

Indian Geography Notes

Few highlights about the Geography of India and its physical features are mentioned below.

Geography of India	Details
Location of India	The location of India on the globe is between 80° 4' N and 370° 6' N latitudes and 68° 7' E and 97° 25' E longitudes. However, away from the mainland of India, lies the southernmost point of the country the Indira point or the Pygmalion point is located at 60° 45' N latitude.
Highest point of India	Mt. K2/ Godwin Austin (POK) which is 8611mts above the Sea level
Lowest Point of India	Kuttanad which lies in the Indian state of Kerala.
Physiographic Divisions of India	Himalayan Mountains, Northern Plains, Peninsular Plateau, Indian Desert, Coastal Plains and Islands

Indian Geography UPSC topic includes several important sessions that must be covered for both UPSC prelims and mains.

- India and the Administrative Units; the States and [Union Territories](#)
- Physiography of India (Himalayas, Northern Plains)
- Physiography of India (Peninsular Plateau, Coastal Plains, Islands)
- Drainage System in India
- [Types of Soils in India](#)
- [Important Lakes in India](#)
- Indian Climate Notes: Monsoon, El Nino Effect, Koeppen's Classification
- Natural Vegetation in India (Different type of forest in India)
- [Types of Forest in India](#)
- [Agriculture in India](#)
- [Important Dams in India](#)

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Physical Geography of India: Size and Location

India is longitudinally placed in the Eastern Hemisphere yet is totally in the Northern Hemisphere. From west to east, the longitude ranges between 68°7'E to 97°25'E. From south to north, the latitude ranges between 8°4' N to 37°6' N.

- In India, the Tropic of Cancer (23°30' N) splits the country roughly in half. It travels through the following eight states: Tripura, Rajasthan, Gujarat, Chhattisgarh, and Madhya Pradesh.

- The Andaman and Nicobar Islands are located in the Bay of Bengal towards the south-east of the mainland.
- The Lakshadweep Islands are located in the Arabian Sea towards the southwest of the mainland.
- In 2004 during the Tsunami, the southernmost region of India known as "Indira Point" (Great Nicobar Island in the Andaman and Nicobar Islands) was submerged under water.

Size Of India

The country's area is 3.28 million square km. Below are some important facts about India;

- 2.4% of the world's total geographical area is represented by it.
- It is the seventh-largest nation on the planet. Russia, Canada, the United States, China, Brazil, Australia, and India are the seven largest countries in that order.
- 15,200 km is the length of the land boundary.
- The Andaman and Nicobar islands and Lakshadweep are included in the total coastal length of 7517 km.
- Regardless of the fact that the north-south range appears to be greater than the east-west extent, the latitudinal and longitudinal extent of the continent are both about 30°.
- The span of the Indian subcontinent (2933 km) is from Kashmir in the north to Kanyakumari in the south (3214 km), and from Arunachal Pradesh in the east to Gujarat in the west. India's territory reaches out into the ocean up to 12 nautical miles (21.9 km) from the coast. 1.852 nautical miles equal one mile.
- The country is divided into two regions: the Tropics in the south and the Subtropical or Warm Temperate Zone in the north. Large changes in the country's topography, climate, soil types, and native plants can be attributed to this location.
- The Standard Meridian of India (82°30' E), which runs through Mirzapur in Uttar Pradesh, is used to determine the country's standard time as there is a lag in time of nearly 2 hrs from the tip of Gujarat to the end of Arunachal Pradesh. Indian Standard Time is 5 hours and 30 minutes earlier than Greenwich Mean Time. Uttar Pradesh, Chhattisgarh, Madhya Pradesh, Andhra Pradesh and Telangana are all on India's Standard Meridian.

India and the World

- Asia's continent's southernmost region is where India is situated.
- India has seven nations along its land borders: Bangladesh and Myanmar towards the east, China, Pakistan and Nepal towards the north; Afghanistan and Pakistan towards the west. Afghanistan has the smallest border among them which is 106km long, while Bangladesh has the longest (4096.7 km). Sri Lanka and the Maldives are the countries that border South Africa across the sea. The Maldives islands are located south of the Lakshadweep islands, and Sri Lanka and India are divided by a confined seaway created by the Palk Strait and the Gulf of Mannar.

