INFUSION NOTES

WHEN ONLY THE BEST WILL DO

HPSC – HCS

(HARYANA PUBLIC SERVICE COMMISSION)

PRELIMS AND MAINS EXAM

Part – 4

India and World Geography

PREFACE

Dear Aspirants, Presented Notes "**HPSC - CSE (PRE + MAINS)**" have been prepared by a team of teachers, colleagues and toppers who are expert in various subjects. These notes will help the Aspirants to the fullest extent possible in the examination of Haryana Civil Services conducted by the "**HARYANA PUBLIC SERVICE COMMISSION (HPSC).**"

Finally, despite careful efforts, there may be chances of some shortcomings and errors in the notes / So your suggestions are cordially invited in Infusion notes.

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Indian History and Art and Culture

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GEOGRAPHY OF INDIA

Chapter – 1

General Introduction

- **Meaning and Definition:** – "Geography" is an English word, which is inspired from the Greek word 'Geographia'. Its literal meaning is "to describe the earth".
- The word Geography was first used by the Greek scholar 'Eratosthenes' (276-194 BC), after which this earth science subject came to be known as Geography at the global level.
- Most of the Greek and Roman sciences considered the earth to be 'flat' or 'disc-shaped', whereas in Indian literature, the earth and other celestial bodies were always described as 'spherical'. Therefore, this science is known as 'Geography'.
- Geography is the science of 'Earth surface'. In this, space and its various characteristics, distributions and spatial relations are studied as the human world.
- The earth surface is the foundation of geography, on which all physical human events and internal activities are taking place. All these activities are taking place in the changing relation of 'time' and 'place'.
- The geographical meaning of the earth surface is very broad, in which the lithosphere, hydrosphere, atmosphere, biosphere, the effect of the sun and the moon on the earth and the movements of the earth are scientifically assessed.
- The physical and human aspects and their mutual relations are studied in geography. Therefore, from the very beginning, two major branches of the subject of Geography have emerged1
  (1) Physical Geography (ii) Human Geography
- With the passage of time, due to increased specialization (after the year 1950), many sub-branches of these two branches developed, which brought about enrichment in the subject matter and subject area.
- **The following are the major branches and sub-branches of Geography:-**

Physical Geography	Human Geography
Geodesy	Economic Geography
Geophysics	Agricultural Geography
Astronomical Geo	Resource Geo
Geomorphology	Industrial Geography
Climatology	Transport Geography
Oceanography	Population Geography
Hydrology	Settlement Geography (i) Urban Geography (ii) Rural Geography)
Glaciology	Political Geography
Soil Geography	Military Geography
Bio - Geography	Historical Geography
MedicalGeography	Social Geography
Ecology / Environment Geography	Cultural Geography
Cartography)	Regional Planning
	Remote Sensing and G.I.S.

Practice Questions

1. The branch of geography which studies temperature, air pressure, direction and speed of winds, humidity, air masses, disturbances etc. is-
(A) Astronomical Geography
(B) Soil Geography
(C) Oceanography
(D) Climatology
Answer: (D)

2. There are two main branches of geography
(A) Agricultural Geography and Economic Geography
(B) Physical Geography and Human Geography
(C) Plant Geography and Animal Geography
(D) Weather Geography and Climate Geography
Answer: (B)

3. Which geographer used the terminology Geography for the first time?
(a) Eratosthenes
(b) Heredois
(c) Strabo
(d) Ptolemy
Answer: (a)

4. The age of the earth is considered to be

(a) 4.8 billion years
(b) 5.0 billion years
(c) 4.6 billion years
(d) 3.9 billion years

Answer: (c)

Chapter – 2

Geographical Location and Expanse of India

- Our country was named Bharat after the branch of Aryans named Bharat or the great man Bharat.
- In ancient times, it was known as Aryavart because it was the land of Aryans.
- The Iranians named the residents of the Sindhu River as Hindus and this land area as Hindustan.
- The Romans called the Sindhu River as Indus and the Greeks called Indos and this country as India. This country is famous in the world today as India.
- India is a country in the continent of Asia, which is located in the southern part of Asia and is surrounded by seas on three sides. The whole of India falls in the Northern Hemisphere.
- The latitudinal expansion of India is from 8°4' North latitude to 37°6' North latitude.
- Longitude of India is from 68°7' East longitude to 97°25' East longitude.
- Area of India is 32, 87,263 sq. km. (1269219.34 sq. miles).

Tropic of Cancer i.e. 23½ North latitude passes almost through the middle of our country. This line divides India into two parts (1) Northern India, which is spread in the temperate zone and (2) Southern India, which is spread in the tropical zone.

Tropic of Cancer passes through eight states of India namely Gujarat, Rajasthan, Madhya Pradesh, Chhattisgarh, Jharkhand, West Bengal, Tripura and Mizoram.

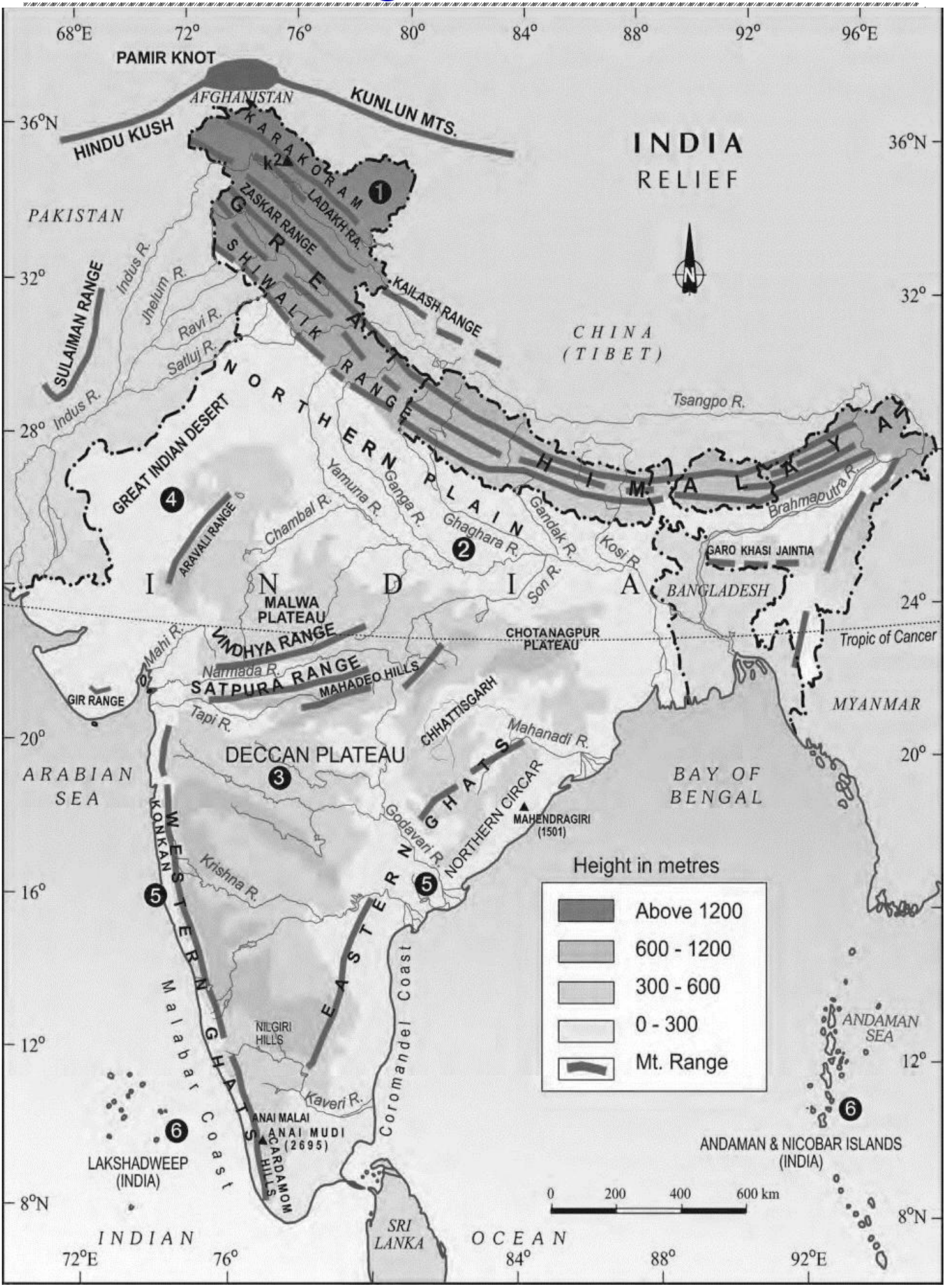
NOTE- Capital of Rajasthan Jaipur, capital of Tripura Agartala and capital of Mizoram Aizawl are situated to the north of Tropic of Cancer and capitals of remaining states are situated to the south. NOTE – Manipur is situated to the north of the Tropic of Cancer.

Q: Which of the following Indian states is situated to the north of the Tropic of Cancer?

(1) Tripura (2) Manipur
(3) Mizoram (4) Jharkhand

Answer: - (2)

NOTE- The Tropic of Cancer passes least through Rajasthan and most through Madhya Pradesh.


INDIA
RELIEF
PAMIR KNOT
AFGHANISTAN
KUNLUN MTS.
HINDU KUSH
KARAKORAM
K2
LADAKH RA.
ZASKAR RANGE
GREAT HIMALAYAN RANGE
SHIWALIK RANGE
KAILASH RANGE
PAKISTAN
SULAIMAN RANGE
Indus R.
Jhelum R.
Ravi R.
Satluj R.
CHINA (TIBET)
Tsangpo R.
NORTHERN PLAIN
GREAT INDIAN DESERT
ARAVALI RANGE
Chambal R.
Yamuna R.
Ganga R.
Ghaghara R.
Gandak R.
Kosi R.
Son R.
Brahmaputra R.
GARO KHASI JAINTIA
BANGLADESH
INDIA
MALWA PLATEAU
VINDHYA RANGE
Mahi R.
Narmada R.
SATPURA RANGE
MAHADEO HILLS
GIR RANGE
CHOTANAGPUR PLATEAU
Tropic of Cancer
MYANMAR
Tapi R.
CHHATTISGARH
Mahanadi R.
DECCAN PLATEAU
ARABIAN SEA
BAY OF BENGAL
WESTERN GHATS
KONKAN
EASTERN GHATS
NORTHERN CIRCAR
MAHENDRAGIRI (1501)
Godavari R.
Krishna R.
Height in metres
Above 1200
600 - 1200
300 - 600
0 - 300
Mt. Range
Malabar Coast
NILGIRI HILLS
Coromandel Coast
Kaveri R.
ANAI MALAI
ANAI MUDI (2695)
CARDAMOM HILLS
LAKSHADWEEP (INDIA)
ANDAMAN SEA
ANDAMAN & NICOBAR ISLANDS (INDIA)
0 200 400 600 km
SRI LANKA
INDIAN OCEAN
68°E 72° 76° 80° 84° 88° 92° 96°E
36°N 32° 28° 24° 20° 16° 12° 8°N

- India makes up about 1/46th of the world's total land area.
- In terms of area, India ranks 7th in the world, after Russia, Canada, China, the United States, Brazil, and Australia.
- India's area is about 1/5th of Russia's, 1/3rd of the United States', and 2/5ths of Australia's.
- India is nine times larger than Japan and fourteen times larger than England.
- By population, India is second only to China.
- India has 2.4% of the world's land area but about 17.5% of the world's population (as of 2011).
- To the north of India are Nepal, Bhutan, and China. To the south are Sri Lanka and the Indian Ocean. To the east are Bangladesh, Myanmar, and the Bay of Bengal. To the west are Pakistan and the Arabian Sea.
- The sea areas that separate India from Sri Lanka are the Gulf of Mannar and the Palk Strait.
- The southernmost point of mainland India is Cape Comorin (Kanyakumari) in Tamil Nadu.
- The southernmost point of India overall is Indira Point in the Great Nicobar Island.
- The northernmost point of India is Indira Col in Ladakh.
- India's standard time (Indian Standard Time) is based on the location near Naini in Allahabad, which is at 82°30' east longitude. It is 5 hours and 30 minutes ahead of Greenwich Mean Time (GMT). This standard time line passes through five states: Uttar Pradesh, Madhya Pradesh, Chhattisgarh, Odisha, and Andhra Pradesh.
- The Tropic of Cancer and the standard time line cross each other in Chhattisgarh.
- The length of India from north to south is 3,214 km, and from east to west is 2,933 km.
- The total length of India's coastline, including the mainland, Lakshadweep, and the Andaman and Nicobar Islands, is 7,516.6 km. The length of India's land border is 15,200 km. The mainland coastline alone is 6,100 km.

Coastal/Maritime Border of India: The total coastline length is 7,516.6 km. The coastline of the mainland is 6,100 km.

Total States with Coastline: 9
Western Coast States: Gujarat (with the longest coastline among states), Maharashtra, Goa (with the shortest coastline among states), Karnataka, and Kerala.
Eastern Coast States: West Bengal, Odisha, Andhra Pradesh, and Tamil Nadu.

Total Union Territories: 4
Most: Andaman and Nicobar Islands
Least: Puducherry

States and Union Territories with International Borders: 16 states and 2 union territories.

