



# **GS FOUNDATION BATCH FOR CSE 2024**

## **Geography - 06 (India Physiography and Rivers)**

# Mapping India

DIMPLE NANKANI

## Important Lines

- Tropic of cancer passes through which states?
- IST passes through which states?
- North, South, West, East point of India

2015

Which one of the following pairs of States of India indicates the easternmost and westernmost State?

- (a) Assam and Rajasthan
- (b) Arunachal Pradesh and Rajasthan
- (c) Assam and Gujarat
- (d) Arunachal Pradesh and Gujarat

NDA 2021 Exam: Part 2

**74. The Tropic of Cancer does *not* pass through which one of the following States ?**

- (a) Manipur
- (b) West Bengal
- (c) Gujarat
- (d) Jharkhand

## NDA 2021 Exam: Part 2

77. Which one of the following is the longest parallel of latitude?

- (a) Tropic of Cancer
- (b) Tropic of Capricorn
- (c) Arctic Circle
- (d) Equator

## NDA 2021 Exam: Part 2

- ARU
- NA
- MA
- MI

37. Identify the State on the basis of the following characteristics :

1. Tropic of Cancer passes through the State.
2. The State has more north-south extension.
3. The State has international border with Bangladesh and Myanmar.

Select the correct answer using the code given below :

- (a) Tripura
- (b) Mizoram
- (c) Nagaland
- (d) Manipur

## NDA 2021 Exam: Part 2

63. Which of the following statements is/are correct with respect to Time Zone in India ?
1. There is one standard time for the whole country.
  2. Andaman and Nicobar Islands and Lakshadweep Islands have different Time Zones.
  3. Indian Standard Time (IST) is five and half hours behind GMT.

Select the correct answer using the code given below :

- (a) 1 only
- (b) 2 only
- (c) 1 and 2 only
- (d) 1 and 3 only

## NDA 2021 Exam: Part 2

M wants to visit a place in a Union Territory, which is located at  $34^{\circ}$  N and  $77^{\circ}$  E. Which one of the following Union Territories must he have planned to visit ?

- (a) Andaman and Nicobar Islands
- (b) Lakshadweep
- (c) Puducherry
- (d) Ladakh

2014

Which one of the following pairs of islands is separated from each other by the "Ten Degree Channel"?

- (a) Andaman and Nicobar
- (b) Nicobar and Sumatra
- (c) Maldives and Lakshadweep
- (d) Sumatra and Java

Important Channels:

6 degree: Great Nicobar and Sumatra

8 degree: Minicoy and Maldives

9: Minicoy and Lakshadweep

10: Andaman and Nicobar

11 degree: Aminidivi and Cannanore

Latitude: Important Lines: 2018

**Among the following cities, which one lies on a longitude closest to that of Delhi?**

1. Bengaluru
2. Hyderabad
3. Nagpur
4. Pune

2017

Which of the following is geographically closest to Great Nicobar?

- (a) Sumatra
- (b) Borneo
- (c) Java
- (d) Sri Lanka

2017

If you travel by road from Kohima to Kottayam, what is the minimum number of States within India through which you can travel, including the origin and the destination?

- (a) 6
- (b) 7
- (c) 8
- (d) 9

2017

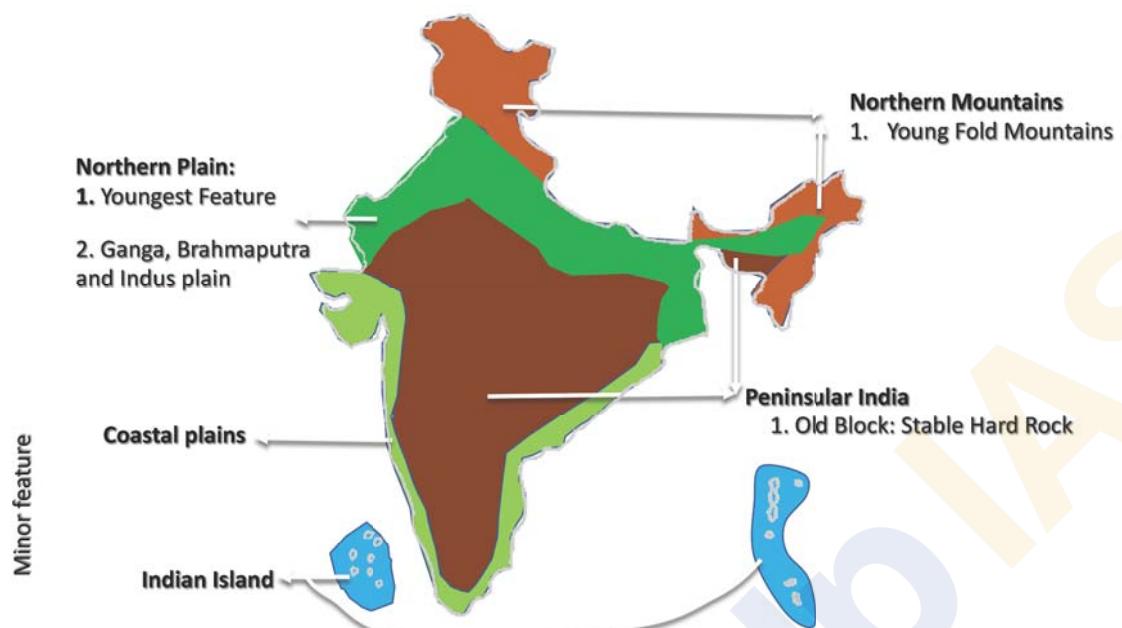
If you travel by road from Kohima to Kottayam, what is the minimum number of States within India through which you can travel, including the origin and the destination?