Physiography of India

The physical features of India can be grouped under the following Physiographic Divisions:

- The Himalayan Mountains
- The Northern Plains
- The Peninsular Plateau

An area's physiography results from its structure, processes, and developmental stage. India's terrain is very diverse physically. Geologically speaking, the Peninsular Plateau is one of the oldest and most resilient land formations on the planet. The most recent landforms are the Northern Plains and the Himalayas.

High peaks, narrow valleys, and swift rivers make up the terrain of the Himalayan mountains, which are thought to be extremely young. While the Peninsular Plateau is made up of volcanic and metamorphic rocks with gradually sloping hills and vast valleys, the Northern Plains are made up of alluvial deposits. The physiographic divisions given below can be used to classify India's physical characteristics:

The Himalayan Mountains

The Himalayas are both one of the highest and roughest mountain ranges in the world. These mountains have a fold-like structure and are young in geological time. The Great Himalayan range, often referred to as the central axial range, spans around 2500 km from east to west, and its width ranges from 400 km in Kashmir to 150 km in Arunachal Pradesh.

From north to south, there are four mountain ranges that make up the Himalayas:

- **The Trans Himalaya or the Tibetan Himalaya:** It is made up of the Karakoram, Zaskar, Ladakh, and Kailash mountain ranges and is situated towards the north of the Great Himalayas. As the majority of these ranges are located in Tibet, it is often referred to as the Tibet Himalayan Region.
- **The Great or Inner Himalaya or Himadri:** The loftiest peaks, with an average height ranging to 6000m, make up this range, which is the most continuous range as well. The Great Himalayas' folds are asymmetrical in design. Granite makes up this section of the Himalayas' core. It is always covered in snow, and several glaciers flow from this range. It includes all notable Himalayan peaks, some of which are included in the table below as being among the tallest;

Name of the Peak	Height	Country
1. Mount Everest	8848m	Nepal
2. Kanchenjunga	8598m	India
3. Makalu	8481m	Nepal
4. Dhaulagiri	8172m	Nepal
5. Nanga Parbat	8126m	India
6. Annapurna	8078m	Nepal
7. Nanda Devi	7817m	India

8.	Namcha Barwa	7756m	India
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- **The Lesser Himalaya or Himachal:** This range, which is made up of heavily altered and compressed rocks, is located south of Himadri. The typical width is 50 km, and the altitude ranges between 3700 to 4700 m. The Pir Panjal range, the Mahabharat range and the Dhauladhar range are the most well-known ranges. The Himachal Pradesh mountain range includes the stunning valleys of Kullu, Kashmir, and Kangra. The hill towns along this range are well known.
- **The Shiwalik or the outer Himalayas:** The Shiwaliks is the name of the Himalayas' most remote mountain range. They cover an area of 10 to 15 kilometres in breadth and range from 900 to 100 metres in altitude. Unconsolidated sediments from the major ranges farther north are carried down by rivers to form these ranges. Alluvium and heavy gravel blanket these valleys. The Shiwaliks and the smaller Himalayas are separated by longitudinal valleys known as Duns. Dehra Dun, Kotli Dun, and Patli Dun are a few of the significant Duns. Dehradun is the biggest of all the duns, measuring roughly 35 to 45 km in length and 22 to 25 km in width.

The Himalayas have also been split into regions from west to east in addition to the longitudinal divides. These are listed below:

- **Kashmir or North-Western Himalayas:** This area has a number of mountain ranges, including the Pir Panjal, Zaskar, Ladakh, and Karakoram. A frigid desert can be found in the northeast of Kashmir's Himalayas, which is located between the Karakoram and the Greater Himalayas. The renowned Kashmir valley is located between the Greater Himalayas and the Pir Panjal.
 - The Karewa formations in the Kashmir Himalayas are renowned for being utilised for saffron growing. Karewas are the substantial accumulations of glacial clay as well as other materials that are moraine-embedded.
 - Zojila on the Great Himalayas, Khardung La on the Ladakh range, Photu La on the Zaskar, Bananihal on the Pir Panjal are a few of the significant passes in this area.
 - The Indus River and its tributaries, including the Jhelum and the Chenab, drain the area.
 - This region's southernmost portion is made up of longitudinal valleys known as "Duns," such as Pathankot Dun and Jammu Dun.
- **Himachal and Uttarakhand Himalayas:** This region of the Himalayas is situated between the Kali (a river that flows into the Ghaghara) in the east and the river Ravi in the west. Both Indus and Ganga, are two significant Indian river systems. They drain this area.
 - This area is traversed by the rivers Yamuna and Ghaghara, which are tributaries of the Ganga, and the rivers Ravi, Beas, and Satluj, which are tributaries of the Indus river.