Border Points of the Country:

- Southernmost Point:Indira Point (Great Nicobar Island)
- Northernmost Point: Indira Col (Ladakh)
- Westernmost Point: Gohar Mata (Gujarat)
- Easternmost Point:Kibithu (Arunachal Pradesh)
- Southernmost Point of the Mainland:Cape Comorin (Kanyakumari, Tamil Nadu)

Indian States having Land Borders

Pakistan (4)	Gujarat, Rajasthan, Punjab, Jammu and Kashmir, Ladakh
Afghanistan (1)	Ladakh
China (5)	Ladakh, Himachal Pradesh, Uttarakhand, Sikkim, Arunachal Pradesh
Nepal (5)	Uttar Pradesh, Uttarakhand, Bihar, West Bengal, Sikkim
Bhutan (4)	Sikkim, West Bengal, Assam, Arunachal Pradesh
Bangladesh (5)	West Bengal, Assam, Meghalaya, Tripura, Mizoram
Myanmar (4)	Arunachal Pradesh, Nagaland, Manipur, Mizoram

Extension of borders between neighbouring countries

India - Bangladesh border	4096.7 km.
India-China	3488 km.
India-Pakistan border	3323 km.
India - Nepal border	1751 km.
India - Myanmar border	1643 km.
India - Bhutan border	699 km.
India - Afghanistan	106 km. (currently located in POK)

1. Border Sea: -

Agreement - UN Convention on low of Sea UNCLOS

One nautical mile + 1.852 km

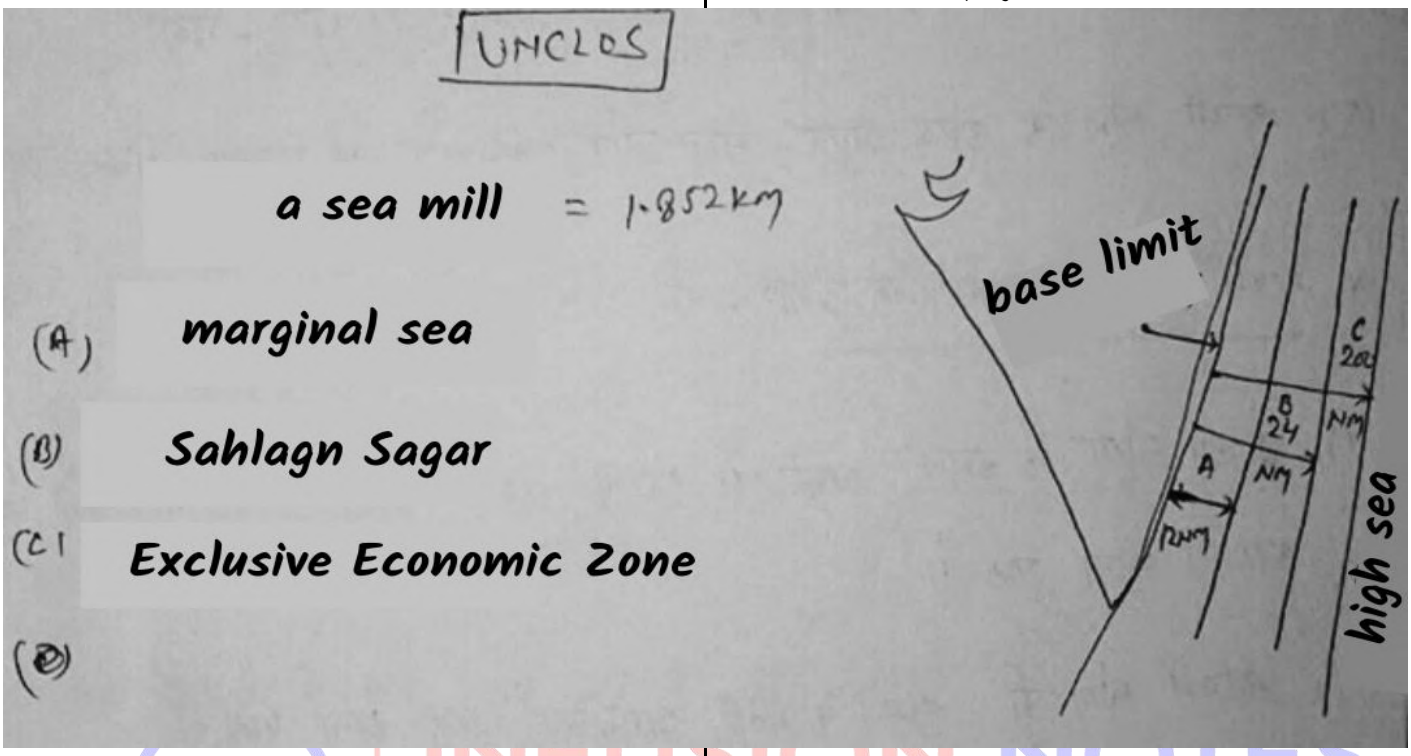
(A) Border Sea

(B) Contiguous Sea

(C) Exclusive Economic Zone

(A) Border Sea: -

- This area extends up to a distance of 12 NM from the baseline1
- India has monopoly in this area1



Enclosed Sea Areas

- Territorial Sea: This area extends up to 24 nautical miles (NM) from the baseline.
- India has financial rights here, so it can impose customs duties and other regulations.

Exclusive Economic Zone (EEZ):

- This area extends up to 200 NM from the baseline.
- India has rights for research, constructing artificial islands, and exploiting ocean resources here.

Benefits of the Coastal Border:

1. Monsoon Rain: The coastal border helps bring monsoon rains to India and keeps the climate moderate in southern India.
2. Ports: Coastal areas allow the construction of ports which are used for importing and exporting goods.
3. Connectivity: The coastline connects India with various countries.
4. Tourism: Coastal areas are important for tourism, such as Goa.
5. Marine Resources: The coastal border allows India access to ocean resources.

Negative Effects of the Coastal Border:

1. Natural Disasters: India faces natural disasters like tsunamis and cyclones because of its coastal border.
2. Security Costs: Extra expenses are needed to protect the coastline.
3. Piracy and Smuggling: Coastal areas are vulnerable to piracy and smuggling.

Border and Disputes with Neighboring Countries

1. India – Bangladesh

States with Border: Five states share a border

with Bangladesh: West Bengal (longest), Assam (shortest), Meghalaya, Tripura, and Mizoram.

Tripura: This state is entirely surrounded by Bangladesh.

Assam: Shares two border segments with Bangladesh.

Zero Line: The border between Bangladesh and India is called the Zero Line.

Doklam Dispute (2017): The dispute arose when China attempted to build a road in Indian Territory, leading to a standoff. Doklam is strategically close to the Siliguri Corridor, a critical area for India.

String of Pearls:
'String of Pearls' is an undeclared policy adopted by China to encircle India. It involves China building ports and naval bases around India's maritime approaches. It is a policy to encircle India by building ports and naval bases near India's maritime approaches such as Cocos Island (Myanmar), Chittagong (Bangladesh), Hambantota (Sri Lanka), Maro Atoll (Maldives) and Gwadar (Pakistan).

Stapled Visas: China issues stapled visas to people from Arunachal Pradesh, which India disputes.

River Water Dispute: There is a dispute over the Brahmaputra River's water sharing. China has built several dams in the river's upper reaches, but no formal agreement exists between India and China.

3. India – Pakistan
States with Border: Three states share a border with Pakistan: Gujarat, Rajasthan (longest), Punjab (shortest), and two union territories: Jammu and Kashmir and Ladakh.

Radcliffe Line: The boundary between India and Pakistan established in 1947.

Disputes with Pakistan:

Kashmir Issue and POK:
The Kashmir issue has remained between India and Pakistan since the attack of the tribesmen on Jammu and Kashmir on 24 October 1947. After this attack, Maharaja Hari Singh of Jammu and Kashmir decided to merge Jammu and Kashmir with India, after which a face-to-face war started between India and Pakistan. India went to the United Nations with this issue where the United Nations mediated between the two countries and declared a ceasefire, but India could not gain control over the Jammu and Kashmir territory occupied by Pakistan. Since this war, on the one hand, while India calls Pakistan Occupied Kashmir (Pak Occupied Kashmir- POK) its integral part and talks about returning it, on the other hand, Pakistan's intention is to occupy the rest of Kashmir as well.

Line of Control (LoC): The ceasefire line drawn in 1948 became the LoC after the 1972 Shimla Agreement. It extends to the Siachen Glacier.

SIR Creek Border:
There has been a dispute over the Sir Creek border line located on the border of Gujarat state with Pakistan. The Sir Creek border line dispute is due to the ambiguity of the maritime boundary line between Kutch and Sindh. Before independence, this area was part of the Bombay Presidency of British India. After India's independence in 1947, Sindh became a part of Pakistan, while Kutch remained a part of India. This area is very important from a strategic point of view. This area is also one of the largest fishing areas in Asia, due to which it is also very important for fishermen. Also, this area has its own importance due to the presence of huge reserves of oil and gas under the sea of this area.

Siachen Glacier:
Siachen Glacier is located in the eastern Karakoram Range in the Himalayas, northeast of Point NJ9842, where the Line of Control between India and Pakistan ends. It is the second longest glacier in the world's non-polar regions.
Siachen Glacier is the world's highest battlefield. The entire Siachen Glacier came under the administrative control of India in the year 1984 (Operation Meghdoot).

Indus Water Treaty (1960):
On 19 September 1960, with the help of the World Bank, the Indus River Water Treaty was signed between India and Pakistan regarding these six rivers flowing from India to Pakistan - Jhelum, Chenab, Ravi, Beas and Sutlej. According to the agreement, 80% of the water of the 3 eastern rivers (Ravi, Beas and Sutlej) was to be given to India and 20% to Pakistan, while 80% of the water of the remaining 3 western rivers (Jhelum, Chenab, Indus) was to be given to Pakistan and 20% to India.
The Indus River Water Treaty came into force from 12 January 1961. This treaty was signed by the then Prime Minister of India Jawaharlal Nehru and the then President of Pakistan Ayub Khan in Rawlipindi.

Tashkent Agreement 1966

It was a peace agreement between India and Pakistan on January 10, 1966. This agreement was signed after the Indo-Pak war of 1965. According to the Tashkent Agreement, it was decided that India and Pakistan would not use their power and would resolve their disputes peacefully. This agreement was signed between the Prime Minister of India Lal Bahadur Shastri and the Prime Minister of Pakistan Ayub Khan.

Shimla Agreement 1972

The Shimla Agreement was signed after the Indo-Pak war of 1971. This agreement was signed on July 2, 1972. Actually, during the Indo-Pak war of 1971, about 90 thousand soldiers were taken prisoner by India and India also occupied a large area of Pakistan. As a result of all this, the Shimla Agreement was signed between the then Indian Prime Minister Indira Gandhi and the President of Pakistan Zulfikar Ali Bhutto.

4. India – Nepal

States with Border:Five Indian states share a border with Nepal: Uttarakhand, Uttar Pradesh (longest), Bihar, Sikkim (smallest), and West Bengal.

Kalapani and Susta Dispute:

- According to Nepal's Foreign Ministry, the Sugauli Treaty (1816) considers all areas east of the Kali (Mahakali) River, including Limpiyadhura, Kalapani, and Lipulekh, as part of Nepal.
- India, however, considers these areas as part of Uttarakhand's Pithoragarh district, while Nepal considers them part of the Darchula district.
- When 98% of the India-Nepal border was demarcated, two areas, Susta and Kalapani, were left unresolved.

  In 2019, Nepal issued a new political map claiming Kalapani, Limpiyadhura, and Lipulekh in Uttarakhand, as well as the Susta region in Bihar.

5. India – Myanmar

- States with Border: Four Indian states share a border with Myanmar: Arunachal Pradesh (largest), Nagaland, Manipur, and Mizoram.

Rohingya Issue:

- The Rohingya are a group living in Myanmar's Rakhine State, where they are persecuted by security forces supported by Buddhists.
- At least 1,000 people have been killed, and over 300,000 have been forced to flee their homes and leave the country.

6. India – Bhutan

States with Border: Four Indian states share a border with Bhutan: Sikkim (smallest), West Bengal, Assam (largest), and Arunachal Pradesh.

Additional Information

- Largest State by Area: Rajasthan is the largest state in India by area, covering 10.41% of the country's total area.
- Largest State by Population: Uttar Pradesh is the most populous state in India.
- Smallest State by Area: Goa is the smallest state in India by area.

Top five states by area

State	Area sq. km.
Rajasthan	342239
Madhya Pradesh	308245
Maharashtra	307713
Uttar Pradesh	240928
Gujarat	196024

Question: – What percentage of the total land area of India is in Rajasthan?

(1) 10.4 % (2) 7.9%

(3) 13.3 % (4) 11.4 %

Answer – (1)

Top five districts by geographical area in India

District	Area sq. km.
Kutch	45652
Leh	45110
Jaisalmer	38428
Barmer	28387
Bikaner	27284

- Sikkim is the smallest state in India in terms of population.
- Andaman-Nicobar Islands is the largest union territory in terms of area.
- Lakshadweep is the smallest union territory in terms of area.
- Delhi is the largest union territory in terms of population.
- Lakshadweep is the smallest union territory in terms of population.

- Uttar Pradesh shares its border with the maximum number of states (8)- Uttarakhand, Himachal Pradesh, Haryana, Rajasthan, Madhya Pradesh, Chhattisgarh, Jharkhand and Bihar.
- Uttar Pradesh is the state with the maximum number of cities in India, while Meghalaya has the least number of cities.
- Maharashtra is the state with the highest urban population in India, while Sikkim has the least urban population.

