**1.Physiographic of India**

**About India**

India is the seventh largest country in the world in terms of area. It lies on the Indian Plate, which is the northern portion of the Indo-Australian Plate. The Indian subcontinent is surrounded by three different water bodies and is easily recognisable on the world map.

**Location**

The Indian mainland extends between 8°4′ North and 37°6′ North latitudes and from 68°7′

East and 97°25′ East longitudes. Thus, the latitudinal and the North-south extent is 3214 km

and East-west extentis 2933 km. India accounts 2.42% of the total world land area

India lies entirely in the northern hemisphere, and eastern hemisphere. The Tropic of Cancer (23°30′ North) passes through the centre of the country. It divides the country into almost two equal parts Northward of this latitude is North India and South of it is known as South India. Similarly 82°30′ East longitude passes almost from the middle of the country. It is known as Standard Meridian of India.

India is the largest country in terms of area and population in South-Asia. It is surrounded by

the ocean. India is strategically located in the Indian Ocean. It commands sea routes between Europe and Africa, SouthEast Asia, far East Asia and Oceania. It is because of this that India shares good trade relation between many countries since ancient times

**Size**

India‘s total area accounts for about 2.4% of the total geographical area of the world. Thus, it is the 7th largest country in the world, by its size.

 India has a land boundary of about 15,200 km.

 The total length of the coastline of the mainland is 7,516.6 km including Andaman and Nicobar and Lakshadweep.

 India is bounded by the mountains in the northwest, north and northeast. South of about 22° north latitude, it begins to taper and extends towards the Indian Ocean, dividing it into two seas, the Arabian Sea on the west and the Bay of Bengal on its east.

 Time along the Standard Meridian of India (82°30‘E) passing through Mirzapur (in Uttar Pradesh) is taken as the standard time for India.

17

**India and the World**

The Indian landmass has a central location between the East and West Asia. India is a southward extension of the Asian continent. The trans-Indian Ocean routes connect the countries of Europe in the West and the countries of East Asia. No other country has as long a coastline on the Indian Ocean as India has. India‘s contacts with the World have continued through the ages. The spices, muslin and other merchandise were taken from India to different countries. On the other hand, the influence of Greek sculpture, and the architectural styles of domes and minarets from West Asia can be seen in different parts of India.

**India‟s Neighbours**

India has 29 states and seven Union Territories. India shares its land boundaries with:

 Pakistan and Afghanistan in the northwest

 China (Tibet), Nepal and Bhutan in the north  Myanmar and Bangladesh in the east

**Physical Features of India**

 Physiography of an area is the outcome of structure, process and the stage of development. The land of India exhibits great physical variations.

 Indian landmass was the part of great Pangaea (entire landmass) which broke into two parts in the Carboniferous Period due to the force of gravity and buoyancy. The northern and southern parts were subsequently called as Laurasia and

Gondwanaland, respectively, leaving

Source: Cosmos Publication

18

Tethys Sea in the middle.

 Based on these macro variations, India can be divided into the following physiographic divisions:

(1) The Northern and North-eastern Mountains (2) The Northern Plain

(3) The Peninsular Plateau (4) The Indian Desert

(5) The Coastal Plains (6) The Islands

 Geologically, The Himalayan mountains represent a very youthful topography with high peaks, deep valleys and fast-moving rivers. The Himalayas and the Northern Plains are the most recent landforms. The Peninsular Plateau constitutes one of the ancient landmasses and most stable land blocks on the earth‘s surface. The Northern Plains are formed of alluvial deposits and the Peninsular Plateau is composed of igneous and metamorphic rocks with gently rising hills and wide valleys.

 Gondwanaland further broke up into the peninsular India, Madagascar, Australia, Antarctica etc in the Jurassic Period.

 Peninsular part of India is a part of Gondwanaland, formed from igneous rocks of

Archean era which were transformed into Gneiss and Schist.

19

**2.Northern Mountain Ranges**

**Northern Mountain Ranges**

 The Himalayas stretching over the northern borders of India are geologically young and structurally fold mountain ranges of the world. The formation of Himalayas took place due to the collision of the Indian plate and the Eurasian plate.

Karewas are the lacustrine deposits of glacial clay and other material embedded with moraines. They are found on the slopes of Pir Panjal in Jammu & Kashmir.

 Himalayas extending from the Indus Gorge in the west Brahmaputra Gorge in the east terminates suddenly taking sharp southward bend. These bends are called Syntaxial bends of the Himalayas.

**Important Glaciers in Himalayan Mountains**

**Glacier** **Location** **Length (km)**

 Siachen

 Baltoro

 Hispar

 Biafo

 Batura

 Chogo Lungma

 Khurdopin

 Rimo

 Punmah

 Rundun

 Gangotri

 Kedarnath

Karakoram 76

Karakoram 63

Karakoram 61

Karakoram 60

Karakoram 58

Karakoram 50

Karakoram 41

Kashmir 40

Karakoram 27

Kashmir 19

Uttarakhand 26

Uttarakhand 14

20

 Zemu

 Milam

 Kanchenjunga

Sikkim/Nepal 25

Uttarakhand 19

Sikkim/Nepal 16

**Valley**

A valley is a low lying area between hills or mountains. Geographically, the fertile plains of the rivers are known as the river valley.