- (a) 6
- (b) 7
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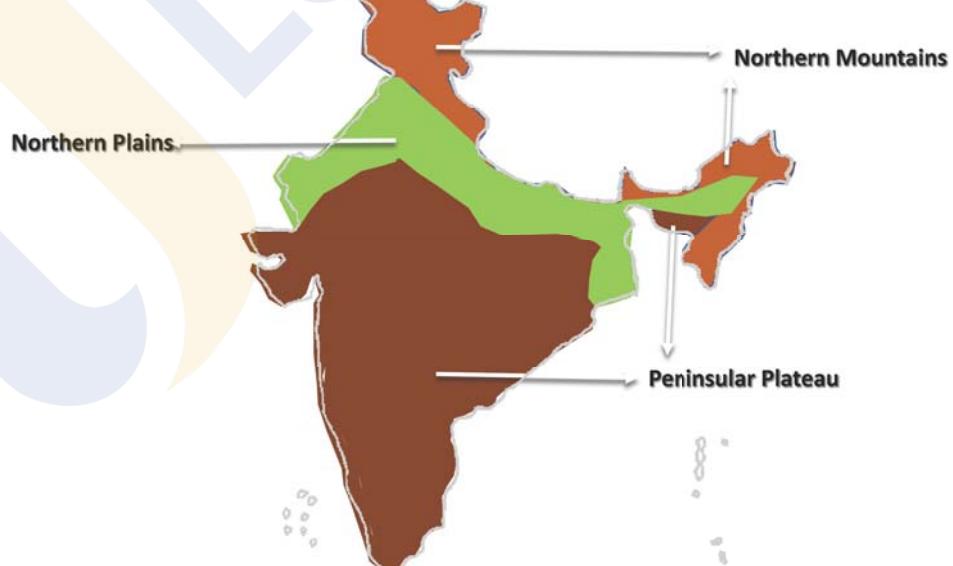
Answer: B

Kerala, Tamil Nadu, Andhra, Odisha, West Bengal, Assam , Nagaland (Then Andhra was combined)  
(Need an understanding of Borders of State)

### Physiographic division of India

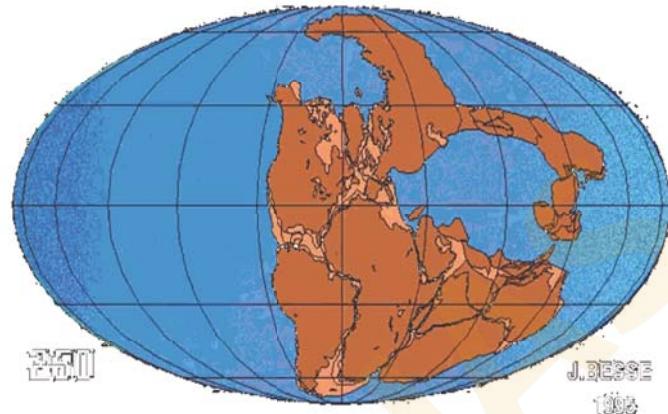


### Triple tectonic division of India



## History of India:

1. Indian plate was to the south of the equator millions of years ago
2. It was much larger in size and the Australian plate was a part of it.
3. Over millions of years, this plate broke into many parts and the Australian plate moved towards the south-eastern direction and the Indian plate to the north.
4. Northward movement of the Indian plate is still continuing



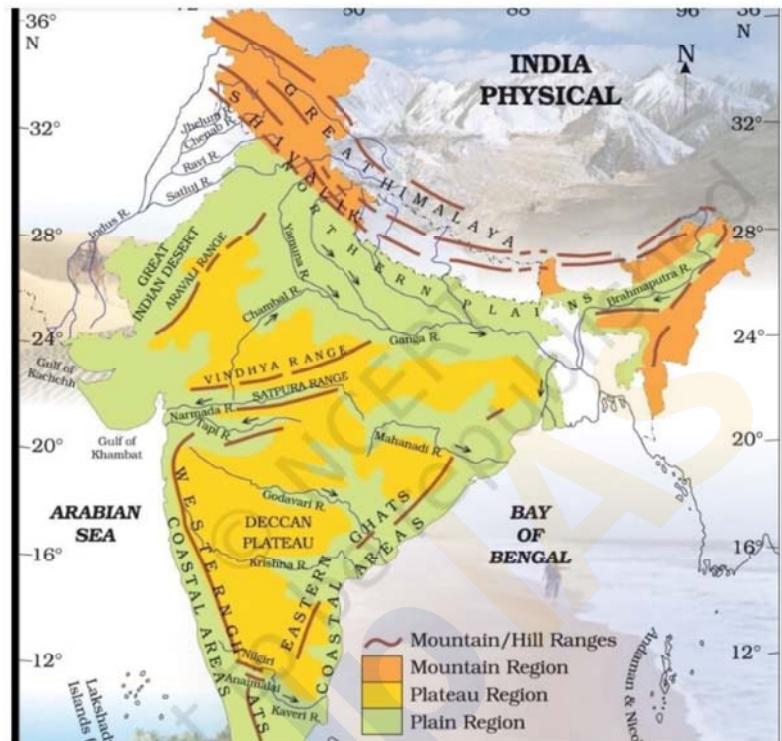
## About the Peninsular Block: Shape and Extent

1. **Shape:** Northern boundary is an irregular line running from Kachchh following the Aravali Range then roughly parallel to the Yamuna- Ganga as far as the Rajmahal Hills and the Ganga delta. Southern: irregular triangle
2. **Karbi Anglong and Meghalaya Plateau** in the NE is part of Plateau. NE parts are separated by the Malda fault in West Bengal from the Chotanagpur plateau
3. **Rajasthan** also has extensions of block. In Rajasthan, desert overlay this block.



