

# Climate Class 9 GSEB Solutions Social Science Chapter 16

## Gujarat Board Class 9 Social Science Climate Textbook Questions and Answers

### 1. Answer the following questions in brief.

#### Question 1. Himalaya is a natural wall which protects India. How?

Answer:

1. Winds blow from Central Asia towards India through north-east direction.
2. Himalayas obstruct the extremely cold winds coming from Central Asia and protects northern India from severe cold.
3. For example, the temperature of Shimla in the month of January remains around 5°C.

#### Question 2. Explain the Trade Winds.

Answer:

1. Trade winds originate due to tropical high-pressure belt in northern hemisphere.
2. In past, these winds were used for oceanic trade-commerce. So, they are called Trade winds.
3. These winds deflect due to Coriolis force and blow towards equator.
4. As these winds blow from over landmass, they contain less moisture.
5. Due to this vast water mass, the winds passing over them absorb moisture and bring rain in India.
6. A large low-pressure area develops over the equator where the Trade Winds converge. It is called Inter-Tropical Convergence Zone (ITCZ).
7. The Trade Winds rise upwards in the form of air currents.

#### Question 3. Into how many parts has the Indian Meteorological Department divided the seasons of India? Which are they?

Answer:

Indian Meteorological Department of Government of India at Delhi has divided the climate of India into four seasons:

1. Cold weather season: Winter: December to February.
2. Hot weather season: Summer: March to May.
3. Advancing Monsoon: Rainy season: June to September.
4. Retreating Monsoon Season: October to November.

#### Question 4. Into how many branches are the South-West Monsoon winds divided? Which are they?

Answer:

South-West monsoon winds are responsible for the rain in rainy season and the humid and cloudy weather. That is why this is also known as season of 'South-West Monsoon winds.



Due to the peninsular shape of the South India, the South-West Monsoon winds are divided into two parts:

- Arabian Sea Current
- Bay of Bengal Current

## 2. Answer the following questions as directed:

### 1. What changes occur with the increase in altitude from sea-level?

Answer:

1. As we go higher from the sea-level air pressure and air temperature decrease.
2. Moist air cools down when it rises and rain occurs. With increasing altitude of the mountains the rainfall increases.
3. Due to the high altitude, the Himalayan peaks remain covered with snow throughout the year.

### Question 2. What is meant by 'October Heat'?

Answer:

- During October-November, a season of dry and cool winds starts instead of hot summer.
- Clear sky and increasing temperatures are main characteristics of retreating monsoon winds.
- Soil contains moisture, day temperature increases, night is cool and pleasant.
- Day time weather is very perplexing due to high temperature and humidity. This situation is known as 'October Heat'. It is locally known as 'Bhadarvi Taap'.

### Question 3. Over which regions do the monsoon winds coming over from Bay of Bengal give rain?

Answer:

1. The west monsoon winds contain maximum moisture, first enters West Bengal and then reaches up to Meghalaya. There the slopes of Garo, Khasi and Jaintia hills receive heavy rainfall.
2. Winds here deflect and blow from south-east. They cross over West Bengal, Bihar, Uttar Pradesh, Punjab and reach Haryana. Their moisture content decreases as it advances further.
3. Both these currents, coming from Arabian Sea and Bay of Bengal, merge giving good amount of rain in northern Himalayas region, snowfall occurs there occasionally.

### Question 4. Which phenomena of faraway regions affect Indian climate?

Answer:



1. Sometimes a peculiar phenomenon takes place over places located at far off places from India which creates temporary changes in the long term climatic pattern.
2. Phenomena like Jet stream, Western Disturbances, El-Nino, ITCZ have affected the Indian weather to a great extent.
3. Jet stream (Jet winds) blow over the southern slopes of Himalayas during winter and in summer these are stationed over peninsular India. High altitude winds help to bring rain.
4. Western disturbances often causes disturbances in the pleasant winter weather of North India.
5. Very high mountains receive snowfall and the plains receive some rain which is useful to Rabi Crop. This may cause unseasonal rain in Gujarat which may damage crops.
6. The El-Nino phenomena takes place occasionally. Whenever it takes place changes occur in the duration of monsoon and amount of rainfall in India.
7. ITCZ becomes stable over Ganga plains in July. Due to the low pressure developed over this region, winds generated over the oceans in southern hemisphere blow towards this area. It causes rain in a few parts of North India.