**Important Peaks of the Himalayan Mountains**

**Peak** **Country** **Height(m)**

 Mt. Everest

 (K²)/Godwin Austen

 Kanchenjunga

 Lhotse

 Makalu

 Dhaulagiri

 Mansalu

 Nanga Parbat

 Annapurna

 Nanda Devi

 Kamet

 Namcha Barwa

 Saltoro Kangri

Nepal

India

India

Nepal/Tibet

Nepal

Nepal

Nepal

India

Nepal

India

India

India/Tibet

India

8,848.86

8,611

8,598

8,501

8,481

8,172

8,163

8,124

7,817

7,816

7,756

7,756

7,772

21

**Trans-Himalayas/Tibetan Himalayas**

**Parallel Ranges of Himalyas**

(Based on age of formation)

Trans-Himalayas/ Tibet Region

Inner Himalayas/ Greater Himalayas

Lesser Himalayas/ Middle Himalayas

Outer Himalayas/ Shiwalik Himalayas

 Trans-Himalayas are the northern parts of the Great Himalayas. These ranges have been formed from sedimentary rocks. Antecedent rivers like Sutlej, Indus, Brahmaputra or Tsangpo originate from this region.

 It is separated in the north from Great Himalayas by the Indus-Tsangpo Suture Zone (ITSZ) or Kailash mountain ranges are categorized under this Himalayas.

 Karakoram ranges are known as the backbone of the Asia. The highest mountain peak of India, K² or Godwin Austen is located in this range.

 Karakoram ranges meet the Pamir knot in the west whereas it is extended in the south-east as Kailash range. In the south of this range, Ladakh range acts as a water divide between Indus River and its tributary Shyok River.

Indus River flows between Zanskar and Ladakh range and forms the deepest Gorge (5,200 m) in India by cutting the Ladakh range at bunji.

**Rakaposhi is one of world’s steepest mountain peak located in Ladakh ranges.**

22

**Greater Himalayas**

 These are also known as Inner Himalayas or Himadri. This is the highest range of Himalayas. The average height of this range is 6,100 m. It contains all the major ranges of the Himalayas. It ranges 120 km to 190 km.

 Great Himalayan range, also known as the Central Axial range, extends from the gorge of Indus River to the bend of Brahmaputra river in Arunachal Pradesh.

 Almost all the lofty peaks of the world are located in this range. Mt Everest, Kanchenjunga, Nanga Parbat, Nanda Devi, Kamet and Namcha Barwa are its important range.

**Middle or the lesser Himalayas**

 These are also known as Himachal.

 Greater Himalayas is separated from the Middle Himalayas by the Main Central Thrust. Its breadth is 60-80 km and average height is 3,000-4,500m.

 Some peaks in this range are more than 5,000 m high and the river flow through deep gorges upto 1,000 m.

**Famous Duns:** Dehradun, Kotlidun, Patlidun. **Duar-**Haridwar

 These are part of the Himalayan mountain system having their general alignment form north to south direction.

 In the north, they are known as Patkai Bum, Naga Hills, the Manipur hills and Mizo or Lushai hills. These are low hills, inhabited by numerous tribal groups practicing Jhum cultivation.

 Most of these ranges are separated from each other by numerous small rivers like Barak which is an important river of Manipur and Mizoram.

 Mizoram is also known as the Molassis basin, which is made up of soft unconsolidated deposits.

23

**3. Peninsular Plateau**

The formation of peninsular plateau can be traced to the Paleozoic era. It was formed due to the

breaking and the drifting of the Gondwanaland because of which it is a part of an old landmass.

**Aravalli Ranges**

 Aravalli ranges are located on the western and north-western side of the Peninsular plateau which are highly dissected and are relict of the world‘s oldest mountain.

 Aravalli hills extend upto 800 km from south-west in Gujarat to north-east in Delhi. They are known as Delhi Ridge near Delhi. The average height of Aravalli is 300-920 m. its highest peak, gurushikhar near Mt. Abu is 1,722 m high.

 These ranges were formed 600 to 570 million years ago during Pre-Cambrian period.

 Mahi and Luhi River originates from the west of Aravallies. Luni river disappears in the Rann of Kutch.

Ephemeral rivers are the rivers that flow only briefly during the period of rainfall and disappears afterwards.

**Vindhayan Ranges**

 These ranges extend parallel to the north of the Narmada-Son rift valley form west to east. They are old residual fold mountains. It extends in the north of Malwa Plateau in Jharkhand, Uttar Pradesh and Chhattisgarh. It separates North India from South India. Its average altitude is 450-600m.

 It extends from west to east upto 1,200 km in the form of Bhander, Kaimur and Parasnath hills.

**Satpura Ranges**

 Satpura ranges are a part of Deccan plateau. The rift valley of Narmada and Tapi surrounds it from both the sides.