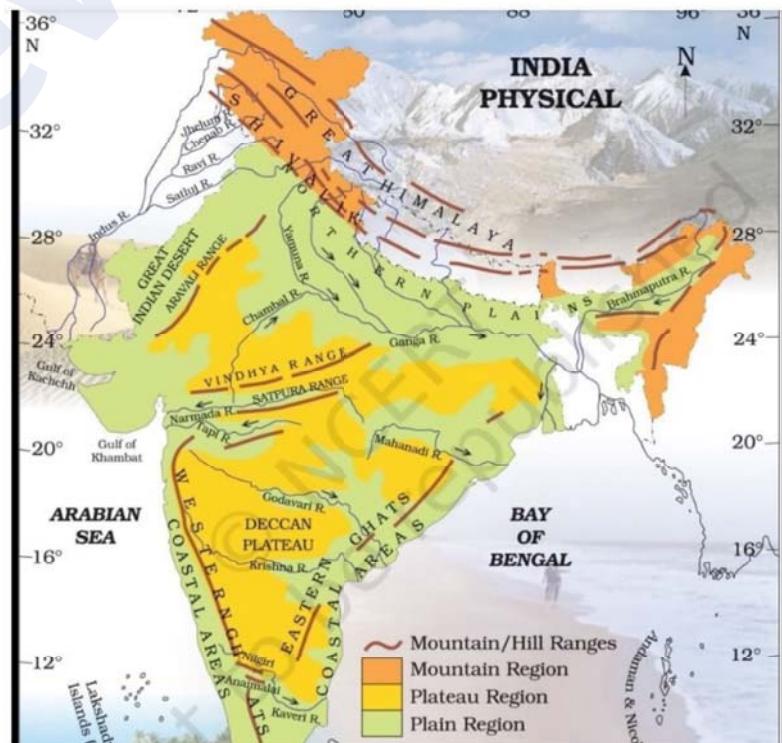
## Peninsular block

1. Height: 150 m-900 m
2. Mountains on outer extension: Delhi ridge in the northwest (extension of Aravalis), Rajmahal hills in the east, Gir range in the west and the Cardamom hills in south
3. Series of plateaus such as the **Hazaribagh plateau, Palamu plateau, Ranchi plateau, Malwa plateau, Coimbatore plateau and Karnataka plateau.**



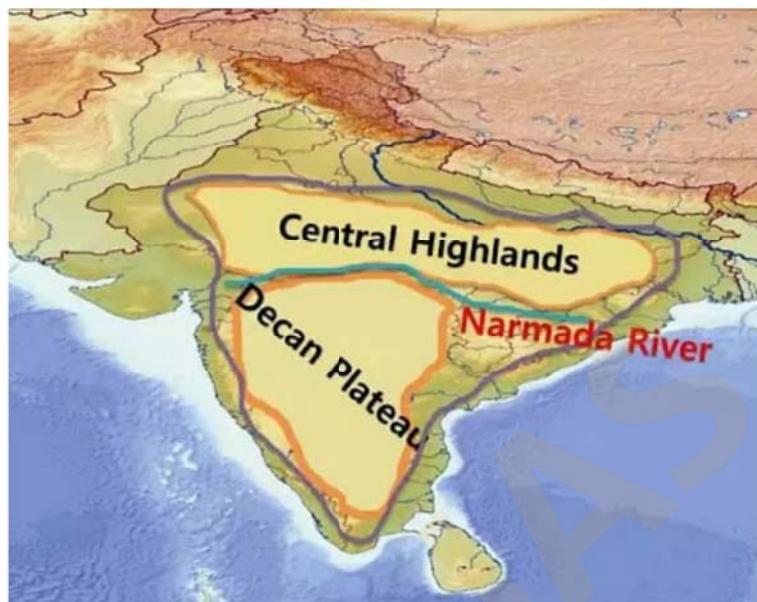
## Peninsular block

1. General elevation of plateau: West to East, proved by the pattern of the flow of rivers
2. Western and North-western part of Plateau has **black soil**.
3. Peninsular plateau has undergone through **phases of upliftment and submergence**



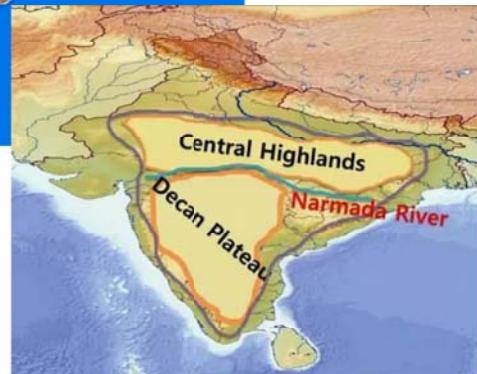
## Central Highland

1. Bounded to west by Aravali range.
2. **Satpura range** forms the southernmost part of Central Highlands. These are **relict mountains** which are highly denuded and form discontinuous ranges.
3. **Slope of Central Highlands**: From south-western to north-eastern directions .
4. **Origin of rivers**: Most of tributaries of Yamuna have their origin in the Vindhyan and Kaimur ranges.  
(Exception: Banas, tributary of Chambal originates from Aravalli)
5. **Eastern extension of Central Highland** is **Rajmahal hills**.
6. South-Eastern side: **Chotanagpur Plateau**



## Deccan Plateau

- **Bordered by the**
  - Western Ghats in the west,
  - Eastern Ghats in the east
  - Satpura range in the north.
- Western Ghats are **locally** known as such as
  - **Sahyadri** in Maharashtra
  - **Nilgiri hills** in Karnataka -Tamil Nadu
  - **Anaimalai hills** and **Cardamom hills** in Kerala.