### 3. Give to the point answer of the following questions:

#### Question 1. Due to which reasons does the phenomena of change in season occur?

Answer:

1. Revolution of the earth around the sun is one of the main reasons for change in seasons.
2. The axis of the earth is tilted at  $23.5^\circ$  and makes an angle of  $66.5^\circ$  with the orbit. Seasons are also caused due to the axial tilt.
3. Regions receiving more sunlight experience summer while regions receiving less sunlight experience winter.
4. Sun rays fall vertically over Tropic of Capricorn on 22nd December. So, the southern hemisphere experiences summer and the northern hemisphere experiences winter.
5. Hence nights in India are longer and colder.
6. The sunrays are perpendicular over Tropic of Cancer on 21st June so the days are longer.
7. Rotation and revolution of the earth have a direct impact on the food, clothing and residences of man.
8. The winter, summer and monsoon winds affect the weather and give peculiar characteristics to it.

#### Question 2. State briefly the factors affecting the climate.

Answer:

Factors like temperature, atmospheric pressure, winds, humidity, rain etc on the surface of the earth that control the distribution and amount of elements of climate are called



climatic factors.

**(i) Latitude:**

1. Sun rays fall vertically over equatorial region hence, it is hot throughout the year.
2. India is divided into two zones of different climatic conditions viz. torrid zone and temperate zone.
3. There is a distance of about 111 kilometres between two latitudes. So type of climate on the earth surface changes according to the latitude of the place concerned.
4. Thus, distribution of elements in climate mostly follow latitudes.

**(ii) Distance from Sea:**

1. Water and land have different capacity to conserve and release the solar heat.
2. As a result, coastal regions experience temperate climate, while the climate becomes continental in the interior places away from the sea coast.
3. Thus, the climate of Mumbai in India is temperate as it is near the sea coast, while it is continental at Nagpur or Delhi as these places are far from sea.

**(iii) Altitude:**

1. In normal conditions as we go higher air temperature decreases at  $1^{\circ}\text{C}$  for the ascent of 165 metres or by  $6.5^{\circ}$  for ascent of every 1000 metres.
2. As we go higher from sea-level, air pressure and air temperature decrease.
3. Due to the high altitude, the Himalayan peaks remain snow-covered throughout the year.
4. Moist air cools down when it rises and gives rain with increasing altitude of mountains, the rainfall increase.
5. In mountain regions of Assam and Meghalaya rainfall increases with increasing altitude.

**(iv) Atmospheric Pressure and Winds:**

1. India falls in the path of north-east trade winds.
2. These winds originate due to tropical high-pressure belt in northern hemisphere.
3. These winds deflect due to Coriolis force and blow towards equator.
4. These winds blow over landmass, they contain less moisture. But due to vast water mass located to the south of India, the winds contain moisture and bring rain in India.
5. During winter, high pressure develops to the north of Himalaya. Cold and dry winds from this region blow towards oceanic area where low pressure is created.
6. These winds tend to blow from Indian Ocean to low pressure in North India. Thus, these winds contain moisture and bring rain in India.