24

 Structurally, Satpura has been divided into three parts. Rajpipla hills in the west, Mahadeo hills at the centre and Maikal hills in the east. Dhupgarh (1,350 m) is the highest peak of Satpura ranges located on the pachmarhi hills.

 Mailkal range is located in the state of Chhattisgarh. The highest peak of Maikal range is Amarkantak (1,036 m).

**Narmada River** divides the entire plateau region into two parts. Narmada and Tapi both flow through rift valley.

 The Eastern Ghats along this plateau are highly dissected. The plateaus are highly dissected. The slope of the Peninsular plateau in the Northern part is from south to north as depicted form the flow of Son, Chambal and Damodar rivers.

 Mahanadi, Godavari, Krishna and Kaveri rivers flow through these hills and form fertile plains.

**Central Highlands**

 The portion of the Peninsular plateau which is located to the north of the Narmada river covers a huge part of the Malwa Plateau.

 A major portion of the Central Highlands is known as Malwa plateau. This plateau region is surrounded by Mahadeo ranges in the east, Aravalli ranges in the north-west and Vindhayan ranges at the centre.

 The rivers that flow in this region are Chambal, Sind, Betwa and Ken.

 Its eastward extension is locally known as Bundelkhand or Baghelkhand. The eastern end of the Central Highlands is drained by Damodar and Subarnarekha rivers which is known as Chhotanagpur plateau.

 Satpura ranges lie parallel to the Vindhayan ranges in its south whereas Amarkantak and Chhotanagpur plateau are located in its east.

25

**Dandakaranya region**

 It is a part of the Peninsular plateau of the South India. It is extended upto 89,078 km² area in Odisha (Korapet, Kalahandi district), Chhattisgarh (Bastar) and Andhra Pradesh (East Godavari, Visakhapatanam and Srikakulam district).

**Deccan Plateau**

 It is bordered by the Western Ghats in the west, Eastern Ghats in the east and the Satpura, Maikal range and Mahadeo hills in the north.

 Anaimudi (2,695 m) is the highest peak of Peninsular plateau which is located on the Anaimalai hills of the Western Ghats. It is followed by Doddabetta (2,637 m) on the Nilgiri hills.

 The mojar parts of Madhya Pradesh, Maharashtra, Western Andhra Pradesh along with parts of Karnataka and Tamil Nadu comes under Deccan plateau.

 Krishna River originates from Mahabaleshwar (1,438 m) which is the major peak of Sahyadri. The eastern part of the plateau is known as Vidarbha.

 Dharwar plateau is located in Karnataka which is made up of metamorphic rocks. Baba Budan Hills and Brahmagiri Hills are located to its west.

**The North-Eastern Plateau**

 Meghalaya Plateau is the extension of the peninsular plateau which is separated by a fault, Malda Gap, from the Penninsular plateau.

North Easter Plateau Comprises of Garo, Khasi, Jaintia hills and the outlying Mikir and Rengma hills.

**Eastern Ghats**

 The average height of the Eastern Ghats is 900-1,100 m which extends for 1,800 m, parallel to the eastern coastal plain from Mahanadi Valley to Nilgiri in the south.

26

 Mahanadi, Krishna, Godavari and Kaveri Rivers have eroded it at various places.

 Eastern Ghats are residual mountains. The highest peak is Jindhagoda Peak (1,680m) and Mahendragiri in (1,501m) is the second highest peak.

 It is highly dissected and present in the form of hills. Mahendragiri in Odisha, Nallamala, Palkonda in Andhra Pradesh and Anaimalai, Javadi, Shevroy, Palni, Velangiri in Tamil Ndu are major peaks of Eastern Ghats. These hills are separated by Mahanadi, Godavari, Krishna and Kaveri rivers.

**Western Ghats**

 The average heights of Western Ghats are 1,000 m to 1,300 m as compared to Eastern Ghats which are 600 m high. Western Ghats extend for a length of 1,600 m from the Tapi river valley in the north to Nilgiri Hills in the South.

 The four important passes from north to south are Thalghat, Bhorghat, Palghat and Senkota.

 **Thal Ghat** - **Bhor Ghat** - **Pal Ghat** -

 **Senkota Pass** -

Links Nasik to Mumbai Links Mumbai to Pune

between Nilgiris and Anaimalai Hills betweem Nagercoil and Cardamom

hill linking Thiruvananthapuram & Madurai

The Western Ghats meets the Eastern Ghats in the south at Nilgiri Hills.

 The highest peak of Northern Sahyadri is Kalsubai (1,646 m) whereas the highest peak of southern Sahyadri is Kudremukh (1,892 m). The second highest peak of Southern Sahyadri is Pushpagiri (1714 m). Kaveri river originates near Pushpagiri.

 Cardamom Hills are located in the south of Western Ghats in Kerala and the south of the Annamalai hills in Tamil Nadu. Annamalai is located to its south west, Palani hills to the north-east and the Agasthyamalai is located to its south.

The highest peak of the south India is Anaimudi (2,695 m) which is located on the Annamalai Hills. Dodabetta (2,637 m) is the second highest peak of south India. Nilgiri Mountains are located at the meeting point of Karnataka, Kerala and Tamil Nadu.

27