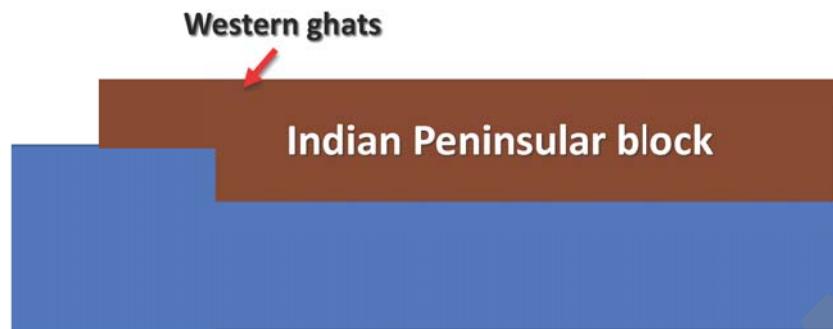
## Peninsular Block: Movements Experienced

1. **Composed:** Ancient gneisses and granites. Hard Rocks and so stable
2. One of the **oldest and the most stable landmass** of India Since the **Cambrian period**, the Peninsula has been standing like a rigid block in stable condition.
3. Peninsula has relict-residual mountains like **Aravali, Nallamala, Javadi, Veliconda, Palikonda, Mahendragiri hills**
1. But it has gone tectonic movements like:
  1. Formation of Western Ghat
  2. Rifting
  3. Formation of Deccan Lava Plateau
  4. Formation of Rajmahal Garo Gap
  5. Marine Transgression



## Formation of Western Ghat

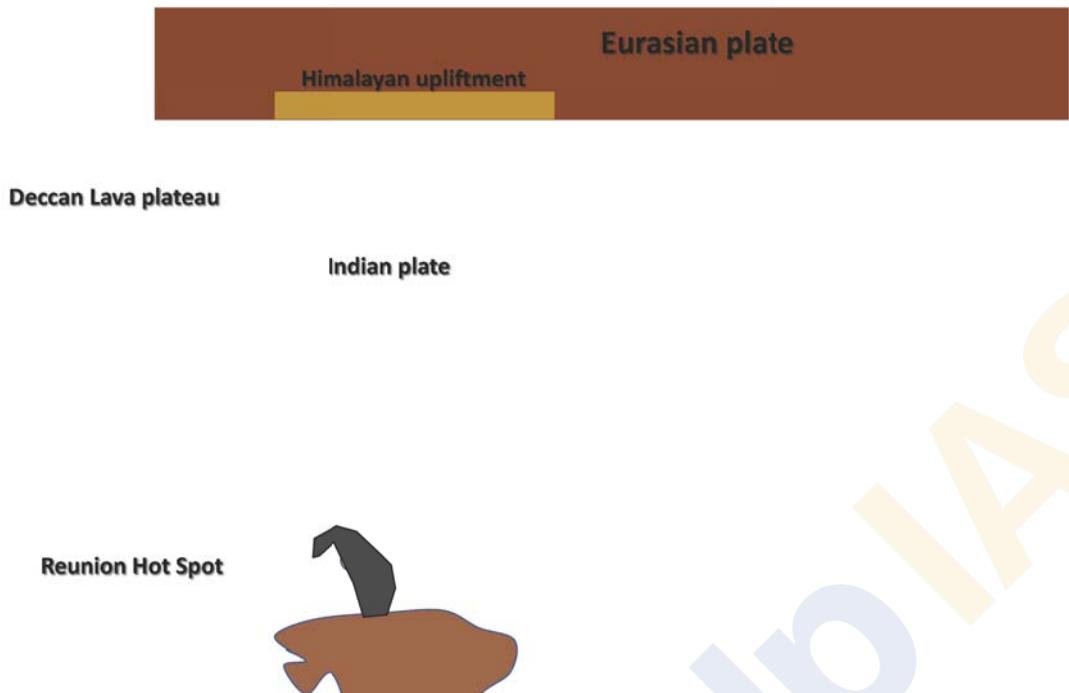
1. Peninsular Plateau was bigger in size than present day size
2. Peninsular Plateau developed cracks and the western side of peninsular plateau submerged under water
3. Remaining portion of peninsular plateau rotated eastward and western edge of peninsular plateau formed Western Ghat
4. Western Ghats are block Mountains



## Rifting

1. Due to Plate movement, PP has undergone **vertical movements** like **faulting, rifting**.
2. Eg: Rift valleys of Narmada, **Tapi**, **Mahanadi**, **Son**, **Damodar**, **Subarnarekha**. Rivers flow via these rift valleys and these are associated with the **coal fields**.
3. River valleys in peninsular India are shallow with low gradients.





### Formation of Deccan lava Plateau

Indian Plate was passing over Reunion Hot Spot

Western Part experienced lava flow over it

It formed deccan lava Plateau

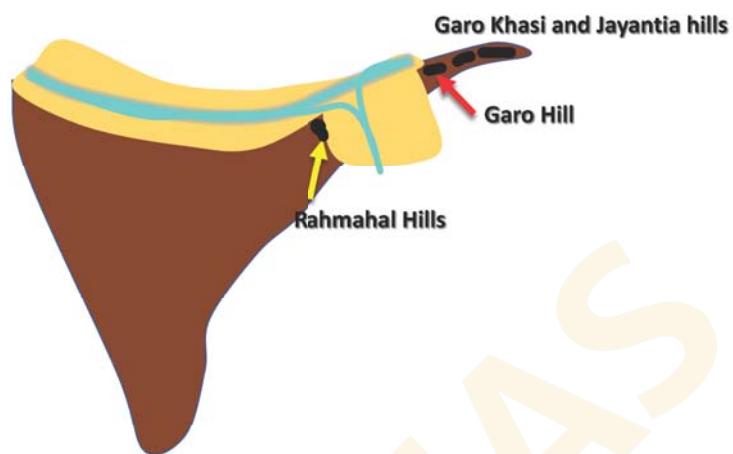
Location: Maharashtra, Gujarat, Some part of M.P, Malwa.

