Physical Features of India

Introduction :

- India is a **large country** with many different landforms.
- These *landforms* include **mountains**, **plains**, **plateaus**, **deserts**, **coasts**, and **islands**.
- These physical features are **not the same everywhere** – they are **diverse and uneven**.
- The land of India has **formed through millions of years** of natural changes.
- These changes happened due to **movement of tectonic plates inside the Earth**.
- These movements led to the formation of big physical parts like:
    - **The Himalayas** (mountains in the north)
    - **The Northern Plains** (flat fertile land)
    - **The Peninsular Plateau** (old hard rocks)
    - **The Desert, Coastal Plains, and Islands**
- Each landform has different:
    - Climate
    - Vegetation
    - Soil type
    - Way of life of people
- These **natural features are very important** for:
    - Farming
    - Transport
    - Settlements
    - Tourism

Major Physiographic Divisions of India :

- India is **divided into 6 major physical** (natural) divisions based on landforms. These divisions are:
    1. **The Himalayan Mountains**
    2. **The Northern Plains**
    3. **The Peninsular Plateau**
    4. **The Indian Desert**
    5. **The Coastal Plains**
    6. **The Islands**

The Himalayas Mountain :

- The Himalayas are the *youngest* and *highest mountain ranges* in the world*.*
- Located in the *northern part of India*.
- Formed by the *collision of the Indian Plate and Eurasian Plate about 50 million years ago.*
- The word Himalaya means "abode of snow" (*Hima = snow, Alaya = home*).
- They form an arc, which *cover a distance of about 2,400 km*. Their width varies from *400 km in Kashmir to 150 km in Arunachal Pradesh.*
- Most of the peaks are always *covered with snow and glaciers.*

Important Features of Himalayas :

1. Act as a *natural barrier:*
   - *Protects India from cold winds* from Central Asia.
   - *Blocks monsoon winds*, causing *heavy rainfall in India*.
2. Source of rivers:
   - Many rivers like *Ganga, Yamuna, Brahmaputra start from Himalayas.*
3. Rich in *forests and wildlife.*
4. Many hill stations are located here like *Shimla, Mussoorie, Darjeeling*.

Divisions of the Himalayas (From North to South) :

- The Himalayas are *divided into three parallel ranges:*
  1. *Himadri (Greater Himalayas) :-*
     - Northernmost and highest range.
     - Average height: above *6,000 metres*.
     - Contains the highest peaks like:
       - *Mount Everest* (8,848 m – in Nepal)
       - *Kanchenjunga* (8,586 m – highest in India)
     - Always *covered with snow and glaciers.*
     - Rivers like *Ganga originate from glaciers here* (Gangotri Glacier).
  2. *Himachal (Lesser Himalayas) :-*
     - Located south of Himadri.
     - Average height: *3,700 to 4,500 metres.*
     - Made of *folded and compressed rocks.*
     - Famous hill stations: Shimla, Manali, Nainital, Darjeeling.
     - Well-known valleys: Kullu, Kangra.
  3. *Shiwalik (Outer Himalayas) :-*
     - Southernmost and lowest range of Himalayas.
     - Height: *900 to 1,100 metres.*
     - Formed by *soft rocks and sediments.*
     - Prone to landslides and earthquakes.
     - Narrow flat valleys between Shiwalik and Himachal are called *Duns*, like Dehradun and Patan Valley.

Longitudinal (East-West) Divisions of the Himalayas :
- The Himalayas are also *divided from west to east as:*
    1. *Punjab Himalayas* – between Indus and Satluj rivers (Jammu & Kashmir, Himachal Pradesh)
    2. *Kumaon Himalayas* – between Satluj and Kali rivers (Uttarakhand)
    3. *Nepal Himalayas* – between Kali and Tista rivers (Nepal region)
    4. *Assam Himalayas* – between Tista and Dihang rivers (Arunachal Pradesh)

The Northern Plains :

- The Northern Plains *lie south of the Himalayas.*
- They are formed by the deposits of *alluvial soil* brought by *three major river* systems:
    - *Indus*
    - *Ganga*
    - *Brahmaputra*
- These rivers and their tributaries deposited *huge amounts of rich fertile soil* over millions of years.