- The three Himalayan mountain ranges—the Great Himalayas (Himadri), the Lesser Himalayas, also known as the Dhauladhar range in Himachal Pradesh and the Nagtibha range in Uttarakhand—as well as the Shiwalik range—are prominent in this area.
- Dharamshala, Mussoorie, Shimla, and other notable hill towns and health resorts are situated in this area. One of the distinctive characteristics of this area is the presence of significant Duns like Dehra Dun.
- **Darjeeling and Sikkim Himalayas:** They are encircled by the Himalayas of Bhutan in the east and Nepal in the west. Despite being a small portion of the Himalayas, it is an essential one. It is renowned for having swift-moving rivers like the Tista.
 - The area is significant because it includes deep valleys and high snowy peaks like Kanchenjunga (Kanchengiri). The 3rd highest mountain peak on Earth is Kanchenjunga, which is located at 8598 metres above sea level.
 - The lack of the Shiwalik formation in this area distinguishes it from the Arunachal Himalayas. Instead, "Duar formations," which have been exploited for tea plantations, are significant in this area (introduced by the British).
- **Arunachal Himalayas:** These stretch up to the eastern Diphu pass from the Bhutan Himalayas in the east. The two most significant mountain passes in this region are Kangtu and Namcha Barwa.
 - Fast-moving rivers cut through these ranges from north to south, eventually producing a deep gorge after reaching Namcha Barwa. Some of the significant rivers in this area are the Subansiri, Kameng, Dihang, Dibang, and Lohit.
 - These rivers have the highest hydropower potential in the nation since they are perennial and have a lot of fall foliage.
- **Eastern Hills and Mountains:** The Himalayas curve abruptly to the south beyond the Dihang canyon and extend along India's eastern border. The eastern mountains and hills are often referred to as the Purvanchal. Strong sandstones, called sedimentary rocks, make up the majority of these hills that cross the northeastern states. They generally run as adjacent ranges and valleys covered with thick forests. The Naga Hills in Nagaland, Patkai Hills in Arunachal Pradesh, Mizo or Lushai Hills and Manipur Hills make up Purvanchal.

The Northern Plains

The Peninsular India in the south and the Himalayas in the north are separated by the Great Plains of India, which are located south of the Shiwalik. Alluvial deposits from the Indus, Ganges, Brahmaputra, and their tributaries produced it. It covers a surface of 7 lakh square kilometres. The Northern Plains are 240–320 km wide and nearly 2400 km long. It is a

productive agricultural region of India because of its high soil cover, sufficient water supply, and favourable temperature.

India's northern region can be divided roughly into three parts:

- **The Punjab Plains:** The Punjab Plains are the westernmost region of the Northern Plains. The Indus River and its tributaries have formed the area. A majority of this plain is located in Pakistan.
- **The Ganga Plains:** It stretches between the Teesta and Ghaggar rivers. To its east, it extends into the states of Delhi, Haryana, Bihar, Uttar Pradesh, and, to a lesser extent, Jharkhand.
- **The Brahmaputra Plains:** It is located mainly in the state of Assam.

The northern plains can be classified into four regions based on the variety in relief features:

- **Bhabar:** Rivers that flow down from the mountains leave behind gravel in a narrow band called Bhabar that is between 8 and 16 km wide and runs along the southern slopes of the Shiwalik Mountains. All the streams vanish in this Bhabar belt because of the highly porous area.
- **Terai:** The Terai belt, which is south of the Bhabar and has a breadth of around 10 to 20 km, is where most streams and rivers re-emerge without having a clearly defined channel, resulting in the swampy and marshy conditions known as the Terai. This area is home to a wide variety of wildlife and has a lush growth of natural plants.
- **Bhangar:** Older alluvium is what forms the main portion of the northern plains. It displays a terrace-like aspect and is located above the floodplains of the rivers. Locally called as Kankar, the soil in this area has calcareous deposits.
- **Khadar:** Khadar is the name for the fresher, younger deposits found in the flood plains. Every year in the rainy season, new silt deposits enhance the tracts. Intensified agriculture is perfect for this bountiful area.