Region has Basalt rocks and forms the regur soil of India



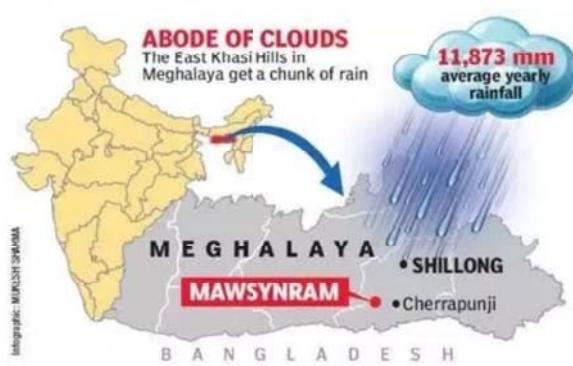
## North Eastern Plateau

- Extension of Peninsular plateau.
- Force exerted by the northeastward movement of the Indian plate at the time of the Himalayan origin, a huge depression was created between the Rajmahal hills and the Meghalaya plateau.
- Depression created is called as Rajmahal Garo Gap
- Later, this depression got filled up by the deposition activity of the numerous rivers.
- Today, the Meghalaya and Karbi Anglong plateau stand detached from the main Peninsular Block.



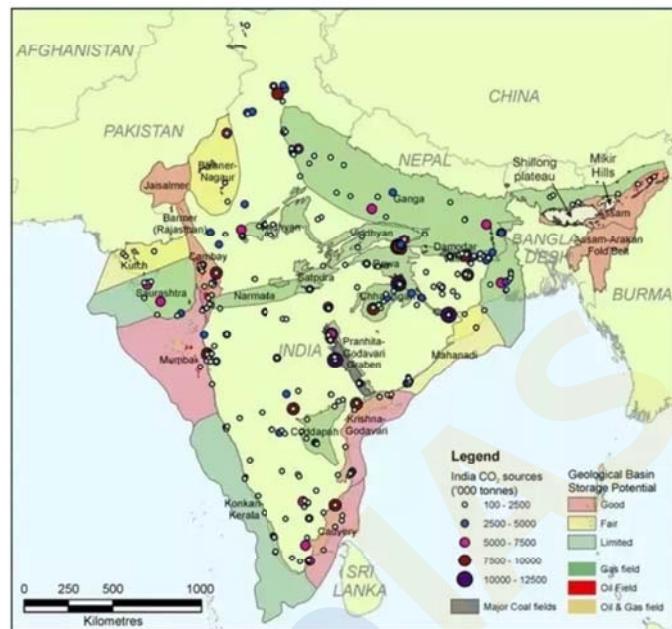
## North Eastern Plateau: Meghalayan Plateau

- Meghalaya plateau is further sub-divided into three:
  - (i) The Garo Hills;
  - (ii) The Khasi Hills;
  - (iii) The Jaintia Hills
- Extension of this is also seen in Karbi Anglong hills of Assam.
- Similar to the Chotanagpur plateau, the Meghalaya plateau is also rich in mineral resources like coal, iron ore, sillimanite, limestone and uranium.
- This area receives maximum rainfall from the south west monsoon. As a result, the Meghalaya plateau has a highly eroded surface. Cherrapunji displays a bare rocky surface devoid of any permanent vegetation cover.



## Marine Transgression

- As India Plate moved northward, there are 4 events of marine transgression (sea water entering into Peninsular Plateau)
- These areas form the major oil and gas resources
  - Kutch Saurashtra Shelf: South Bassein, Bombay High
  - K G Basin: Rawa Oil Fields
  - Assam Region: Naharkatiya, Sibsagar, Moran Hugrijan.



## Deccan Plateau: Western Ghats

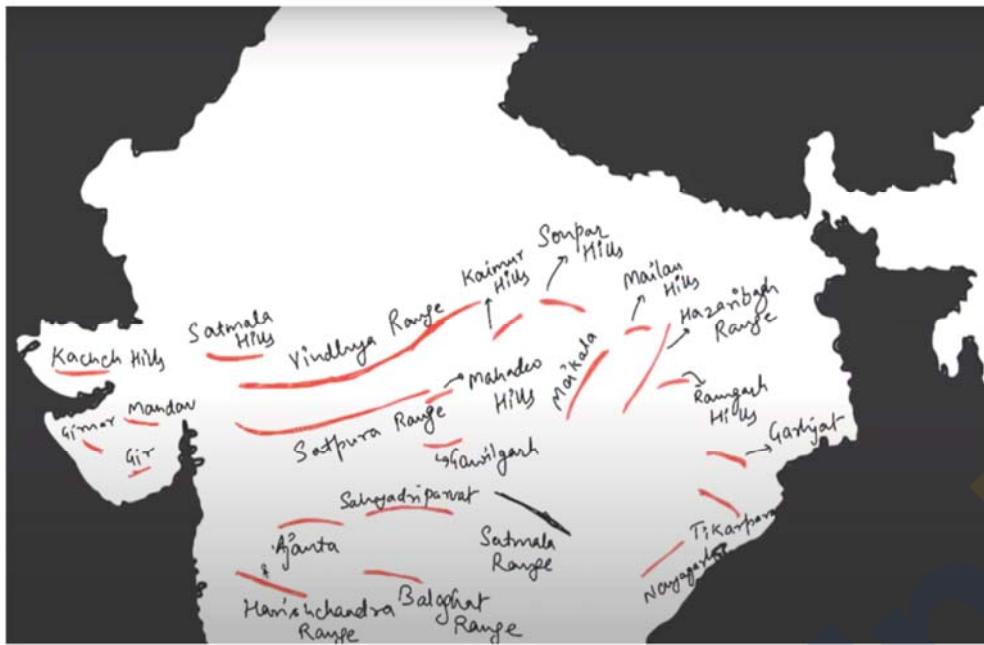
- W. Ghats has higher elevation and are more continuous than E. Ghats.
- Western Ghats: Elevation is 1,500 m with the height increasing from north to south.
- Anaimudi= Highest peak of Peninsular plateau on Anaimalai hills
- Dodabetta is highest peak of Nilgiri hills.
- Peninsular rivers have their origin in Western Ghats.