Main Features :
- Very fertile and flat land – *ideal for farming.*
- Densely populated region – many people live here due to good farming conditions.
- The plain is *about 2,400 km long and 240 to 320 km wide.*
- Has a slight slope from north-west to south-east.
- Rivers often change their course here, causing floods and creating fertile land.

River Systems Forming the Plains :
1. *Indus River System* – mostly in Pakistan
2. *Ganga River System* – flows through Uttar Pradesh, Bihar, West Bengal
3. *Brahmaputra River System* – flows through Assam

Divisions of the Northern Plains :
- The Northern Plains are *divided into three parts based on river systems:*
    1. Punjab Plains :
        - Formed by the *Indus River and its tributaries*: Jhelum, Chenab, Ravi, Beas, Satluj
        - Located in *Punjab and Haryana* (mostly in Pakistan now)
        - Land is *fertile and flat*
    2. Ganga Plains :
        - Formed by the *Ganga and its tributaries*: Yamuna, Ghaghara, Gandak, etc.
        - Spread over Uttar Pradesh, Bihar, Jharkhand, West Bengal
        - *Most fertile and densely* populated part of India
    3. Brahmaputra Plains :
        - Formed by the *Brahmaputra River*
        - Located mainly in *Assam*
        - Prone to floods but very fertile

Based on Relief (Height), the Northern Plains are divided into 4 parts :

1. ***Bhabar*** :
   - This is a narrow strip of land located along the foothills of the Shiwalik range of the Himalayas.
   - It is ***about 8 to 16 km wide.***
   - Made up of ***pebbles and rocks*** brought down by rivers from the mountains.
   - Rivers like ***Ganga, Yamuna disappear underground*** when they enter this region because the ground is made of loose stones.
   - Due to this, ***no farming or cultivation is possible here.***

2. **Terai :**
   - Just south of the ***Bhabar region lies the Terai region.***
   - Here, the rivers which had gone underground in Bhabar reappear and make the land marshy and wet.
   - This region is ***rich in wildlife*** and ***covered with thick forests.***
   - The land is ***very fertile and good for agriculture,*** especially for growing rice and sugarcane.
   - Famous Terai areas are ***found in Uttar Pradesh and Bihar.***

3. **Bhangar :**
   - This is the ***older part of the alluvial plain.***
   - It is made up of ***old alluvial soil,*** which was deposited long ago by rivers.
   - The land is slightly higher and more elevated than Khadar.
   - The soil contains lime nodules known as ***kankar***, which makes it less fertile.
   - It is ***not as suitable for farming*** as Khadar.

4. **Khadar :**
   - This is the ***newer and younger alluvial soil,*** deposited by rivers every year during floods.
   - The land is ***low-lying and very fertile,*** making it perfect for growing crops like wheat, rice, sugarcane etc.
   - ***Farmers prefer Khadar for intensive agriculture.***
   - It lies next to the river banks and is often ***flooded in monsoons.***

The Peninsula Plateau :

- The Peninsular Plateau is a ***large area of old, hard rocks*** in the southern part of India.
- It is the ***oldest landmass of India*** and was part of the ancient supercontinent Gondwana.
- It is a ***tableland*** (flat-topped land) made by the slow upliftment of rocks and volcanic activity.
- This region is ***high in the west and slopes gently towards the east.***

Main Features :

1. Triangular in shape – bounded by:
   - ***The Western Ghats*** in the west
   - ***The Eastern Ghats*** in the east
   - ***The Vindhya and Satpura ranges*** in the north

2. Made of *igneous and metamorphic rocks* – rich in minerals (coal, iron, mica, etc.)
3. Rivers like *Narmada, Godavari, Krishna, and Kaveri flow through it.*
4. Most *rivers are seasonal,* and many flow from west to east.
5. *Less rainfall* compared to northern India – *mostly dry and rocky terrain*.

Divisions of the Peninsular Plateau :

1. *Central Highlands :-*
   - Located *north of the Narmada River.*
   - It includes the *Malwa Plateau in the west and Chotanagpur Plateau in the east.*
   - Bordered by the *Aravalli Hills* in the northwest.
   - Rivers like *Chambal, Betwa, and Son flow* here.
   - The *Chotanagpur Plateau* (in Jharkhand) is very rich in minerals.

