Metres)	Jan	Feb	Mar.	Apr.	May	Jun.	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annu Rainfi
Temperature (°C) Bangalore	12°58'N	909	20.5	22.7	25.2	27.1	26.7	24.2	23.0	23.0	23.1	22.9	18.9	20.2	
Rainfall (cm)			0.7	0.9	1.1	4.5	10.7	7.1	11.1	13.7	16.4	15.3	6.1	1.3	88.9
Temperature (°C) Mumbai	19°N	11	24.4	24.4	26.7	28.3	30.0	28.9	27.2	27.2	27.2	27.8	27.2	25.0	
Rainfall (cm)			0.2	0.2	–	–	1.8	50.6	61.0	36.9	26.9	4.8	1.0	–	183.4
Temperature (°C) Kolkata	22°34'N	6	19.6	22.0	27.1	30.1	30.4	29.9	28.9	28.7	28.9	27.6	23.4	19.7	
Rainfall (cm)			1.2	2.8	3.4	5.1	13.4	29.0	33.1	33.4	25.3	12.7	2.7	0.4	162.9
Temperature (°C) Delhi	29°N	219	14.4	16.7	23.3	30.0	33.3	33.3	30.0	29.4	28.9	25.6	19.4	15.6	
Rainfall (cm)			2.5	1.5	1.3	1.0	1.8	7.4	19.3	17.8	11.9	1.3	0.2	1.0	67.0
Temperature (°C) Jodhpur	26°18'N	224	16.8	19.2	26.6	29.8	33.3	33.9	31.3	29.0	20.1	27.0	20.1		
Rainfall (cm)			0.5	0.6	0.3	0.3	1.0	3.1	10.8	13.1	5.7	0.8	0.2	0.2	36.6
Temperature (°C) Chennai	13°4'N	7	24.5	25.7	27.7	30.4	33.0	32.5	31.0	30.2	29.8	28.0	25.9	24.7	
Rainfall (cm)			4.6	1.3	1.3	1.8	3.8	4.5	8.7	11.3	11.9	30.6	35.0	13.9	128.8
Temperature (°C) Nagpur	21°9'N	312	21.5	23.9	28.3	32.7	35.5	32.0	27.7	27.3	27.9	26.7	23.1	20.7	
Rainfall (cm)			1.1	2.3	1.7	1.6	2.1	22.2	37.6	28.6	18.5	5.5	2.0	1.0	124.1
Temperature (°C) Shillong	24°34'N	1461	9.8	11.3	15.9	18.5	19.2	20.5	21.1	20.9	20.0	17.2	13.3	10.4	
Rainfall (cm)			1.4	2.9	5.6	14.6	29.5	47.6	35.9	34.3	30.2	18.8	3.8	0.6	225.3
Temperature (°C) Tiruvanatapuram	8°29'N	61	26.7	27.3	28.3	28.7	28.6	26.6	26.2	26.2	26.5	26.7	26.6	26.5	
Rainfall (cm)			2.3	2.1	3.7	10.6	20.8	35.8	22.3	14.6	13.6	27.3	20.6	7.5	181.2
Temperature (°C) Leh	34°N	3505	–8.5	–7.2	–0.6	6.1	10.0	14.4	17.2	16.1	12.2	6.1	0.0	–5.6	
Rainfall (cm)			1.0	0.8	0.8	0.5	0.5	0.5	1.3	1.3	0.8	0.5	–	0.5	8.5

Stations Latitude Altitude Jan Feb Mar. Apr. May Jun. July Aug. Sep. Oct. Nov. Dec. Annual

(Metres) Rainfall Temperature (C) |205 22.7 25.2 27.1 26.7 242 23.0 23.0 , 23.1 22.9 18.9 202 Bangalore 12°58'N 909

4. Now find out:

(i) Why are Thiruvanantapuram and Shillong rainier in June than in July?

Ans. Thiruvanantapuram receives the rainfall caused by S.W. monsoon winds instantly as it is located on proximity to Indian Ocean. Monsoon winds enter here on Ist June every year and it receives heavy rain. Shillong receives rainfall by virtue of the Bay of Bengal branch of the S.W. monsoon. As monsoon winds change their course in July, it receives less rain in that month.

(ii) Why is July rainier in Mumbai than in Thiruvanantapuram?

Ans. Mumbai falls in proximity to the Arabian Sea and monsoon winds starts blowing here in second week of the month of June. It receives rain subsequent to the nearby regions. The monsoon till then passes from Thiruvanantapuram to Andhra Pradesh and the regions onwards**.**

(iii) Why are southwest monsoons less rainy in Chennai ?