## Deccan Plateau: E Ghat

- Eastern Ghats are **discontinuous and low hills** are highly eroded by rivers of Mahanadi, Godavari, Krishna, Kaveri
- Some of the hills are Javadi hills, Palconda range, Nallamala hills, Mahendragiri hills, etc.
- Eastern and Western Ghats** meet each other at the Nilgiri hills.





- RGMAM: Satpura
- Goodwill peak is highest peak of Vindhayas: Sadbhavana Peak
- Dhoopgarh Peak is on Mahadeo Hills
- Chikaldhara Hillstation on satpura
- Amarkantak: Son, narmada, Johilla
- Maikal Range: Kanha National Park
- Gawilgarh: Melghat Tiger Reserve

## Plateau System



## 2023

Consider the following statements:

1. Amarkantak Hills are at the confluence of Vindhya and Sahyadri Ranges.
2. Biligirirangan Hills constitute the easternmost part of Satpura Range.
3. Seshachalam Hills constitute the southernmost part of Western Ghats

How many of the statements given above are correct?

- a) Only one
- b) Only two
- c) All three
- d) None

## 2023

- **Statement 1 is incorrect:** Amarkantak is a pilgrim town in Anantpur, Madhya Pradesh, India. The Amarkantak region is a unique natural heritage area and is the meeting point of the Vindhya and the Satpura Ranges, with the Maikal Hills being the fulcrum.
- **Statement 2 is incorrect:** The Billigirirangan hills are not a part of the Satpura range. The Biligirirangan Hills is a hill range situated in south-western Karnataka, at its border with Tamil Nadu (Erode District) in South India. The area is called Biligiri Ranganatha Swamy Temple Wildlife Sanctuary. It is part of Eastern Ghat.
- **Statement 3 is incorrect:** The Sesachalam hills, also known as Tirumala hills, are not a part of the Western Ghats. Seshachalam Hills are hilly ranges part of the Eastern Ghats in southern Andhra Pradesh state, in southeastern India. The Seshachalam hill ranges are predominantly present in Tirupati district of the Rayalaseema region in Andhra Pradesh, India.

2016

Consider the following pairs:

Place of Pilgrimage	Location
1. <u>Srisailam</u>	<u>Nallamala Hills</u>
2. <u>Omkareshwar</u>	<u>Satmala Hills</u>
3. Pushkar	Mahadeo Hills

Which of the above pairs is/are correctly matched ?

- (a) 1 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

2013

In which of the following States is lion-tailed macaque found in its natural habitat?

- 1. Tamil Nadu
- 2. Kerala
- 3. Karnataka
- 4. Andhra Pradesh

Select the correct answer using the codes given below.

- (a) 1, 2 and 3 only
- (b) 2 only
- (c) 1, 3 and 4 only
- (d) 1, 2, 3 and 4

2014

Consider the following pairs:

Hills and Region

1. Cardamom Hills: Coromandel Coast
2. Kaimur Hills: Kokan India
3. Mahadeo Hills: Central India
4. Mikir Hills: North East India

Which of the pairs are correctly matched?

- (a) 1 and 2 only (b) 2 and 3 only  
(c) 3 and 4 only (d) 2 and 4 only



2016

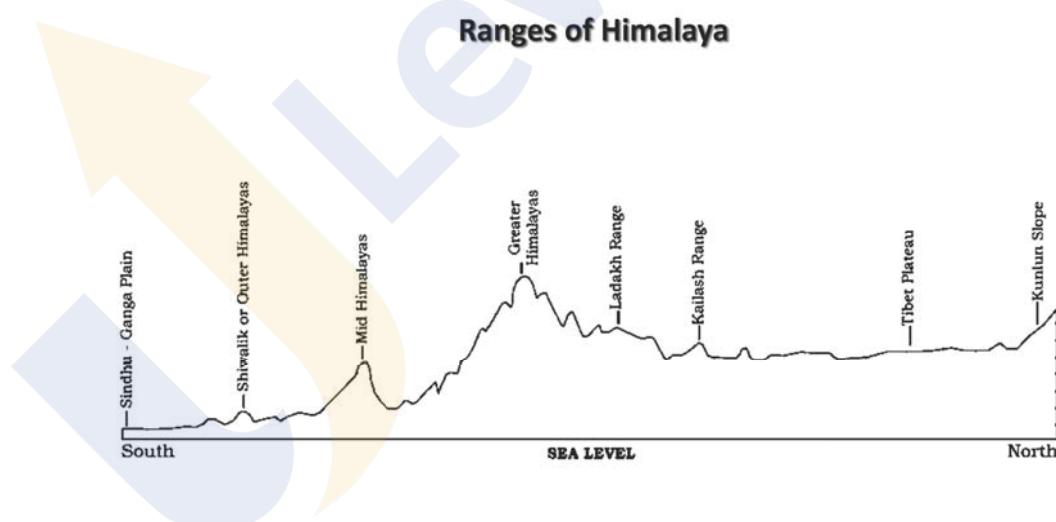
Consider the following pairs:

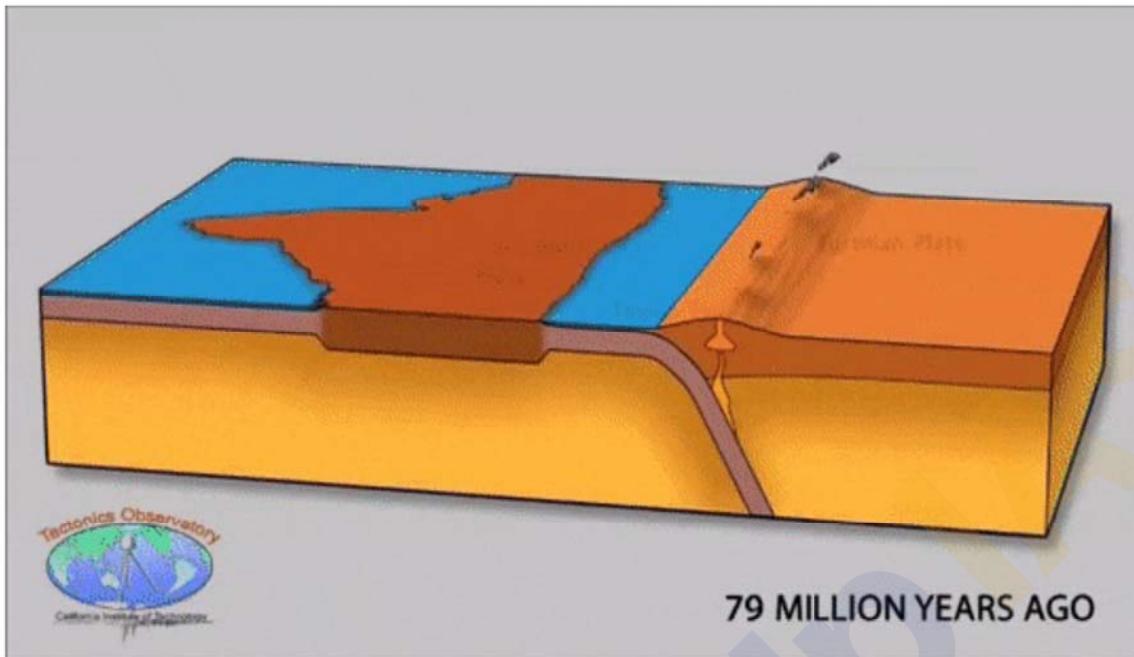
Famous Place: Region

1. Bodhgaya: Baghelkhand
2. Khajuraho: Bundelkhand
3. Shirdi: Vidarbha
4. Nasik (Nashik): Malwa
5. Tirupati: Rayalaseema

Which of the pairs given above are correctly matched?

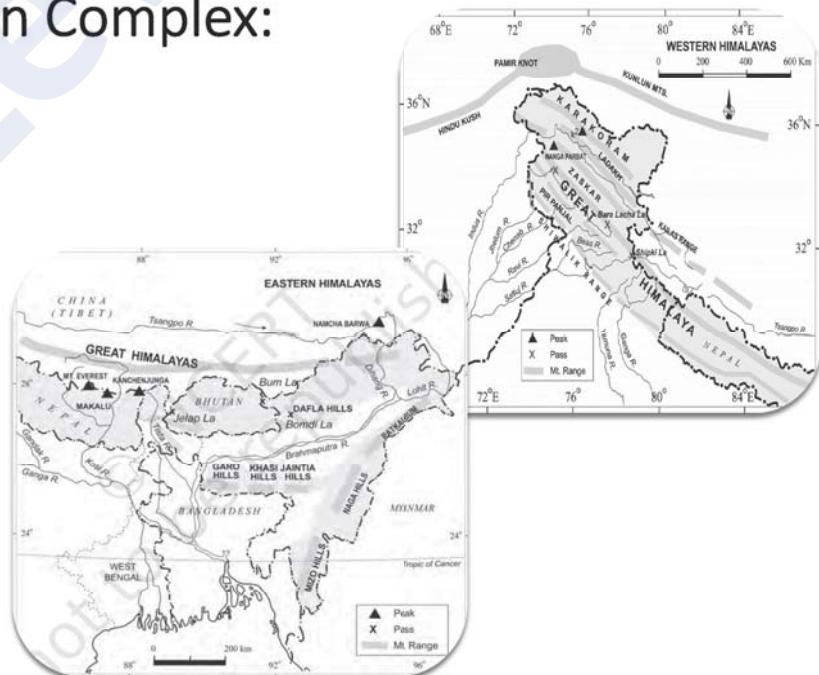
- (a) 1, 2 and 4 (b) 2, 3, 4 and 5  
(c) 2 and 5 only (d) 1, 3, 4 and 5





## Northern Mountain Complex:

- Are series of parallel mountain range
- Are young, weak and flexible unlike rigid & stable Peninsular Block.
- Are tectonic in origin (formed due to collision of Indian Plate with Eurasian Plate)
- Length: 2,500 km from east to west
- Width: 160-400 km from north to south



## Details of Northern Mountain Complex

- Series of ranges:
- **Trans Him:** Karakorum, Ladakh, Zaskar: Formed by Upliftment of Tethys Sea Sediments: O-C Collision
- **Great Him:** Continuous Range: C-C Collision: Formed by Upliftment of marine sediments: sedimentary and metamorphic
- **Middle Himalayas:** C-C Collision: Formed by Upliftment of marine sediments: sedimentary and metamorphic
  - Broken Ranges and are locally known by different names like:
    - Pir Panjal in Jnk and H.P
    - Dhauladhar in H.P
    - Mussorie, Nagtibba, Garhwal in UTK
- **Shivalik:** C-C Collision: Formed by upliftment of fluvial deposits
- **Purvanchal Range:** CC Collision: Marine Sediments.