The Peninsular Plateau

The greatest physiographic province of India is the Peninsular Upland. The area forms an uneven triangle and is generally between 600 and 900 metres above sea level. The Peninsular plateau's outside boundaries are defined by the Delhi Ridge towards the northwest (an extension of the Aravallis), the Raj Mahal Hills towards the east, the Gir Range to the west, and the Cardamom Hills to the south. The Shillong and Karbi-Anglong plateau represent the northeastern extension.

- The Peninsular plateau is a section of India's oldest and most stable landmass because it was created by the fracturing and migration of the Gondwana land mass. Old crystalline, igneous, and metamorphic rocks make up its structure.
- Peninsular India is composed of a number of Patland plateaus, including the Hazaribagh, the Palamu, the Ranchi, the Malwa, the Coimbatore, and the Karnataka plateaus.
- The area had seen periodic uplift and submergence stages, along with crustal fissures and fracturing. The Peninsular Plateau's relief has undergone some diversification as a result of these geographical changes. The plateau's northwest features a difficult terrain made up of canyons and ravines. The three most significant ravines are Chambal, Bhind, and Morena.

- The Deccan Trap, a region of black soil, is one of the Peninsular Plateau's distinctive characteristics. Rocks in this are igneous because they have volcanic origins. The creation of black soil is due to the denudation of these rocks over time.

The Peninsular plateau can be classified into three major categories based on the predominant relief features:

- Central Highlands:** The Central Highlands are a significant portion of the Malwa plateau and are located on the Peninsular plateau, in the north of the Narmada river. The Vindhyan range and the Aravallis encircle the Malwa Plateau on either side. One of the world's oldest folded mountains is the Aravallis. Its highest mountain is Guru Sikhar which is 1722 m tall. The Satpura range borders the Vindhyan range on the south. The Deccan plateau's northernmost border is formed by this range.
- Deccan Plateau:** To the south of the Narmada River lies a triangle-shaped continent known as the Deccan Plateau. Its broad base is flanked to the north by the Satpura range, while its eastern expansions are made up of the Mahadev, the Kaimur Hills, and the Maikal range. The Deccan Plateau rises slightly eastward and is taller in the west. The plateau continues towards the northeast, where it is known locally as the Meghalaya Plateau, North Cachar Hills and Karbi-Anglong Plateau. It is divided from the Chotanagpur Plateau by a fault. The Khasi, Garo, and Jaintia Hills are three hill ranges that extend from west to east.
 - **Western Ghats:** The Western Ghats, which stretch for around 1600 kilometres (km) in a north-south side from the Tapi River to Kanyakumari, border the Deccan Plateau in the west (Cape Comorin).
 - **Eastern Ghats:** The Eastern Ghats define the Deccan Plateau's eastern border. The Eastern Ghats are made up of low, uneven, and irregular hills that are continuously being eroded by river systems into the Bay of Bengal.
- North-Eastern Plateau:** It is a growth on the principal peninsular plateau. A sizable fault is thought to have formed between the Meghalaya plateau and the Rajmahal hills as a result of the force applied by the north-eastward migration of the Indian plate during the period of the Himalayan origin. Later, this depression was filled in by the multiple rivers' deposition activities. At this time, the plateaus in Meghalaya and Karbi-Anglong are separated from the main peninsular block. The Garo, Khasi, and Jaintia hills, which are called after the ethnic people who live in this area, are divisions of the Meghalaya plateau. This is also evident in the Assamese Karbi Anglong highlands.

The Great Indian Desert/Thar Desert

A desert can be defined as an arid region where evaporation rates outpace precipitation rates. Rajasthan is home to more than 60% of the Thar Desert. Some other important facts have been listed below;

- The Great Indian Desert, often known as the Thar Desert, is located north-west of the Aravalli Hills. It is an undulating terrain with longitudinal barchans (crescent-shaped dunes) and dunes scattered throughout.
- There is extremely little rainfall in the area (below 150 mm per year). It has a dry climate and little vegetation. It also goes by the name Marusthali because of these distinguishing characteristics.
- This area was thought to have been underwater during the Mesozoic era. Akal's wood fossils park and the sea deposits near Brahmsar, which are both close to Jaisalmer, have the proof. The wood fossils are thought to be 180 million years old on average.