Major channel / strait

Divided Landmass	Channels / Bays / Straits
Indira Point-Indonesia	Great Channel
Little Andaman-Nicobar	10° Channel
Minicoy-Lakshadweep	9° Channel
Maldives-Minicoy	8° Channel
India-Sri Lanka	Pak Strait

Practice Questions

1. The latitudinal and longitudinal extent of India is respectively-
(A) From 8°4' North Latitude to 37°6' North Latitude and from 68°7' East Longitude to 97°25' West Longitude
(B) From 8°4' North Latitude to 37°6' North Latitude and from 68°7' East Longitude to 97°25' East Longitude
(C) From 8°4' North Latitude to 37°6' South Latitude and from 68°7' East Longitude to 97°25' East Longitude
(D) From 68°7' North Latitude to 97°25' North Latitude and from 8°4' East Longitude to 37°6' East Longitude
Answer: (B)

2. Tropic of Cancer passes through how many states of India?
(A) 5
(B) 6
(C) 7
(D) 8
Answer: (D)

3. Which state of India does not share its border with Nepal?
(A) West Bengal (B) Sikkim
(C) Bihar (D) Himachal Pradesh
Answer: (D)

4. According to ancient Indian geographical belief, Bharatvarsh was a part of which island?
(A) Pushkar Island (B) Jambu Island
(C) Kanch Island (D) Kush Island
Answer: (B)

5. The total area of Indian landmass is approximately-
(A) 32, 87,263 sq. km.
(B) 1269219.34 square miles
(C) 32, 87,263 square acres
(D) Both A and B
Answer: (D)

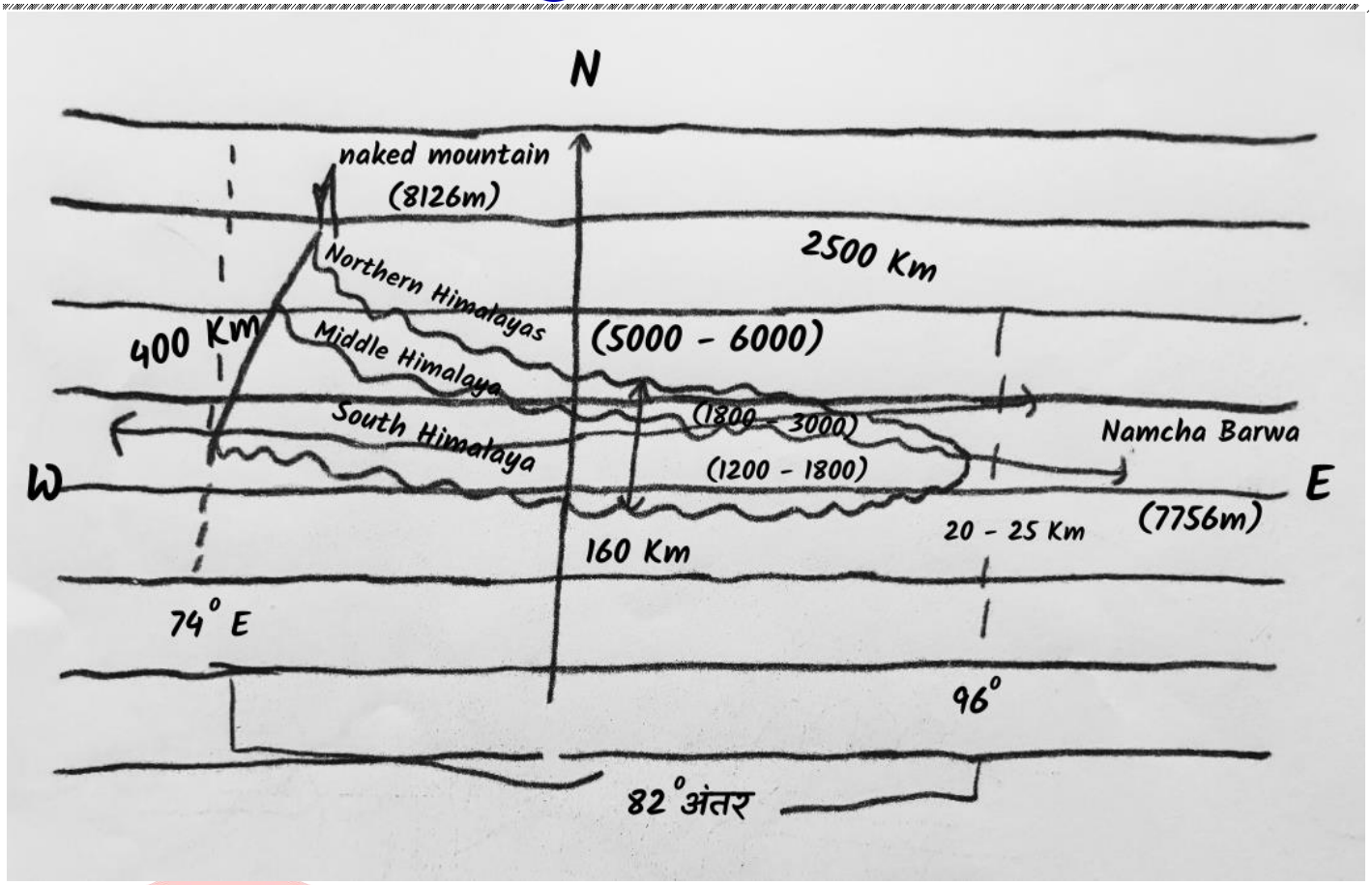
6. The strait that separates India and Sri Lanka is-
(A) Cook Strait (B) Malacca Strait
(C) Palk Strait (D) Sunda Strait
Answer: (C)

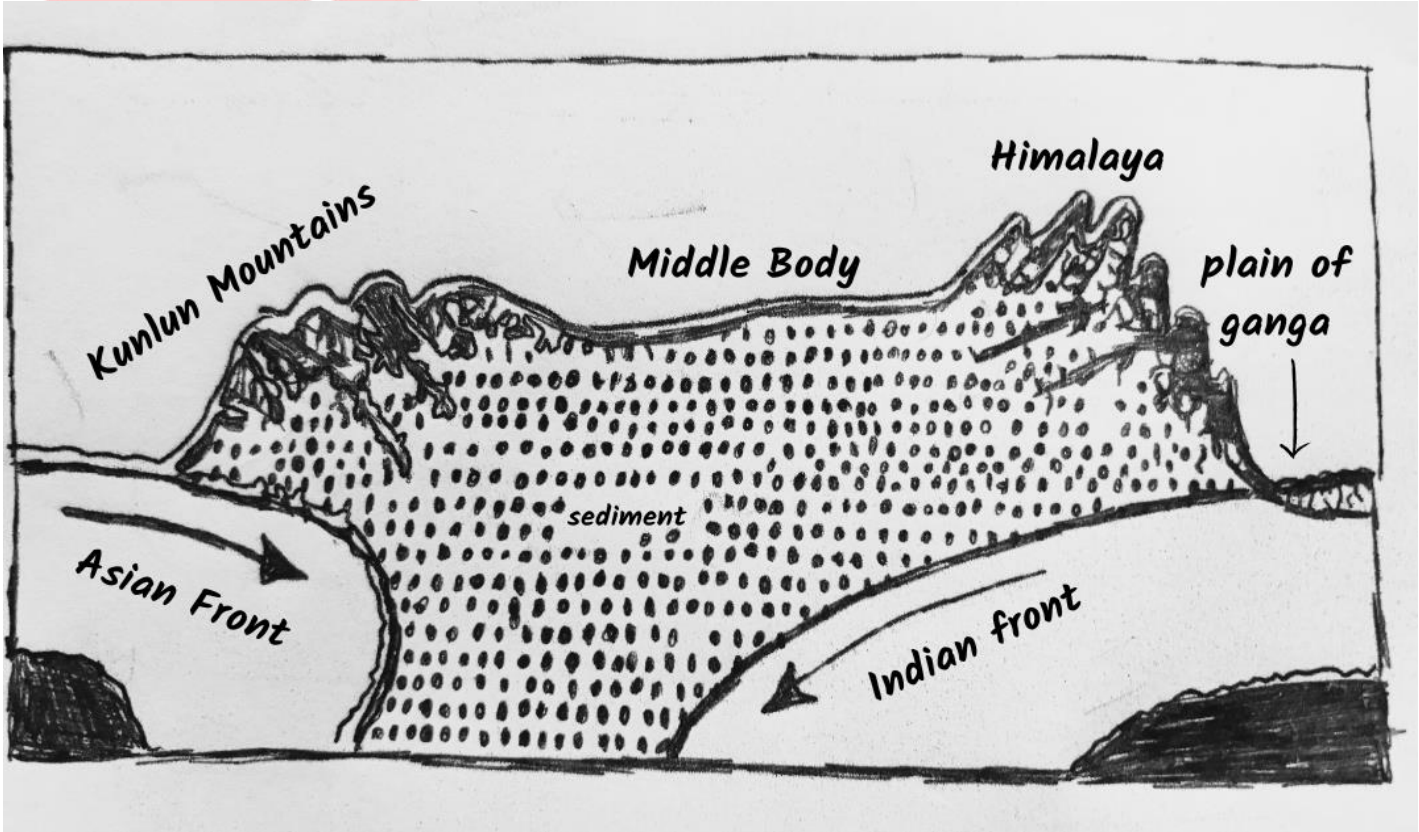
7. The border of which Indian state touches the border of maximum number of states?
(A) Madhya Pradesh (B) Assam
(C) Uttar Pradesh (D) Andhra Pradesh
Answer: (C)

8. Which one of the following major Indian cities is situated farthest towards east?
(A) Hyderabad (B) Bhopal
(C) Lucknow (D) Bangalore
Answer: (C)

9. The border of which state of India meets three countries namely Nepal, Bhutan and China?
(A) Arunachal Pradesh (B) Meghalaya
(C) West Bengal (D) Sikkim
Answer: (D)

10. How many states of India share a coastline?
(A) 7 (B) 8
(C) 9 (D) 10
Answer: (C)

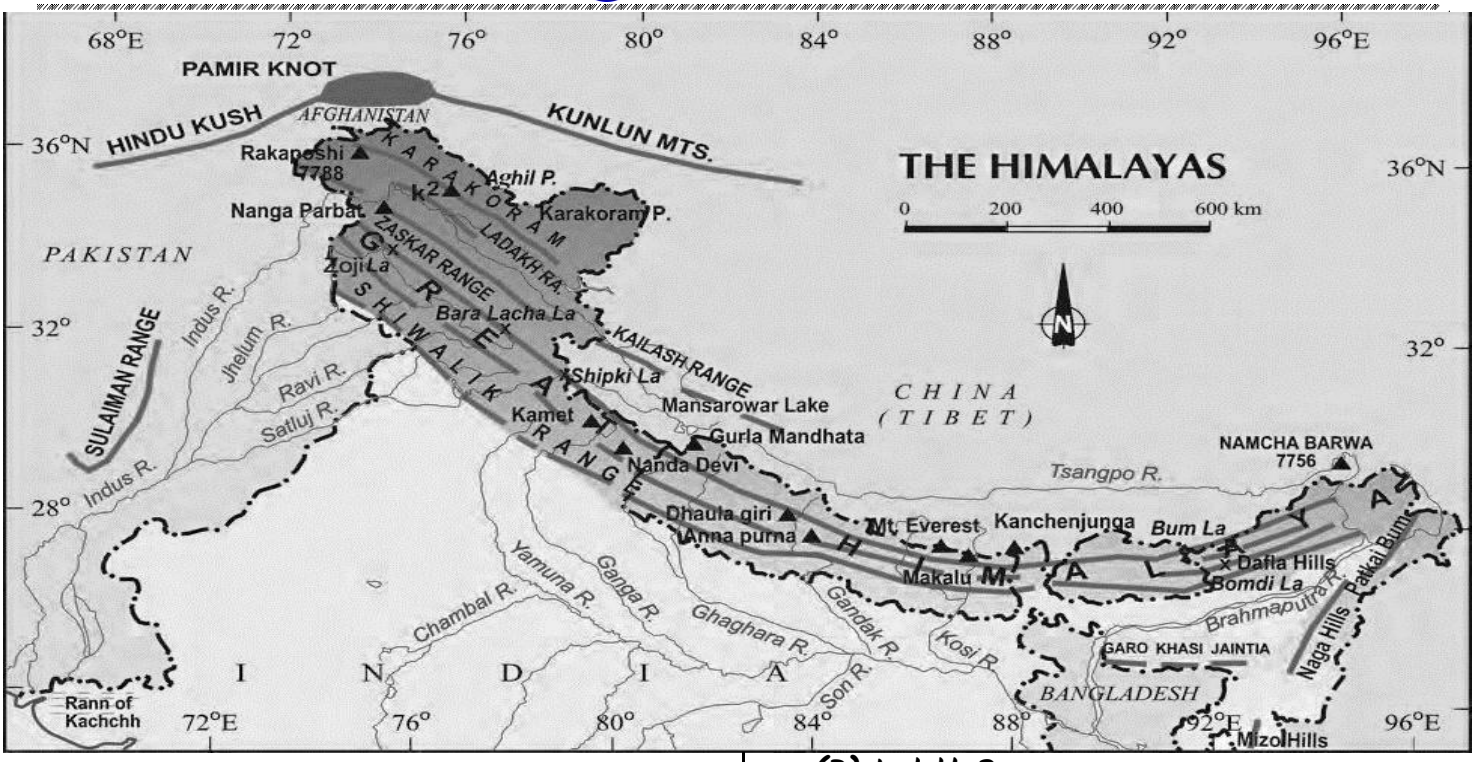




Geographically, it is divided into three main parts –

1. Greater Himalayas
2. Lesser Himalayas
3. Shivalik Himalayas

NOTE– *Some geographers also consider Trans Himalayas as its part. 1*



Trans-Himalayas

Formation: The Trans-Himalayas were formed before the Himalayas.