Ans. Chennai falls in the rain shadow area of Eastern Ghats (i.e., at Coromandal Coast). Owing to this, this station receives scanty rain from the S.W. monsoon winds.

(iv) Why is Shillong rainier than Kolkata?

Ans. Shillong receives rain from both branches of S.W. monsoon viz. Bay of Bengal and that of Arabian Sea branch. The Bay of Bengal branch collides against the high peaks of mountains here and do heavy rain. Kolkata, on the other hand, is deprived of rain by the Bay of Bengal branch of south-west monsoon hence, this station receives rain only from the Arabian Sea branch of S.W. monsoon.

(v) Why is Kolkata rainier in July than in June unlike Shillong which is rainier in June than in July 2

Ans. It is because Bay of Bengal branch of south-west monsoon. Simultaneously rain in Kolkata in July with the Arabian branch of southwest monsoon while the Shillong get rain by the Bay of Bengal in July month that is one month earlier than Kolkata.

(vi) Why does Delhi receive more rain than Jodhpur?

Ans. Both branches of S.W. monsoon (viz. Bay of Bengal branch and Arabian Sea branch) collide against the high mountain peaks in

Assam, Meghalaya and Tripura and pour there

heavily. Their route is than diverted to the west and these pour water in the northern plains. Delhi also falls adjacent to northern

plains. The Arabian Sea branch of monsoon also enters here. It comes with motion parallel to Aravallis, pours its water on Delhi and then moves towards Jammu and Kashmir through Chandigarh on its way. Jodhpur falls in Rajasthan where Aravalli give easy way to forward this branch of monsoon resulting in scanty or no rain in Jodhpur. It falls in rain shadow area wherefrom clouds go but do not rain.

5. Now think why: (i) Thiruvanantapuram has equable climate?

Ans. Equable climate generally is experienced in all stations falling nearer to the sea as the moisture does not allow high pressure to be formed any time here. This fact, also applies on Thiruvanantapuram and we see here equable climate throughout the year.

(ii) Chennai has more rains only after the fury of monsoon is over in most parts of the country?

Ans. South-West Monsoon Winds start retreating in September to October months. These are replaced by the North-East trade winds, i.e., winds blowing from extreme northwest of India. These winds receive vapour while moving over the Bay of Bengal to which they immediately carry to the Coromandal Coast in Tamil Nadu. These rain-bearing winds collide against Eastern Ghats and thus, Coromandal including Chennai receives heavy rain during winter season (viz. in November-December).

(iii) Jodhpur has a hot desert type of climate?

Ans. Jodhpur falls in the rain shadow region and it is situated proxy to the Thar desert. This station has therefore, extreme climate and dusty as also hot winds namely "Loo" starts blowing here during summer. As the water-bearing winds pass over it without raining, this station remains arid throughout the year.

(iv) Leh has moderate precipitation almost throughout the year 2

Ans. North-east trade Winds blow throughout the year in Leh district of Jammu and Kashmir state. Monsoon winds never reach up to this altitude as they get lost their water completely. This station receives mostly snowfall because of its super altitude. Being it the coldest place, water-drops are freezed here. Thus, no rainfall or scanty precipitation we can only see here.

(v) While in Delhi and Jodhpur most of the rain is confined to nearly three months, in Thiruvanantapuram and Shillong it is almost nine months of the year?

Ans. Monsoon winds always prefer to blow over Thiruvanantapuram and Shillong irrespective of their distance from the sea. The winds blowing from Indian Ocean, Bay of Bengal and that of Arabian Sea simultaneously cover these stations during rainy season. Disturbances are caused over Andaman Sea and the Bay of Bengal as a result of the North-East trade winds

Usually fill the void created by the retreating. monsoon during winter season. These winds while passing over above said sea; generally get vapour and do heavy rain in Shillong and Thiruvanantapuram. Thiruvanantapuram falls adjacent to the Arabian sea and Indian Ocean and Shillong is also nearer to Bay of Bengal and Andaman Sea. Delhi and Jodhpur are at larger distance from the sea coupled with nearer to the terrestrial region as also fallin sub-tropical belt. Hence, both these stations receive heavy rain during three months while these remain dry during the next nine months of the year. We can state in brief that quantum of rain here is affected due to different landforms, temperature, distance from the sea and mean altitude from the sea level.