### Question 3. Write notes on the cold weather season (winter) of India:

Answer:

1. In India the three months' duration from December to February is considered as winter.
2. In these period, the sun shines vertically over southern hemisphere between 22nd September to 21st March.
3. India is situated in northern hemisphere, so it is under the influence of less heat of the sun rays and less temperature is experienced.
4. Winds blow from north-east direction from Central Asia. These winds are dry and cold so the weather also remains dry and cold. The sky during this season generally remains clear.
5. North-East India remains comparatively cooler as it is far away from the sea. It has some part of i.e. a desert. During winter this region develops high pressure and this deflects the winds.
6. For example, in Delhi temperature during winter often goes below 10°C during winter and it remains 16°C in Allahabad and 18°C in Kolkata.
7. At this time the temperature in Himalayas is much less. The January temperature of Shimla, Darjeeling is around 5°C.
8. After the snowfall in Himalayas the cold and heavy winds rush towards the North Indian plains.
9. As a result this plain along with Gujarat and Rajasthan are under the grip of cold waves. Temperature decreases suddenly and frost in some areas destructs the cotton crop.
10. Temperature does not fall below freezing point during winter except for the high mountainous regions because Central Himalayas obstruct the extremely cold winds coming from Central Asia and protects India from severe cold.
11. South India is situated in Torrid Zone. It has a peninsular shape. Its inner area is not very far from the sea coast. So, this area does not feel severe cold like the Northern India during winter.
12. Temperature also does not fall. For example, the temperature at Kochi during January is around 26°C, Madurai is 25°C and Chennai is 24°C. Hence, temperature decreases going from South to North.
13. In India winter is considered to be very pleasant and healthy season. Days are shorter and nights are longer and cooler.
14. In winter dry winds coming from over landmass generally do not bring rain but North-East winds coming over Bay of Bengal contain humidity. They give more rainfall over the Coromandel coast.
15. North-east gets some rainfall due to the Western disturbances and thunderstorms. This rain is very useful for the Rabi crop in Punjab and Haryana.
16. These winds bring rain in Gujarat occasionally. This unseasonal rain in Gujarat is locally called 'Maavthu'.



**Question 4. Describe the effects of climate on human life.**

Answer:

1. Irregularity of rainfall has resulted into ineradicable agriculture production.
2. Farmers have to depend on rainfall for irrigation.
3. The beginning, as well as ending of rainy season, is uncertain. Hence, unavailability of rainwater at right time affects the crop production.
4. Sometimes there is a downpour of rain when it rains too much in shorter time. As a result, crops are destroyed.
5. Rivers get flooded and cause soil erosion which in long term reduces crop production.
6. As the farming is seasonal work, many agricultural labourers migrate to cities.
7. Due to irregular rain, some agro-based industries face problems as they do not get their raw material like cotton, sugarcane, tobacco, etc.
8. Problem of drinking w'ater also becomes acute due to irregular rain. Life in desert or mountainous regions becomes full of hardships.
9. Thus, climate directly affects people's food, clothing, occupation, etc.

**4. Select the correct option for the following questions:**

**Question 1. When the sun rays are vertical over the Tropic of Cancer in India, which season is experienced there?**

- A. Cold season
- B. Hot season
- C. Rainy season
- D. Retreating monsoon

Answer:

- B. Hot season

**Question 2. Which place near Cherrapunji is famous for heavy rains?**

- A. Shillong
- B. Guwahati
- C. Imphal
- D. Mawsynram

Answer:

- D. Mawsynram

**Question 3. Which Himalayan Phenomena affects more in creating cold wave over Gujarat and Rajasthan in winter?**

- A. Snowfall
- B. Sandstorm
- C. Rainfall
- D. Landslide



Answer:

A. Snowfall

**Question 4. By which name are some showers along Malabar coast in May known as?**

A. Anarvarsha

B. Duststorms

C. Amravarsha

D. Snowfall

Answer:

C. Amravarsha

**Question 5. Which is the season of Retreating Monsoon in India?**

A. March-May

B. October – November

C. January – February

D. July – August

Answer:

B. October – November

**Question 6. Which of the following statements is true?**

A. Days are longer and nights are shorter in winter.

B. Days are shorter and nights are longer in summer.

C. Days are shorter and nights are longer in winter.

D. Days are shorter and nights are longer in summer.

Answer:

C. Days are shorter and nights are longer in winter.