Ranges Included: Karakoram, Ladakh, Kailash, and Zanskar ranges.

Vegetation: These ranges have very little vegetation.

(A) Karakoram Range:

- The Karakoram is the northernmost range of the Trans-Himalayas.
- It was discovered by Sven Hedin in 1906.
- It is known as the "Backbone of Asia."
- The highest peak in India, K2 or Godwin-Austen (8,611 meters), is in the Karakoram range.
- K2 is the second highest peak in the world.
- The Karakoram Pass and the Indira Col are located in this range.
- The Karakoram Pass is the world's highest pass, connecting Kashmir with China.
- The longest glacier in India, the Siachen Glacier, is in the Karakoram.
- The highest military post in the world, Siachen, is located here.
- The Nubra River originates from the Siachen Glacier, creating a valley in its flow area.
- Four major glaciers in the Karakoram Range are:
- Siachen (72 km)
- Baltoro (58 km)
- Biafo (63 km)
- Hispar (61 km)

(B) Ladakh Range:

- The world's steepest peak, Rakaposhi (7,788 meters), is in the Ladakh range.
- The Ladakh range lies southeast as the Kailash range.
- It acts as a water divider between the Indus River and its tributaries.
- The highest plateau in India, the Ladakh Plateau, is located here, and the famous Puga Valley for geothermal energy is found on this plateau.
- The driest area in India, Dras, is also here.
- The highest peak in this region is Mount Kailash.
- This region has saline lakes like Dal and Wular, and saline lakes like Pangong Tso (the highest saltwater lake in the world, near the Galwan Valley) and Tso Moriri.

(C) Zanskar Range:

- The Zanskar range is located parallel to the Ladakh Himalayas to the south.
- Nanga Parbat is the highest peak in this range.
- The Indus River flows between the Ladakh and Zanskar ranges.
- The Shyok River flows through this range.

Northern Himalayas or Great Himalayas or Maha Himalayas

Expansion: The Northern Himalayas extend from Nanga Parbat to Namcha Barwa in a crescent shape, with a total length of 2,500 km and an average height of 5,000-6,000 meters.

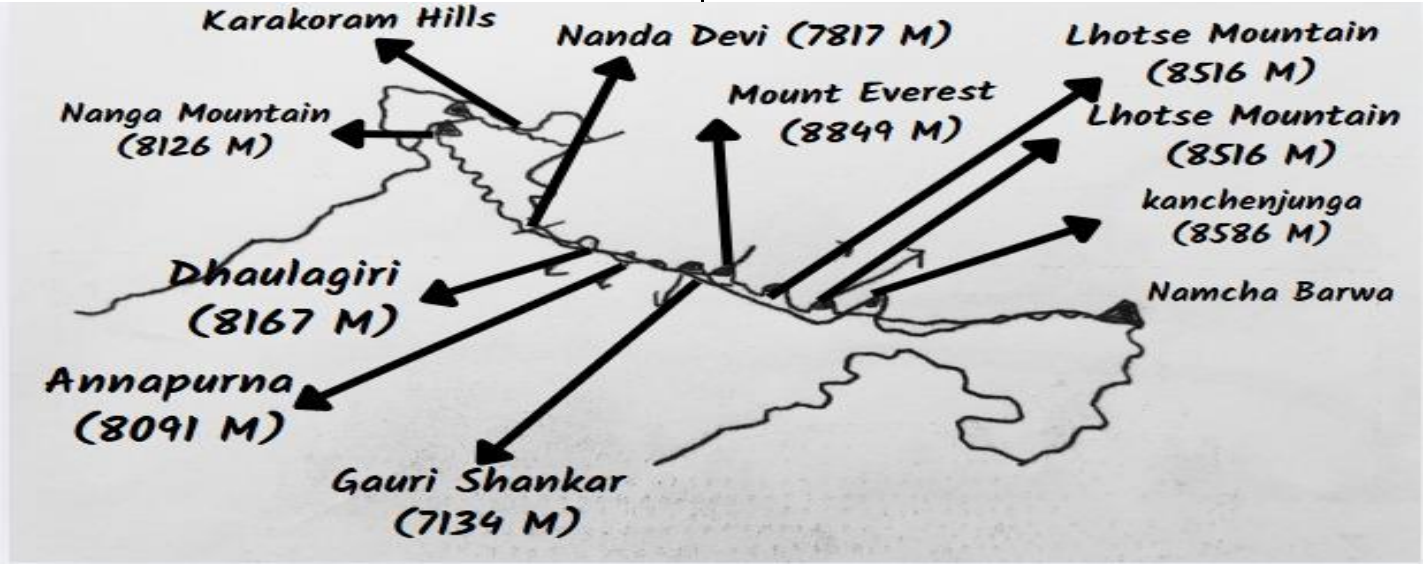
- **Division:** The Northern Himalayas can be divided into two parts from a physical perspective.
- **Highest Peaks:** The world's highest peaks are found in this range, including:
- Mount Everest (8,848 meters) - the highest peak in the world
- Kanchanjunga (8,598 meters)
- Makalu (8,481 meters)
- Dhaulagiri (8,172 meters)
- Annapurna (8,076 meters)
- Nanda Devi (7,817 meters)

- **Everest:** It was formerly known in Tibet as "Chomolungma," which means "Goddess Mother of the World."

- **Important Peaks: Everest**, Kanchanjunga, Makalu, Dhaulagiri, Nanga Parbat, and Namcha Barwa are significant peaks.

- **Highest Peak in India:** Kanchanjunga is the highest peak in India and the third highest peak in the world.

- **Kashmir:** The Kashmir Himalayas are known for Karewa deposits, where saffron (a type of spice) is cultivated.
  Important Passes The Great Himalayas feature important passes like Zoji La, Pir Panjal, Banihal, Fotula in the Zanskar range, and Khardung La in the Ladakh range.



Indus and Its Tributaries

The Indus River, along with its tributaries like Jhelum and Chenab, flows through this region.
The Himalayas are known for their unique beauty and stunning views. These picturesque landscapes attract many tourists, with major pilgrimage sites including Vaishno Devi, Amarnath Cave, and Charar-e-Sharif.

Lesser or Middle or Himachal Himalayas

- **Location:** This range lies south of the Great Himalayas and north of the Shivaliks.
- **Average Height:** 1,800-3,000 meters.
- Ranges Included:
- Pir Panjal (Jammu and Kashmir)
- Dhauladhar (Himachal Pradesh)
- Nag Tibba (Uttarakhand)
- Kumaon (Uttarakhand)
- Mahabharat (Nepal)

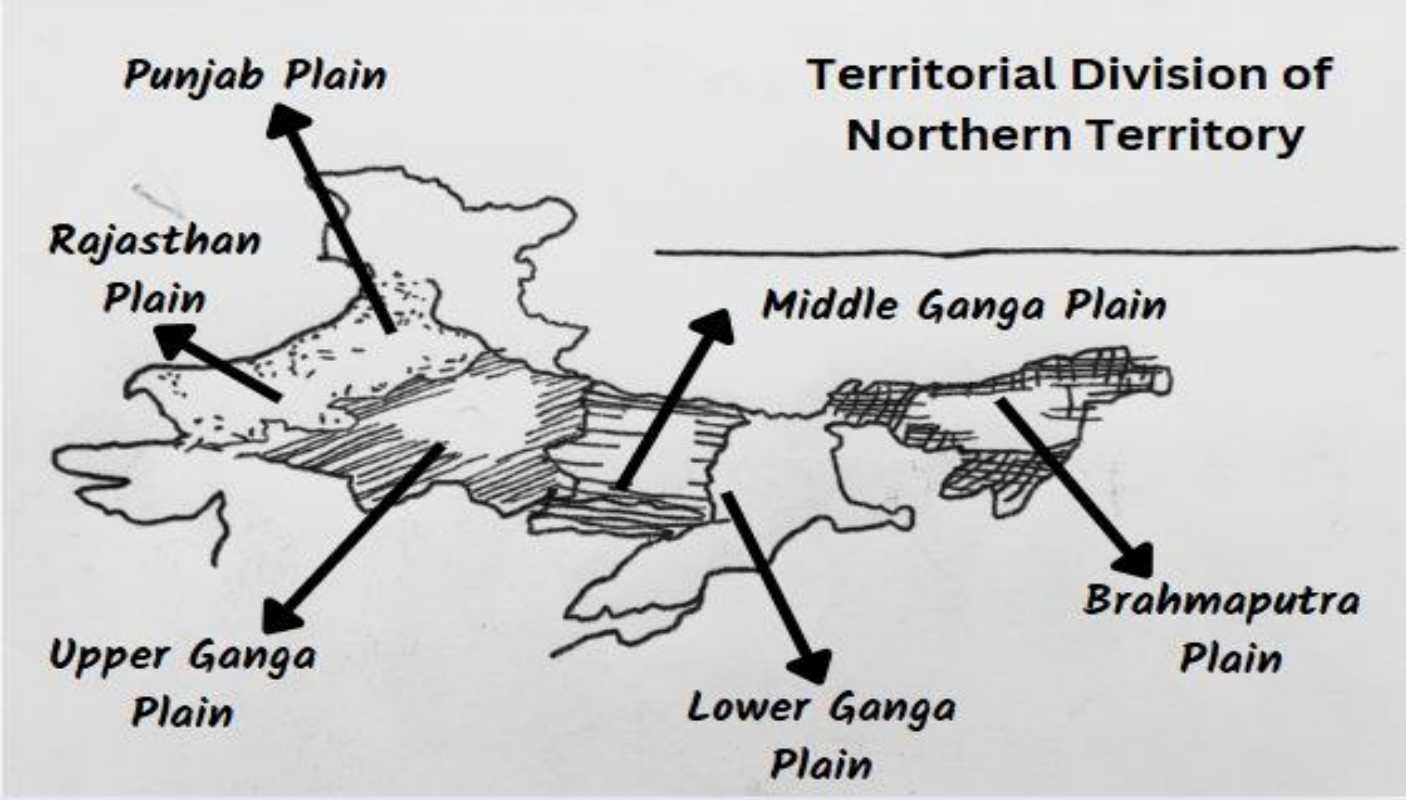
- **Valleys:** Many valleys are found between the Lesser Himalayas and the Great Himalayas:
- Kashmir Valley (Jammu and Kashmir)
- Kullu - Kangra Valley (Himachal Pradesh)
- Kathmandu Valley (Nepal)

Famous Tourist Spots:

- For health and wellness tourism, famous places include Kullu, Manali, Dalhousie, Dharamshala, and Shimla (Himachal Pradesh), Almora, Mussoorie, and Chamuoli (Uttarakhand).
- Grasslands: The slopes of the Lesser Himalayan ranges have temperate grasslands called 'Margs' in Jammu and Kashmir (like Gulmarg, Sonmarg) and 'Bugyals' and 'Payars' in Uttarakhand.

Outer Himalayas or Shivaliks

Location: The Shivalik range, also known as the Outer Himalayas, lies south of the Middle Himalayas and is located south of the Lesser Himalayas.



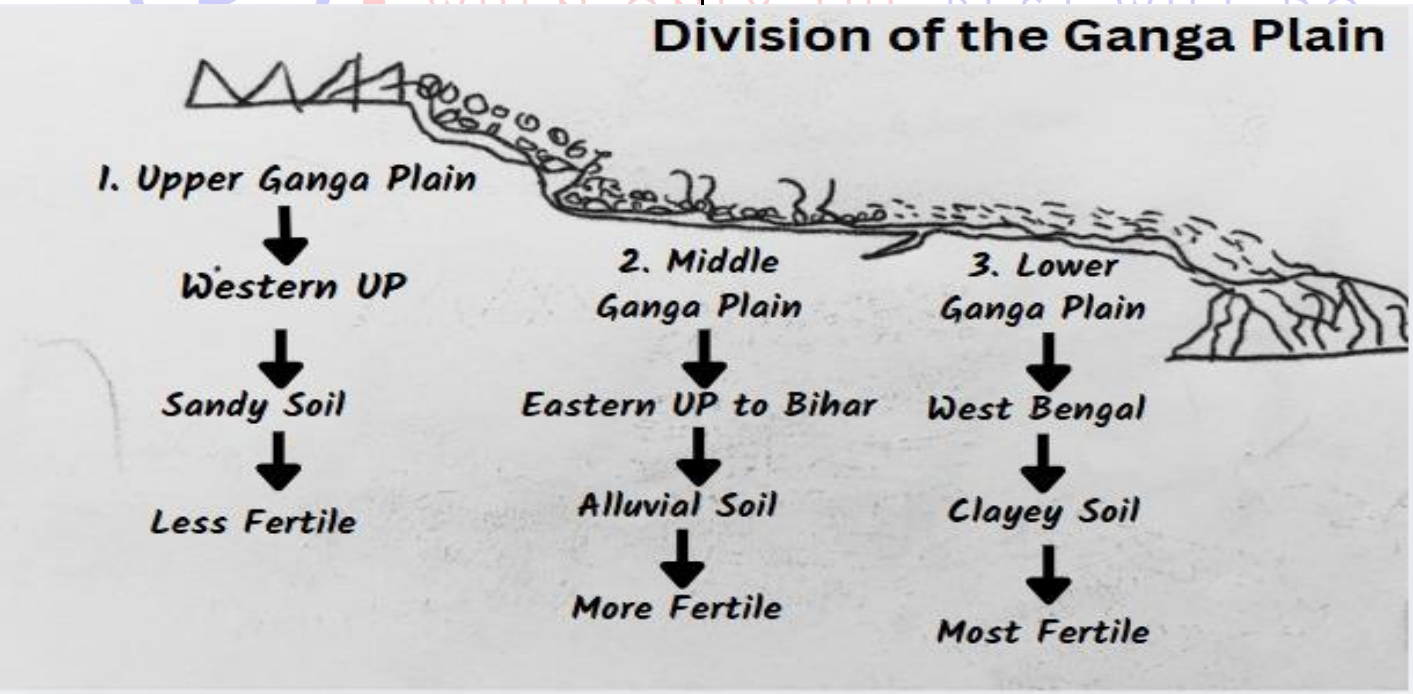
Punjab-Haryana Plain

- It is also called the Sutlej Plain
- This plain is 650km long and 300km wide.
- Ravi, Beas, Sutlej rivers flow in this plain.
- Slope- North East to South West
- Doabs formed by rivers in this region

Gangetic Plains –

Bari Doab	Between Ravi and Beas River
Bist Doab	Between Beas and Sutlej River
Chajh Doab	Between Jhelum and Chenab River
Richna Doab	Between Ravi and Chenab River

INFUSION NOTES
WHEN ONLY THE BEST WILL DO



Ganga Plain

- The Ganga Plain is the largest plain area in northern India.
- This plain is known for its high agricultural productivity.
- The slope of this plain is from northwest to southeast.
- The Ganga Plain is divided into three parts:

Upper Ganga Plain

- This plain is located between the Shivalik Hills to the north, the Peninsular Plateau to the south, the Yamuna River to the west, and Allahabad (Prayagraj) to the east.
- Major rivers in this region include the Ganga, Yamuna, Gomti, and Ghaghara.