2. *Deccan Plateau :-*
   - Located *south of the Narmada River.*
   - Larger than the *Central Highlands.*
   - Bounded by:
     - *Western Ghats (*steep and high)
     - *Eastern Ghats* (lower and broken)
   - *Rich in black soil* in Maharashtra and Karnataka – good for growing cotton.
   - *Famous rivers:* Godavari, Krishna, Kaveri – flow eastward and make fertile deltas.

Ghats and Hills :

- *Western Ghats:*
  - High and continuous
  - Include *hills like Nilgiris, Anaimalai*
  - *Block rain* – cause heavy rainfall on western side
- *Eastern Ghats:*
  - Lower and broken by rivers
  - *Less rainfall*
  - Merge with *Western Ghats at the Nilgiri Hills*

The Indian Desert :

- The Indian Desert is also known as the *Thar Desert.*
- It is located in the *northwestern part of India, mainly in Rajasthan.*
- It is a *hot and dry region* with sand everywhere.
- The desert lies *west of the Aravalli Hills.*

Main Features of the Indian Desert :

1. Climate :
   - *Very hot during the day* and *cold at night.*
   - Very *little rainfall* (less than 150 mm per year).
   - Strong winds blow sand, forming sand dunes.

2. Soil :
   - ● *Made up of sandy soil*, which cannot hold water.
   - ● *Not fertile,* so less farming is done here.
3. Vegetation :
   - ● Very *sparse vegetation* (few plants).
   - ● Plants that *survive here are cactus, thorny bushes, and shrubs.*
4. Rivers
   - ● There are *no permanent rivers.*
   - ● The *only river is the Luni River*, which is seasonal (flows only during rains).
   - ● *Water is stored in tanks* or underground wells.
5. Sand Dunes :
   - ● *Low hills of sand formed* by wind.
   - ● They *change shape and position* due to strong desert winds.
   - ● Also called "*Barkhans*".
6. Population :
   - ● Very *low population density* due to extreme climate.
   - ● People mostly live in villages and towns like Jaisalmer, Barmer, Bikaner.

Important Development: Indira Gandhi Canal :
   - ● A *major canal built to bring water from the Satluj River to the desert areas.*
   - ● *Helps in irrigation and farming* in some parts of the desert.
   - ● Changed the life of people in northwestern Rajasthan.

The Islands :

   - ● India has *two major groups of islands* (small land surrounded by water).
   - ● These islands are located in the *Bay of Bengal and the Arabian Sea.*
   - ● They are *beautiful, rich in biodiversity,* and important for *national security* and tourism.

Andaman and Nicobar Islands (Bay of Bengal) :
   - ● Located in the *south-east of India, in the Bay of Bengal.*
   - ● Made up of *572 islands,* big and small.
   - ● Divided into two main groups:
     - ○ *Andaman Islands (north)*
     - ○ *Nicobar Islands (south)*
   - ● These *islands are of volcanic origin.*
   - ● Famous volcano: Barren Island (only active volcano in India).
   - ● Covered with *dense forests* and home to many tribal communities.
   - ● Capital: *Port Blair.*
   - ● Strategically important for navy and defense.
   - ● Known for beaches, coral reefs, and marine life.

Lakshadweep Islands (Arabian Sea) :
- Located in the ***south-west of India, in the Arabian Sea.***
- Made up of ***36 small islands***, mainly coral islands.
- Formed by the ***deposition of corals*** (tiny sea animals).
- These islands are flat and low-lying.
- Capital: ***Kavaratti***.
- Very important for fishing, coconut farming, and tourism.
- ***Rich in marine life and lagoons*** (shallow water areas).

Importance of Islands :
1. Defense :
   - Help in ***protecting India's sea borders.***
   - Have naval bases for security.
2. Tourism :
   - Known for beautiful beaches, water sports, and natural beauty.
   - ***Attract both Indian and foreign tourists.***
3. Culture and Tribes :
   - Home to unique tribal groups (especially in Andaman and Nicobar).
   - Rich in local traditions and biodiversity.
4. Fisheries and Marine Resources :
   - Important for fishing industry.
   - Provide seafood and coral wealth.