- Although the desert's surface features have been formed by weathering process and wind impacts, its underlying rock structure is an outgrowth of the Peninsular plateau.
- Mushroom rocks, oases, and shifting dunes are some of the notable desert terrain features in the Indian desert.
- The desert can be separated into two halves based on orientation: the southern section faces the Rann of Kachchh, while the northern section slopes toward Sindh.
- The only significant river that flows through the Rann of Kutch and into the Arabian Sea from the southern half of the desert is the Luni. There are some water bodies that, after flowing for a while, dry up and join a lake or playa, illustrating a typical occurrence of inland drainage. The main source of salt is found in the brackish water found in the lakes and playas.

The Coastal Plains

The Western Coastal Plains, which extend along the Arabian Sea on the west, and the Bay of Bengal, which runs along the east, both encircle the Peninsular plateau (Eastern Coastal Plains).

- **Western Coastal Plains:** A narrow plain called the Western Coastal Plains lies between the Arabian Sea and the Western Ghats. Submerged coastal plains include the Western Coastal Plains. The west coast city of Dwarka, which was belonged to the Indian subcontinent, is thought to be underwater. It is a narrow band that, as a result of its submergence, offers ideal conditions on the west coast for the growth of natural ports. Kandla, Mangalore, Mazagaon, Cochin, and other cities are examples of natural ports found along the west coast.
 - The Western Coastal Plains stretch from the Kerala coast in the south and the Gujarat coast in the north
 - The following categories are used to categorise the western coast:

- i. Kachch and Kathiawar coast in Gujarat
- ii. Goan coast in Karnataka
- iii. Konkan coast in Maharashtra
- iv. Malabar coast in Kerala

- **Eastern Coastal Plains:** The Eastern Coastal Plains can be found between the Bay of Bengal and the Eastern Ghats. It extends along the coastlines of Tamil Nadu, Andhra Pradesh, and Odisha. An example of an emerging shoreline is the Eastern Coastal Plains, which are wider than the Western Coastal Plains. Since the continental shelf reaches 500 km into the ocean, it is challenging to build effective ports and harbours.
 - The Mahanadi, Godavari, Krishna, and Kaveri deltas, as well as others, are formed by rivers that run through this area and empty into the Bay of Bengal.
 - In the Eastern Coastal Plain, there are two sections:

iv. **Northern Circar:** Deltas of the Mahanadi, Krishna and Godavari rivers make up these plains. The Eastern Ghats have been breached by these rivers in various locations. The largest saltwater lake in India and located in Odisha, south of the Mahanadi delta, is Chilika Lake, which is a significant aspect of this plain..

v. **Coromandel Coast:** This stretches from Kanyakumari to the delta of river Krishna.

The Islands

There are two major island groups in India – Andaman and Nicobar Islands in the Bay of Bengal and Lakshadweep Islands in the Arabian sea.

Andaman and Nicobar Islands: About 572 islands and islets make up the Andaman and Nicobar islands. These are roughly located between latitudes 6° to 14° N and 92° and 94° E. (longitude). The Labrynth island and Ritchie's archipelago are the two main islet groups.

- In the north are the Andaman Islands, and in the south lies Nicobar. The Ten Degree Channel is a water body that divides the Andaman and Nicobar groups of islands at the 10° latitude.
- These islands are thought to be an elevated section of underwater mountains. There is only one active volcano in India is on Barren Island in Nicobar.
- These islands have magnificent beaches and some coral deposits along their coastline. These islands have equatorial-style vegetation and receive regular rainfall.
- This archipelago of islands has a very diverse range of vegetation and animals.
- Saddle Peak (North Andaman, 738 metres high), Mount Diavolo (515 metres), Mount Koyob (South Andaman, 460 metres high), and Mount Thuiller (Great Nicobar – 642m) are a few of the significant mountains in the Andaman and Nicobar islands.

Lakshadweep Islands: These are dispersed between latitudes 8° N and 12° N and longitudes 71° E and 74° E. There are around 36 islands, and 11 of them are populated.

- The largest island, Minicoy, has a surface size of 453 sq. km.
- These islands are situated between 280 and 480 kilometres southwest of Kerala's coast.
- Lakshadweep's administrative centre is located on Kavaratti Island. There is a huge variety of plants and animals on this group of islands. There is a bird sanctuary on the uninhabited island of Pitti. There are coral deposits all around the Lakshadweep.