Middle Ganga Plain

- This plain extends through eastern Uttar Pradesh and Bihar.
- Major rivers in this region include the Ganga and its tributaries like Ghaghara, Gandak, Kosi, and Saptakoshi.

Lower Ganga Plain

- This plain covers all of West Bengal except the northern hilly areas.
- Major rivers here include the Teesta, Ganga, Madhurakshi, Hooghly, Damodar, and Subarnarekha.
- The southern part of this plain is often flooded by tides.

Brahmaputra Plain

- Located between the Himalayas and the Meghalaya Plateau, this narrow strip is known as the Brahmaputra Plain.
- It is famous for rice and jute cultivation.
- The slope is from northeast to southwest.

Rajasthan Plain

- This is an arid and semi-arid sandy plain.
- Known as the Thar Desert, it stretches approximately 644 km in length and 350 km in width.
- It covers about 61.11% of Rajasthan's total area.

Question: What percentage of the Thar Desert is located in Rajasthan?

(1) 40% (2) 60%
(3) 80% (4) 90%

Answer: 60%

Difference between Khadar and Banger Regions ?
Khadar: Fertile floodplains formed by new alluvial deposits from rivers. These areas are very fertile and get new soil every year.
Banger: Higher areas in river valleys that are not reached by annual floods. These areas have relatively higher ground with soil mixed with pebbles.

Khadar	Bangar
1. These are plains made up of new alluvial soil.	1. While these are plains formed by ancient alluvial soil
2. These are the most fertile plains for agriculture.	2. While these are relatively less fertile or infertile plains
3. In Punjab these plains are called "Bet".	3. While these plains are called "Chhaya" in Punjab
4. Clay soil, silt soil etc. are predominant in these plains.	4. Calcium nodules and lime-rich resources are found in abundance in these plains

Difference between Bhabar and Terai

Bhabar	Terai
1. It is spread between Indus and Teesta river in the foothills of Shivalik.	1. While its expansion is found along the south of Bhabar.
2. Its average width is 8 to 16 km.	2. While its average width is between 15 to 30 km.
3. There is abundance of stones, pebbles and gravel in this area. 1 Due to which it is a permeable area.	3. It has a marshy area with relatively fine particles which is covered with forests.
4. Due to the presence of permeable rocks in this area, most of the rivers go underground and disappear.	4. The underground rivers of Bhabar region come to the Terai region and form marshy land.
5. This is not an agricultural area.	5. While these areas can be made suitable for agriculture by clearing the forests.

Exercise questions

1. Jet stream is a part of
(A) Various air masses
(B) Front
(C) Cyclone
(D) High level air circulation
Answer: (D)

2. The traditional concept about the origin of monsoon is
(A) Jet stream hypothesis
(B) Inter-tropical convergence hypothesis
(C) Established hypothesis
(D) El Nino - La Nina effect
Answer: (C)

3. The scholar who has considered the origin of monsoon due to fronts formed by the meeting of various air masses is
(A) Flon (B) Koteswaram
(C) Spate (D) Hamilton
Answer: (C)

4. If the equator passed through the middle of India, then the climate of India would have been –
(A) Hot and humid (B) Cold and humid
(C) Hot and dry (D) Cold and dry
Answer: (A)

5. If there were no Western Ghats, then the rainfall in the western coastal region would have been –
(A) More (B) Not at all
(C) Less (D) Uncertain
Answer: (C)

6. Which of the following set of states has annual rainfall of more than 200 cm?
(A) Nagaland, Meghalaya, Manipur and Arunachal Pradesh
(B) Meghalaya, Manipur, Uttar Pradesh and Madhya Pradesh
(C) Nagaland, Tamil Nadu, Arunachal Pradesh and West Bengal
(D) Madhya Pradesh, Manipur, Uttar Pradesh and Meghalaya
Answer:- (A)

7. Why is the climate of Chennai warmer than that of Kolkata, although both the places are situated on the sea coast?
(A) Because Chennai is at a little distance from the sea coast as compared to Kolkata
(B) There is only sand around Chennai
(C) Chennai is closer to the equator
(D) Chennai does not fall in the path of cold winds, whereas Kolkata does
Answer: (C)

8. In which state of India does it rain during winter?
(A) Kerala (B) Tamil Nadu
(C) West Bengal (D) Odisha
Answer: (C)

9. Consider the following statements -
1. The duration of monsoon decreases from South India to North India.
2. The amount of annual rainfall in the plains of North India decreases from east to west.
Which of the above statements is/are correct?
(A) Only 1
(B) Only 2
(C) Both 1 and 2
(D) Neither 1 nor 2
Answer: (C)

10. In which part of India is the highest diurnal temperature difference found?
(A) Eastern coastal region
(B) In the interior areas of Chhattisgarh plain
(C) In the Andaman Islands
(D) In the desert areas of Rajasthan
Answer (D)

Other important questions:-

1. Which areas of India receive winter rainfall?
2. What are the reasons for moist winter and dry summer in the Mediterranean climate region?
3. Explain the Bshw type of climate of India?
4. Explain the effect of "La-Nino" on the Indian monsoon?
5. Discuss the mountainous effect on the distribution of rainfall in India?
6. How has "La-Nino" been related to the Indian monsoon?

Chapter – 5

Drainage System of India

Drainage System of India:-

India is known as the land of rivers. Rivers play a vital role in the economic development of India and have been a source of livelihood for humans since ancient times.

- India has more than 4,000 small and large rivers, which can be classified into 23 major and 200 minor river categories.
- The linear form of a river is called a flow line. The combination of multiple flow lines is called a drainage network.

Drainage and Drainage System:-

The flow of water through specific channels is referred to as drainage, and the network of these channels is known as the drainage system.

Catchment Area:-

A river collects and flows water from a particular area, which is known as the catchment area.

Drainage Basin:-

The area drained by a river and its tributaries is called the drainage basin.

Drainage System of India

- **Based on Origin**
  - **Rivers Originating from the Himalayas**
    1. Indus River System
    2. Ganges River System
    3. Brahmaputra River System
  - **Rivers of Peninsular India**
    1. Godavari
    2. Mahanadi
    3. Krishna
    4. Kaveri
    5. Narmada
    6. Tapti
    7. Pennar
    8. Vaigai
    9. Sharavati
- **Based on Discharge into the Sea**
  - **Arabian Sea Rivers**
    1. Indus
    2. Mahi
    3. Narmada
    4. Tapti
    5. Periyar
    6. Mandovi
    7. Zuari
    8. Sharavati
  - **Bay of Bengal**
    1. Ganges
    2. Yamuna
    3. Krishna
    4. Kaveri
    5. Godavari
    6. Mahanadi
    7. Pennar
    8. Vaigai
    9. Barak
    10. Chambal
    11. Damodar
- **Based on Water Collection**

Himalayan Drainage System

- The rivers originating from the Himalayas are formed by the melting of snow and glaciers (ice or glacial melt), ensuring a continuous flow throughout the year. The basins of the Himalayan rivers are very large, and their catchment areas extend over hundreds to thousands of square kilometers. The rivers of the Himalayas are divided into three major river systems.
- The Himalayan drainage system holds significant importance in northern India.
- These rivers are rapidly deepening their valleys.
- The rivers of northern India carry eroded soil and deposit it in the plains and seas when the flow of water slows down. The soil brought by these rivers has formed the vast plains of northern India.
- The rivers in this region are perennial, as they receive water from both rainfall and snowmelt. These rivers pass through deep major blocks created by erosion occurring alongside the uplift of the Himalayas.

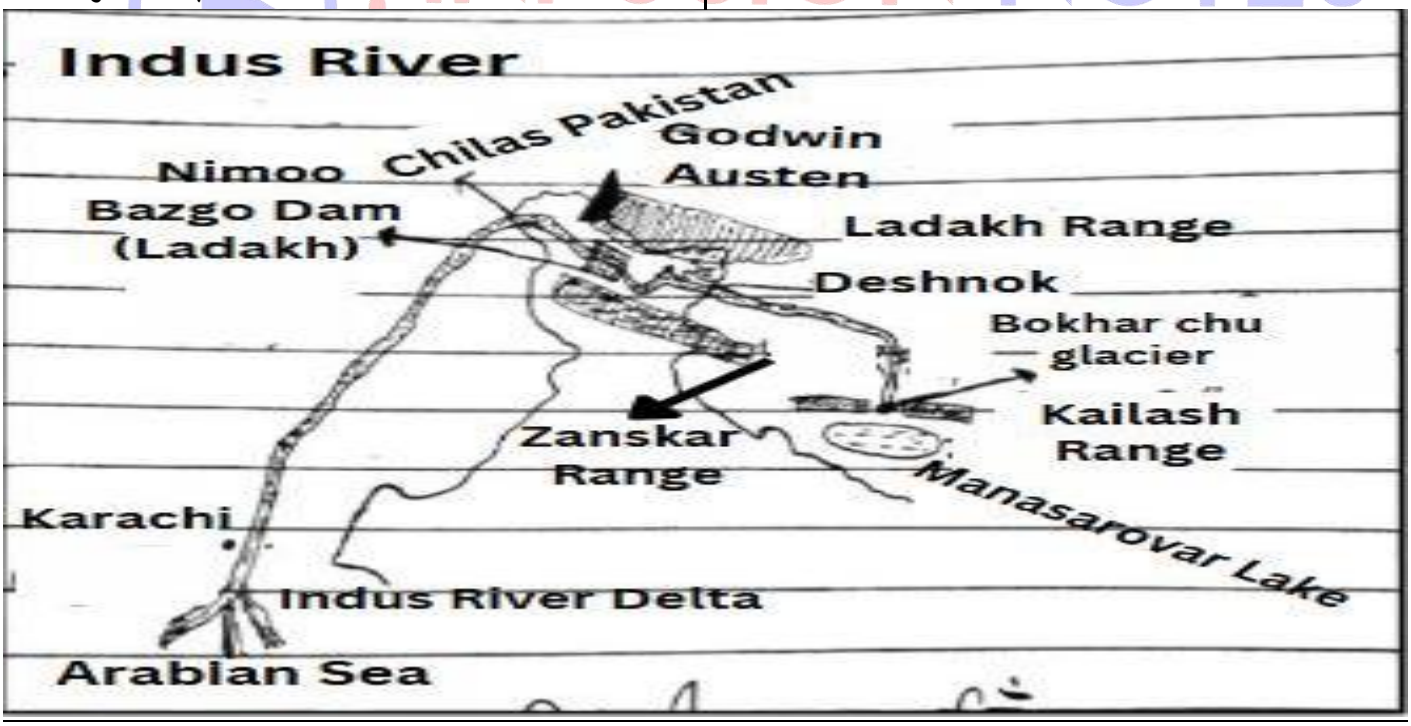
Question: Consider the following statements and select the correct answer:
Statement (A): The rivers originating from the Himalayas are perennial.
Reason (R): The source of Himalayan rivers is found in glaciers.
(1) Both (A) and (R) are correct, and (R) supports (A).
(2) Both (A) and (R) are correct, but (R) does not support (A).
(3) (A) is correct, and (R) is incorrect.
(4) (A) is incorrect, and (R) is correct.
Answer: (2)

Indo-Brahmaputra River:
Geologists believe that during the Miocene epoch, about 24 million to 5 million years ago, there was a vast river known as the Shivalik or Indo-Brahmaputra River.

Three Main Drainage Systems of the Indo-Brahmaputra River:

1. To the west, the Indus and its five tributaries.
2. In the middle, the Ganges and its tributaries originating from the Himalayas.
3. To the east, the Brahmaputra and its tributaries originating from the Himalayas.

Indus River System



The Indus River is one of the largest river systems in the world, with a total area of 1,165,000 square kilometers. In India, its area is 321,289 square kilometers.

- The total length of the Indus River is 2,880 kilometers, but its length in India is only 1,114 kilometers. It is the westernmost river among the Himalayan rivers in India.
- The source of the Indus River is a glacier near the Bokhar Chu, located in the Kailash mountain range

(Lake Manasarovar) in the Tibetan region. In Tibet, it is known as Sher Muk and Singi Kamban.

- The major tributaries of the Indus River are Sutlej, Beas, Ravi, Chenab, and Jhelum.
- Other tributaries include Zaskar, Shyang, Shigar, Gilgit, Shyok, Hunza, Kurram, Nubra, Gastang, Dras, and Gomel.
- Ultimately, this river flows out near Attock (Punjab province, Pakistan), where it meets the Kabul, Tochi, Gomel, Wiboa, and Sangar rivers on its right bank.
- Flowing southward, it receives the water of the Panchanad near Mithankot. The name Panchanad refers to the five main rivers of Punjab: Sutlej, Beas, Ravi, Chenab, and Jhelum.

Major Tributaries of the Indus River:

1. Sutlej River
2. Beas River
3. Ravi River
4. Chenab River
5. Jhelum River

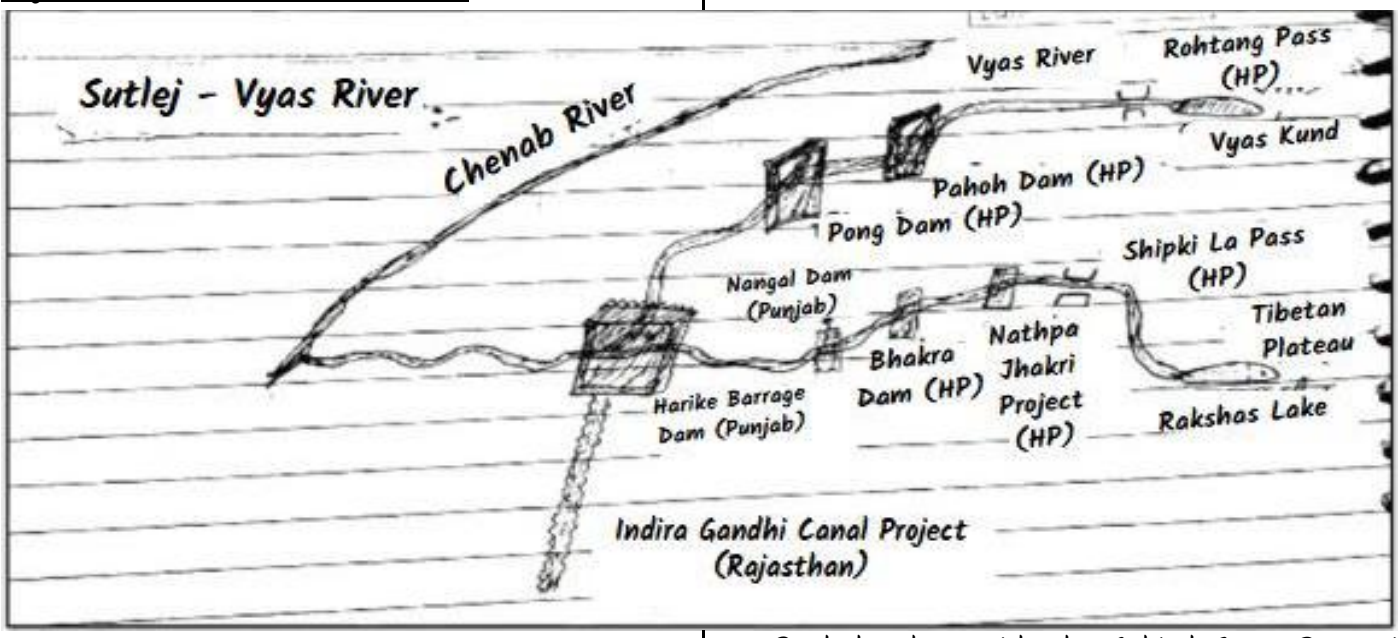
Indus River System

Indus Water Treaty (1960)

The control of three eastern rivers—Beas, Ravi, and Sutlej—was given to India, while the control of three western rivers—Indus, Jhelum, and Chenab—was given to Pakistan:

1. **Beas, Ravi, Sutlej:** 80% water to India, 20% water to Pakistan.
2. **Indus, Jhelum, Chenab:** 80% water to Pakistan, 20% water to India.

Sutlej River:



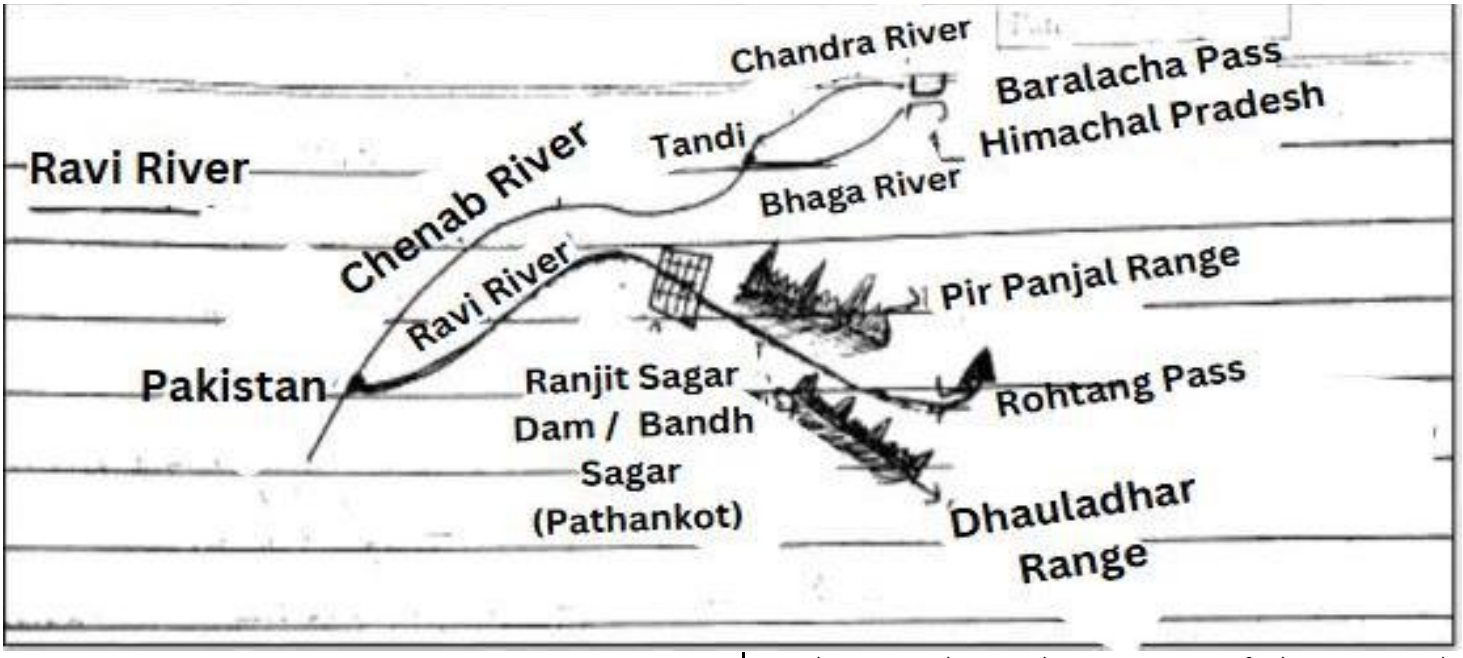
The Sutlej River is a precursor river that originates near Lake Rakshastal at an elevation of about 4,555 meters in Tibet, where it is known as **Langchen Khamab**.

- It flows in a northwest direction, running parallel to the Indus River for nearly 400 kilometers before entering India near the **Shipki La Pass** on the Indo-Tibetan border, ultimately merging into the Chenab River.
- **Flow Area:** Himachal Pradesh, Punjab.
- The Sutlej is an important tributary of the Indus River.
- Significant projects on this river include the Nathpa Jhakri Project and the Bhakra Dam in Himachal Pradesh, along with the Gobind Sagar Reservoir behind it, and the Nangal Dam in Ropar, Punjab.

Beas River (Vipasha River)

- The Beas River is another important tributary of the Indus.
- It originates from Beas Kund near the Rohtang Pass.
- **Flow Area:** Himachal Pradesh, Punjab.
- This river flows through the Kullu Valley, where it carves out a basin in the Dhauladhar range at Kati and Larghi.
- It enters the plains of Punjab, where it merges with the Sutlej River near the Harike Barrage.

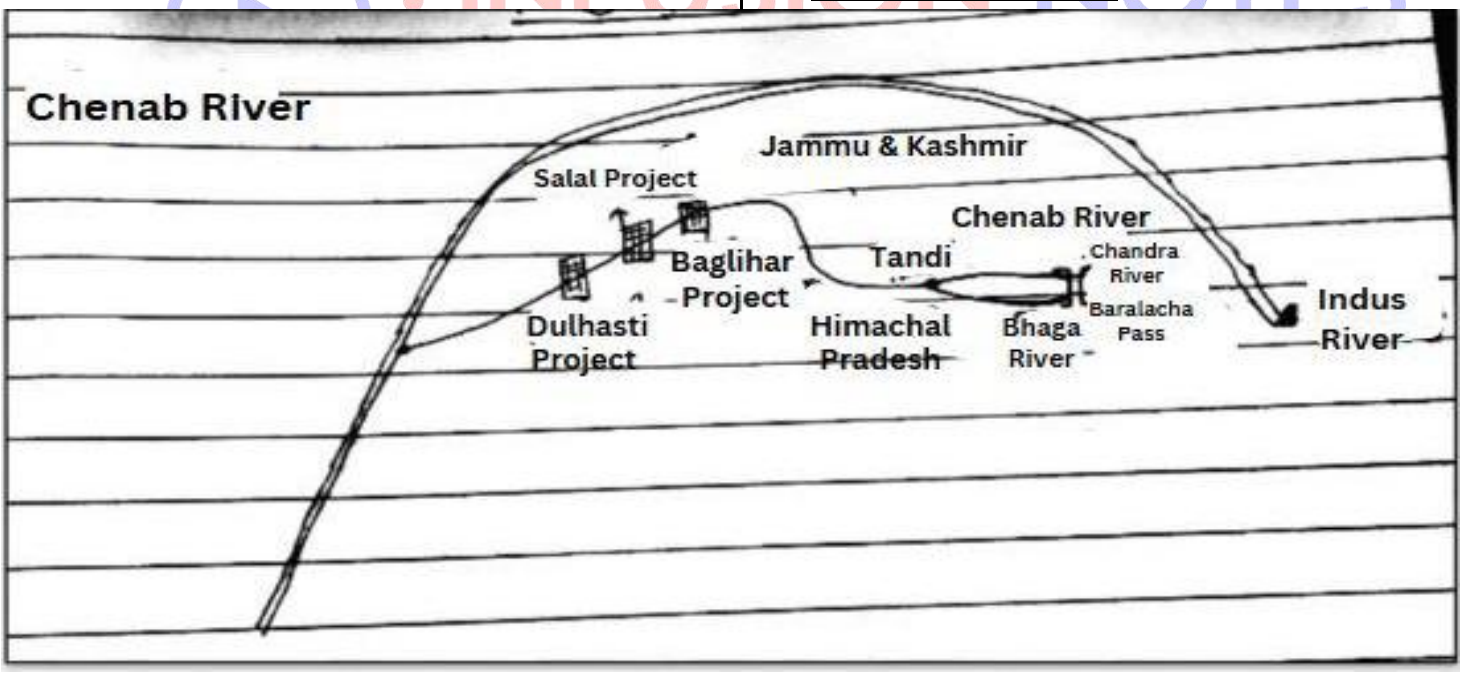
Ravi River (Parushni River)



The Ravi River is another important tributary of the Indus, originating from the west of the Rohtang Pass in the Kullu hills of the Himalayas and flowing through the Chamba Valley.

- **Flow Area**: Himachal Pradesh, Punjab.
- Before entering Pakistan and merging into the Chenab River near Sarai Sindhu, this river flows between the southeastern part of the Pir Panjal and the Dhauladhar ranges.
- A dam known as the Thien Dam or Ranjit Sagar Dam is constructed near Pathankot (Punjab) on this river.

Chenab River (Askinni)



The Chenab River is the largest tributary of the Indus.

- It originates from the Batalachala Pass in Himachal Pradesh, formed by the confluence of two streams, Chandra and Bhaga. These streams meet near Tandi, close to Kelong in Himachal Pradesh, which is why it is also known as Chandrabhaga.
- Before entering Pakistan, this river has a flow area of 1,180 kilometers within India.
- **Flow Area**: Himachal Pradesh, Jammu & Kashmir.
- Significant projects on this river include the Baglihar Project, Dulhasti Project, and Salal Project in Jammu & Kashmir.

- The proposed Tipaimukh Hydroelectric Project on this river in Manipur is a subject of dispute between India and Bangladesh.

Note:

- Cleanest village – Mawlynnong (Meghalaya)
- Cleanest river in India – Umngot (Meghalaya)
- World's largest river island – Majuli (Assam)

Characteristics of Himalayan Rivers:-

1. Rivers originating from the Himalayan region receive water from both glaciers and rainfall, which ensures a year-round water supply. Therefore, these rivers are also called perennial rivers.
2. All rivers of the Himalayan region are in their youthful stage.
3. Rivers originating from the Himalayas carve deep valleys, gorges, and canyons.
4. While flowing through the plains, these rivers exhibit meandering patterns and form braided streams in the lower plains.
5. In mountainous areas, these rivers form dendritic drainage patterns.
6. Due to the extensive flow of these rivers through flat plains, they are crucial for navigation and water transportation.
7. Rivers originating from the Himalayan region create some of the world's largest deltas. For instance, the Ganga River forms the Sundarbans Delta, the largest delta in the world.
8. These rivers form numerous river islands, one of which is Majuli Island, created by the Brahmaputra River, which is the largest river island in the world.
9. Himalayan rivers are antecedent rivers, as most of them existed before the formation of the Himalayas.

Peninsular Drainage System:-

- Compared to the Himalayan river system, the Peninsular river system is much older.
- The Western Ghats act as a water divide between the rivers that flow into the Bay of Bengal and those that drain into the Arabian Sea.
- The mature stage of the Peninsular rivers and the broad, shallow river valleys are evidence of their ancient nature.
- The Peninsular rivers generally flow from west to east.
- Narmada and Tapi flow in the opposite direction.
- With the uplift of the Himalayas, the Narmada and Tapi rivers formed rift valleys.

1. Mahanadi
2. Godavari
3. Krishna
4. Kaveri
5. Narmada
6. Tapi

Rivers flowing into the Bay of Bengal:

Mahanadi –

- It originates near Sihawa in the Raipur district of Chhattisgarh.
- Its total length is approximately 851 kilometers.
- It flows through Odisha and drains into the Bay of Bengal.
- The capital of Chhattisgarh, Raipur, and the famous city of Cuttack in Odisha are situated on this river.
- The longest dam in India, the "Hirakud Dam," is built on this river near Sambalpur, Odisha.
- Its major tributary is the Tel River.

Godavari River –

- The Godavari River originates from the Tryambakeshwar Hills (Nashik, Maharashtra).
- It is the longest river in Peninsular India (1,465 kilometers).
- Its drainage system is the largest compared to other peninsular rivers.
- Flowing through Telangana and Andhra Pradesh, it splits into several channels near Rajahmundry to form a delta.
- It is referred to as the Southern Ganga and the Vridha Ganga.
- Its major tributaries include Purna, Penganga, Wainganga, and Indravati (from the left bank), and Manjira (from the southern bank), which originates from Odisha and merges with the Godavari while flowing through the Bastar Plateau (Chhattisgarh).

Krishna River -

- It originates from the Mahabaleshwar peak in the Sahyadri (Maharashtra).
- It is the second longest river in Peninsular India (1,401 kilometers).
- Flowing through Karnataka, Telangana, and Andhra Pradesh, it merges into the Bay of Bengal and also forms a delta.
- The Nagarjuna Sagar Dam is built on this river at the border of Andhra Pradesh and Telangana.
- Its major tributaries are:

Chapter – 8

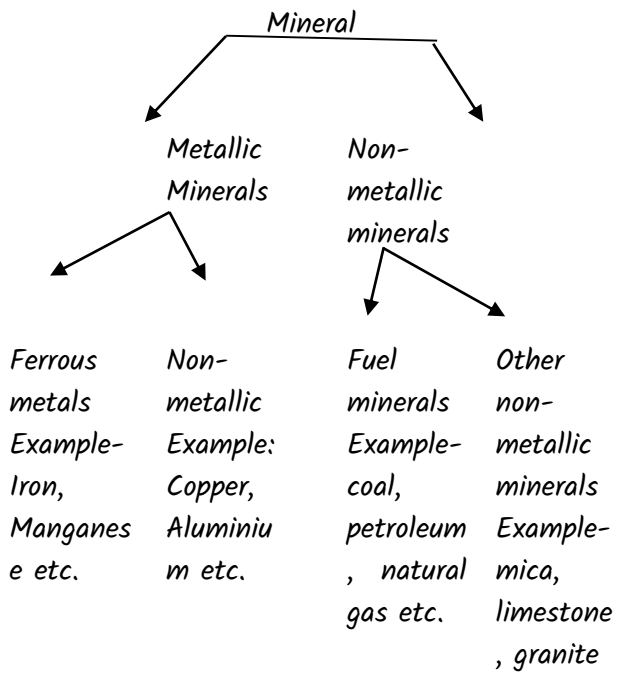
Major Mineral Resources of India

A mineral refers to a naturally occurring substance that has specific chemical and physical properties and is obtained through mining and extraction. These substances also have economic importance and are called mineral resources.

The major minerals found on the Earth's surface are as follows:

Minerals	percentage
Oxygen	46.60
Silicon	27.72
Aluminium	8.13
Iron	5.00
Calcium	3.63
Sodium	2.83
Potassium	2.59
Magnesium	2.09
Others	1.41

- Till the time of independence, 22 types of minerals were mined in India but today their number has increased to 125, out of which 35 minerals are very important from the economic point of view. Till now humans have gained knowledge of about 1600 types of minerals.
- In terms of self-sufficiency of minerals, the United States of America is in first place, India is in second place and Russia is in third place.



Distribution of Minerals in India

Mineral Resource Belts

Mineral resources in India are not evenly distributed. The various types of minerals found in India can be divided into the following belts according to their distribution:

1. Bihar-Jharkhand-Odisha-West Bengal Belt:
This belt extends across the Chhotanagpur Plateau and nearby areas. It is rich in minerals such as Iron ore, manganese, copper, mica, limestone, ilmenite, phosphate, and bauxite. Jharkhand is a major state for mineral production.

2. Madhya Pradesh-Chhattisgarh-Andhra Pradesh-Maharashtra Belt:
This belt also has abundant minerals like Iron Ore, Manganese, Bauxite, Limestone, Asbestos, Graphite, Mica, Silica, and Diamonds.

3. Karnataka-Tamil Nadu Belt:
This belt is known for its Gold, Lignite, Iron ore, Copper, Manganese, Gypsum, Salt, and Limestone.

4. Rajasthan-Gujarat Belt:
This belt is rich in minerals such as Petroleum, Natural Gas, Uranium, Copper, Zinc, Gypsum, Salt, and Multani mitti (Fuller's earth).
Rajasthan's Got-Manglod area has gypsum deposits. Rajasthan is the only producer of Lead and Zinc ores, Selenite, and Wollastonite.

Question: Which mineral is found in the Got-Manglod area?
(1) Rock Phosphate (2) Tungsten
(3) Manganese (4) Gypsum
ans- 4

Question: Among the following, which minerals is Rajasthan almost the sole producer of?
(a) Lead and Zinc ores (b) Copper ores
(c) Wollastonite (d) Selenite
Code:
(1) (a) and (c)
(2) (a), (b), and (d)
(3) (a), (b), and (c)
(4) (a), (c), and (d) **ANS – 4**

5. Kerala Belt:
- This belt in Kerala has minerals such as ilmenite, zircon, monazite (for nuclear energy), clay, and garnet in abundance.

Iron Ore:

- In India, Iron ore is mainly found in the Peninsular Dharwar region.
- India produces about 3% of the world's total Iron ore.
- More than 50% of the total production is exported.
- All the Iron ore produced in Goa is exported.

Types of Iron Ore in India:

1. Magnetite:

- It is the highest quality Iron ore, with up to 72% pure metal.
- It is black in color.
- Found in igneous rocks.
- Contains magnetic Iron oxides. Magnetite deposits are found in Karnataka, Andhra Pradesh, Tamil Nadu, Goa, Jharkhand, and other states.

2. Hematite:

- It is red or brown in color.
- Contains 60-70% pure metal.
- Mainly found in Jharkhand, Madhya Pradesh, Odisha, Maharashtra, Karnataka, and Goa.

3. Limonite:

- It is yellow or light brown.
- Contains 30-50% pure metal.
- Found in West Bengal, Uttarakhand, Himachal Pradesh, and other states.

4. Siderite:

- This type of Iron ore is light brown.
- Contains 40-48% metal and has more impurities.

Karnataka:

- This state is the leading producer of Iron ore in India, accounting for 24.80% of the total production.
- Major Iron ore-producing districts include Kolar (Baba Badun Hills), Bellary, Hospet, Shimoga, Dharwad, Tumkur, Chikmagalur, and Chitradurga.
- In Karnataka, the Iron ore is 55 to 65% hematite.

Odisha:-

Odisha ranks second in Iron ore production in India, contributing 22.13%.

Important Iron ore-producing districts include Mayurbhanj (Guru Hamsani, Suleipat, and Badam Hills), Sundargarh, Bonai, Sambalpur, and Cuttack.

The Iron ore here is 58 to 60% hematite.

Chhattisgarh

- This state is third in Iron ore production, contributing 19.97%.
- Important districts for Iron ore are Bastar and Durg, with other producers including Jabalpur, Rajgarh, Bilaspur, Sarguja, and Balod.

The Iron ore here is 50 to 66% hematite.

Goa:-

- Goa is fourth in Iron ore production in India, contributing 18.05%.
- Key producing districts include Mormugao, Adol, Pale, Onda, and Kudnem.
- The Iron ore here is of lower quality, with Iron content up to 50%.
- The ore is cleaned and exported from the Mormugao port to Japan.

Jharkhand:-

- Jharkhand ranks fifth in Iron ore production in India, contributing 14.11%.
- Major Iron ore-producing districts are Singhbhum (Noamundi), Maatbhumi, and Hazaribagh.

Maharashtra:-

- Iron ore is found in Chandrapur district (Pipalgav, Lohar, and Deolgaon) and Ratnagiri district.

Andhra Pradesh

- Key Iron ore-producing districts are Adilabad, Karimnagar, Nizamabad, Krishna, Kurnool, Kadapa, Guntur, Nellore, Chittoor, and Bargam.
- The Iron ore here is 65 to 72% magnetite.

Tamil Nadu:

- Major Iron ore-producing districts are Salem, Chiruceanapalli, Akkarai, Nilgiris, and Dharmapuri.
- The Iron ore here is 65 to 70% hematite.
- Other States Iron ore is also extracted in Bihar, West Bengal, Jammu and Kashmir, Uttarakhand, Himachal Pradesh, Gujarat, Rajasthan, and Uttar Pradesh.

Rajasthan:-

- Rajasthan has hematite Iron ore.
- It is not a major state for Iron ore production.
- Important Iron ore-producing areas are 'Moriya-Banol 'in Jaipur district, 'Neemla' in Dausa district, and 'Nathra Ki Pal' in Udaipur district.

Question: Which of the following is not an Iron ore mining area

(1) Moriya (2) Dabla
(3) Neemla (4) Talwada **Answer: (4)**

Chapter – 3

Global Drainage System

Rivers

- The place where a river originates is called the source of the river.
- The place where a river flows into a sea or a large lake is called the mouth or estuary of the river.
- The path through which the river flows is called a river valley.
- When tributaries join the main river during the development of the river valley, a drainage basin is formed.
- The elevated area between two drainage basins is called a watershed or water divider.
- The mountain range of the Western Ghats in India acts as a watershed.
- Because rivers flowing to the east drain into the Bay of Bengal, while rivers flowing to the west drain into the Arabian Sea.
- The area through which a river flows and collects water is called the river's catchment area.
- A river that flows along the initial physical slope is called a consequent stream.
- A tributary that joins a consequent river is called a subsequent river.
- The process of rocks being affected by oxygen is called oxidation.
- When dissolved carbon in water affects rocks, it is called carbonation.
- When hydrogen combines with water to weather rocks, it is called hydration.
- In India, the Indus River has formed the Indus Gorge, the Sutlej River has formed the Shipki-La Gorge, and the Brahmaputra River has formed the Korba Gorge.
- In the USA, the Colorado River, flowing through the arid plateau, has created the Colorado Canyon, which is the most famous canyon in the world.
- Bheda Gorge (Bheda Ghat, Jabalpur) is the largest marble gorge in India.
- In India, the Jog or Gersoppa Waterfall, located on the Sharavati River in Karnataka, falls from a height of 260 meters.
- Hundru Waterfall is located on the Subarnarekha River.
- Kapildhara Waterfall is located on the Narmada River in the Anuppur district of Madhya Pradesh.
- Shivanasamudra Waterfall is located on the Kaveri River in the Mandya district of Karnataka.

Major lakes and rivers of the world

Name	Source	Outflow	Length (km)
Nile	Lake Victoria (Burundi)	Mediterranean Sea	6,690
Amazon	Lago Wilfero	Atlantic Ocean	6,296
Mississippi-Missouri	Red Rock Spring (USA)	Gulf of Mexico	6,240
Yangtze	Tibetan Plateau	China Sea	5,797
Ob	Altai Mountains	Gulf of Ob	5,567
Huang He (Yellow River)	Kunlun Mountains	Bohai Bay	4,667
Yenisei	Rannu-Ola Mountains	Arctic Ocean	4,506
Congo	Confluence of Lualaba and Lualu	Atlantic Ocean	4,371
Amur	Confluence of Shilka and Argun	Tartary Strait	4,352
Lena	Baikal Mountains (Russia)	Arctic Ocean	4,268
Mackenzie	From Finley River	Beaufort Sea	4,241
Niger	Guinea (Africa)	Gulf of Guinea	4,184
Mekong	Tibetan Plateau	South China Sea	4,023
Volga	Bludai Plateau (Russia)	Caspian Sea	3,687
San Francisco	South Minas Gerais (Brazil)	Indian Ocean	3,198
St. Lawrence	Lake Ontario	Gulf of St. Lawrence	3,058
Brahmaputra	Lake Mansarovar	Bay of Bengal	2,900
Sindhu (Indus)	Near Lake Mansarovar	Arabian Sea	2,880
Danube	Black Forest (Germany)	Black Sea	2,842

Euphrates	Confluence of Karasun and Murat	Shatt al-Arab	2,799
Darling	Australia	Murray River	2,789
Murray	Australian Alps	Indian Ocean	2,589
Nelson	Upper part of Bo River	Hudson Bay	2,575
Paraguay	Mato Grosso (Brazil)	Paraná River	2,549
Ural	South Ural Mountains (Russia)	Caspian Sea	2,533
Ganga	From Gomukh Glacier	Bay of Bengal	2,525
Amu Darya	Nicholas Range (Pamir)	Aral Sea	2,414
Salween	South of Tibetan Kuenlun Mountains	Martaban Gulf	2,414
Arkansas	Central Colorado	Mississippi River	2,348
Colorado	Grand Canyon	Gulf of California	2,333
Dnieper	Bludai Mountains (Russia)	Black Sea	2,284
Ohio	Potter County (Pennsylvania)	Mississippi River	2,102
Irrawaddy	Confluence of Mali and Nami Rivers	Bay of Bengal	2,092
Orange	Lesotho	Atlantic Ocean	2,092
Orinoco	Sierra Parima Mountains	Atlantic Ocean	2,062
Columbia	Columbia Lake (Canada)	Pacific Ocean	1,983
Don	Tula (Russia)	Azov Sea	1,968
Tigris	Taurus Mountains (Turkey)	Shatt al-Arab	1,899

Major Cities Located Along Rivers

Location	River
Baghdad (Iraq)	Tigris
Berlin (Germany)	Spree
Perth (Australia)	Swan
Warsaw (Poland)	Vistula
Aswan (Egypt)	Nile
St. Louis (USA)	Mississippi
Rome (Italy)	Tiber
London (England)	Thames
Paris (France)	Seine
Moscow (Russia)	Moskva
Prague (Czech Republic)	Vltava
Bonn (Germany)	Rhine
Khartoum (Sudan)	Nile
Cairo (Egypt)	Nile
Buenos Aires (Argentina)	La Plata
Ankara (Turkey)	Kızıl
Dundee (Scotland)	Tay
Liverpool (England)	Mersey
Cologne (Germany)	Rhine
Montreal (Canada)	St. Lawrence
Sydney (Australia)	Darling
Belgrade (Serbia)	Danube
Budapest (Hungary)	Danube
Washington (USA)	Potomac
Vienna (Austria)	Danube
Tokyo (Japan)	Arakawa
Shanghai (China)	Yangtze
Yangon (Myanmar)	Irrawaddy
Ottawa (Canada)	St. Lawrence
New York (USA)	Hudson
Madrid (Spain)	Manzanares
Lisbon (Portugal)	Tagus
Dublin (Ireland)	Liffey
Chittagong (Bangladesh)	Karnaphuli
Hamburg (Germany)	Elbe
Chicago (USA)	Chicago
Bristol (England)	Avon
Basra (Iraq)	Shatt al-Arab
Quebec (Canada)	St. Lawrence
Leningrad (Russia)	Neva

Major Waterfalls of the World

Name		Location
Angel (Angel) Falls	-	Venezuela
Browne Falls	-	New Zealand
Niagara Falls	-	USA and Canada
Yosemite Falls	-	California
Victoria Falls	-	Zimbabwe and Zambia
Grand Falls	-	Canada
Garsoppa (Jog) Falls	-	India (Sharavati River)

Chapter – 4

Distribution of Earthquakes and Volcanoes in the World

Earthquake

- An earthquake is defined as the shaking of the Earth's crust caused by known or unknown, internal or external, natural or artificial reasons.
- The point beneath the Earth's surface where an earthquake originates is called the **focus** or **epicenter**.
- The location on the Earth's surface directly above the focus, where seismic waves are first detected, is known as the **epicenter**.
- The instrument used to record seismic waves is called a **seismograph**.
- **Seismology** is the science that studies the waves recorded by seismographs.

Classification of Earthquakes Based on Focus Depth:

1. **Normal Earthquake** – In these earthquakes, the focus is located at a depth of up to 50 kilometers below the surface.
2. **Intermediate Earthquake** – In these earthquakes, the focus is located at a depth of 50 to 250 kilometers below the surface.
3. **Deep-Focus Earthquake** – In these earthquakes, the focus is located at a depth of 250 to 700 kilometers below the surface.

Classification of Earthquakes Based on Location and Origin

Based on Location:

1. **Terrestrial Earthquake** :- When an earthquake occurs on land, it is called a terrestrial earthquake. These are more frequent.
2. **Marine Earthquake** :- These earthquakes occur in the ocean's crust and can generate destructive ocean waves, causing damage to coastal areas.

Based on Origin Factors:

1. **Natural Earthquake** :- An earthquake caused by natural reasons is called a natural earthquake. They can be divided into four types:

(a) **Volcanic Earthquake** :- This includes earthquakes generated by volcanic eruptions. The intensity of such earthquakes depends on the intensity of the volcanic eruption. An example is the Krakatoa earthquake of 1883.

(b) **Tectonic Earthquake** :- Earthquakes caused by the movement of rocks due to faulting in the Earth's crust are called tectonic earthquakes. These earthquakes are very intense. A major example is the California earthquake of 1872.

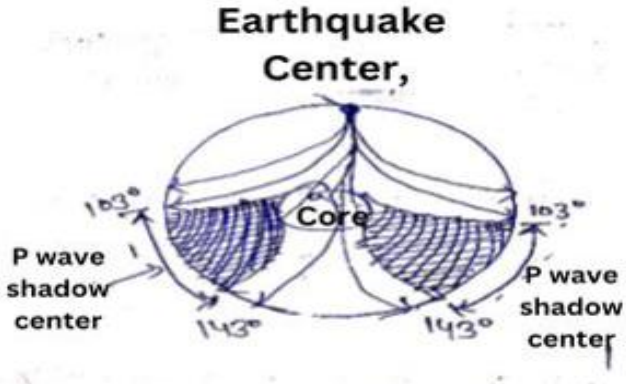
(c) **Isostatic Earthquake** :- Earthquakes generated due to disturbances in balance are called isostatic earthquakes. These earthquakes are usually found in newly formed mountain ranges. The Hindu-Kush earthquake of 1949 was an isostatic earthquake.

(d) **Plutonic Earthquake** :- These earthquakes occur at depths of 250 to 680 kilometers in the Earth's crust. Due to their great depth, less information is available about these earthquakes.

2. **Artificial or Man-Made Earthquake** :- If earthquakes are generated by human activities such as tunneling, mining, constructing large buildings, creating reservoirs, dams, or scientific testing like bomb testing and explosions, they are referred to as artificial or man-made earthquakes.

Types of Earthquake Waves

A. **Primary Waves (P-Waves)**:- These are the fastest waves and are also known as P-waves. In these waves, the motion of molecules is back and forth in the direction of the wave, similar to sound waves. Therefore, they are called longitudinal waves. P-waves can travel through solids, liquids, and gases. Their speed in solid mediums is about 7.8 km/s.



P Wave Shadow Center

B. **Secondary Waves (S-Waves)** :- These are known as S-waves and can only pass through solid mediums; thus, they do not propagate through the core of the Earth. In these waves, the motion of

Name	Location
Tasmania	South of Australia (Australia)
Sri Lanka	Indian Ocean (Republic)
Sakhalin	North of Japan (Russia) (Karafuto)
Nares	Arctic Ocean (Canada)
Von	Arctic Ocean (Canada)
Tierra del Fuego	Southern tip of South America (eastern part Argentina, western part Chile)
Su	Japan Sea - Pacific Ocean (Japan)
Lavalley	Arctic Ocean (Canada)
Axel Heiberg	Arctic Ocean (Canada)
Southampton	Hudson Bay (Canada)

Continents

- The large landmasses of Earth that rise above sea level are called continents.
- There are mainly seven large landmasses or continents: Asia, Africa, North America, South America, Antarctica, Europe, and Australia.
- Asia is the largest continent and is located in the Northern Hemisphere.
- Asia and Europe are separated by the Ural Mountains and the Ural River.
- Africa is the second-largest continent in the world.
- The Suez Canal separates Africa from Asia.
- The Equator passes through Africa, dividing it into the Northern Hemisphere and Southern Hemisphere.
- The continents of North and South America meet at the eastern border of Panama.
- The entire North American continent is in the Northern Hemisphere, while most of South America is in the Southern Hemisphere.
- The continent of Australia is located in the Southern Hemisphere.
- Australia is also referred to as an island continent.
- The area of Antarctica is larger than the combined area of Europe and Australia.
- The South Pole is located near the center of the Antarctic continent.
- Antarctica is the only continent where humans do not reside permanently.
- The Northern Hemisphere is also known as the land hemisphere.
- This hemisphere contains about 8.5 percent of the Earth's total land area.

Asia

- The word "Asia" originates from the Hebrew word "Asu," which literally means "rising sun." It is the largest continent in the world, covering about 30% of the Earth's land area. Three major latitude circles—Equator, Tropic of Cancer, and Arctic Circle—pass through it.
- To the north of Asia lies the Arctic Ocean, to the south the Indian Ocean, and to the east the Pacific Ocean. The Ural Mountains, Caspian Sea, Black Sea, and Mediterranean Sea form the boundary between Asia and Europe.
- The Red Sea and the Suez Canal separate Asia from Africa.
- The Bering Strait separates Asia from North America.
- About 60% of the world's population (the most populous continent) resides here.
- Ancient landmasses such as Angaraland (Russia and China) and Gondwana-Land (peninsular India) are found in Asia.
- There are three major peninsulas in Asia: the Arabian Peninsula, the Deccan Peninsula, and the Indochinese Peninsula. The Arabian Peninsula is the largest peninsula in the world.
- The highest peak in the world, Mount Everest (8,850 meters), is located in the Himalayas in Nepal, known as "Sagarmatha" in Nepali.
- The largest plateau in the world is the Tibetan Plateau, covering an area of 200,000 square kilometers in Central Asia.
- The highest plateau in Asia is Pamir, with an elevation of 4,875 meters, often referred to as the "Roof of the World."
- China is the most populous country in Asia.
- In terms of area, China is the largest country in Asia, while the smallest is the Maldives.
- Singapore has the highest population density in Asia.
- Landlocked countries in Asia include Kazakhstan, Afghanistan, Mongolia, Nepal, Bhutan, Turkmenistan, Uzbekistan, Kyrgyzstan, Tajikistan, and Laos. Among these, Kazakhstan is the largest

Dear Aspirants, here are the our results in differents exams (Proof Video Link)

RAS PRE. 2021 - https://shorturl.at/qBJ18 (74 प्रश्न , 150 में से)

RAS Pre 2023 - https://shorturl.at/tGHRT (96 प्रश्न , 150 में से)

UP Police Constable 2024 - http://surl.li/rbfyn (98 प्रश्न , 150 में से)

Rajasthan CET Gradu. Level - https://youtu.be/gPqDNlc6UR0

Rajasthan CET 12th Level - https://youtu.be/oCa-CoTFu4A

RPSC EO / RO - https://youtu.be/b9PKjl4nSxE

VDO PRE. - https://www.youtube.com/watch?v=gXdAk8S6W18&t=202s

Patwari - https://www.youtube.com/watch?v=X6mKGdtXyu4&t=2s

PTI 3rd grade - https://www.youtube.com/watch?v=iA_MemKKgEk&t=5s

SSC GD – 2021 - https://youtu.be/2gzzfJyt6vI

EXAM (परीक्षा)	DATE	हमारे नोट्स में से आये हुए प्रश्नों की संख्या
MPPSC Prelims 2023	17 दिसम्बर	63 प्रश्न (100 में से)
RAS PRE. 2021	27 अक्तूबर	74 प्रश्न आये
RAS Mains 2021	October 2021	52% प्रश्न आये

FREE SAMPLE
INFUSION NOTES
WHEN ONLY THE BEST WILL DO

RAS Pre. 2023	01 अक्टूबर 2023	96 प्रश्न (150 मेंसे)
SSC GD 2021	16 नवम्बर	68 (100 में से)
SSC GD 2021	08 दिसम्बर	67 (100 में से)
RPSC EO/RO	14 मई (1st Shift)	95 (120 में से)
राजस्थान S.I. 2021	14 सितम्बर	119 (200 में से)
राजस्थान S.I. 2021	15 सितम्बर	126 (200 में से)
RAJASTHAN PATWARI 2021	23 अक्तूबर (1st शिफ्ट)	79 (150 में से)
RAJASTHAN PATWARI 2021	23 अक्तूबर (2nd शिफ्ट)	103 (150 में से)
RAJASTHAN PATWARI 2021	24 अक्तूबर (2nd शिफ्ट)	91 (150 में से)
RAJASTHAN VDO 2021	27 दिसंबर (1st शिफ्ट)	59 (100 में से)
RAJASTHAN VDO 2021	27 दिसंबर (2nd शिफ्ट)	61 (100 में से)
RAJASTHAN VDO 2021	28 दिसंबर (2nd शिफ्ट)	57 (100 में से)
U.P. SI 2021	14 नवम्बर 2021 1st शिफ्ट	91 (160 में से)
U.P. SI 2021	21नवम्बर2021 (1st शिफ्ट)	89 (160 में से)
Raj. CET Graduation level	07 January 2023 (1st शिफ्ट)	96 (150 में से)
Raj. CET 12th level	04 February 2023 (1st शिफ्ट)	98 (150 में से)
UP Police Constable	17 February 2024 (1st शिफ्ट)	98 (150 में से)

& Many More Exams like UPSC, SSC, Bank Etc.

whatsapp -https://wa.link/dx3m7n 2 web.- https://shorturl.at/XiCHA