## Details of Northern Mountain Complex

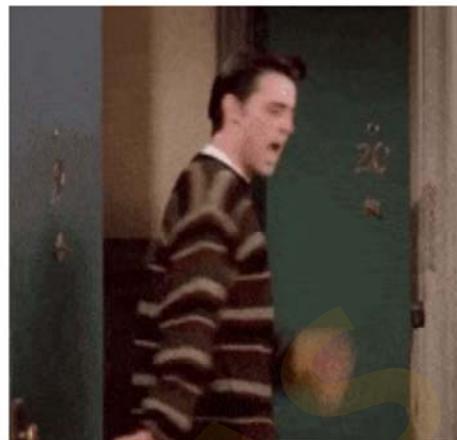
- Upliftment still continues and Indian Plate is moving at speed of 5-10 cm/year making the northern portion tectonically unstable
- Himalayas **are tallest mountain range** because:
  - Young (Not eroded much)
  - Upliftment still continues
  - Doubling of crust
  - Enormous sediment between Eurasian Plate and Indian Plate
- Himalayan Range extend from Namcha Barwa (Above Aru Prad) and Nanga Parbat (JnK)



## Door Slam Shut

Sequence of collision of Peninsular Plateau

- Collision first happened on Western Side
- Plateau then rotated in anti clockwise manner and got hinged on the NE side and western side got opened.
- Opening of Western Edge led to slumping of sediments on W. Him whereas Eastern Him continues to be squashed.
- This explains why Western Himalayas are broader while the Eastern Himalayas do not have distinct range.

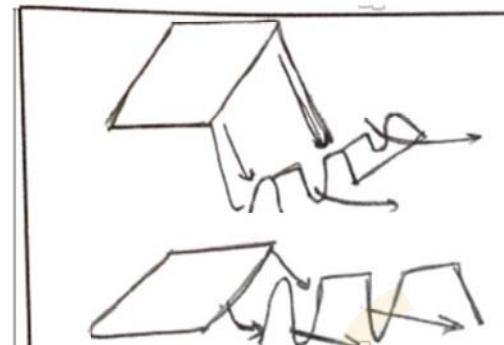


## Eastern Himalayas V/s Western Himalayas

Eastern Himalayas	Western Himalayas
Broader: 400 km: N-S	Narrower: 250 km: N-S
Ranges are more distinct: TH, GH, MH, Shivalik.	Ranges are not distinct: TH, GH, MH, Shivalik cannot be distinguished.
They are not as steep. They rise up as a series of steps	Very Steep. Rise abruptly from foothills
They have more Hill stations and Glaciers	They have less Hill stations and Glaciers
More Drier	More Wetter, Moist
Coniferous, Deciduous forest	Evergreen Forest

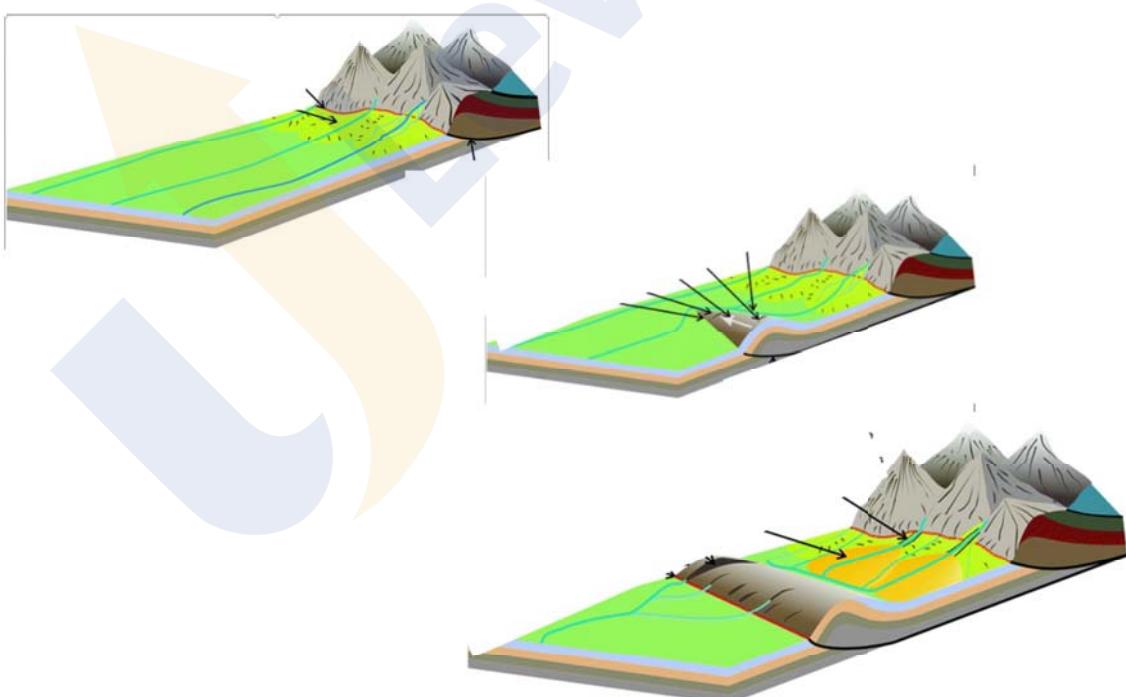
## Himalayas are not water divide

1. Almost all the Himalayan rivers cut across mountains and drain into N. Plain
2. Such Rivers are called as **Antecedent Rivers**. Rivers are older than Himalayas as Himalayas uplifted the rivers could cut across the Himalayas.
3. This happened as rivers were large enough and Himalayas were rising at the rate, where the rivers could keep pace and erode
4. When **Mountains were being uplifted**, the rivers form Tibetan highlands were blocked and formed longitudinal lakes between the ranges.
5. Eventually as the rivers cut across the lakes were drained leaving behind the dry lake beds called as **DUN/WADI between Him Ranges**
6. These are location for **agriculture and Horticulture** because of fertile lacustrine Deposits

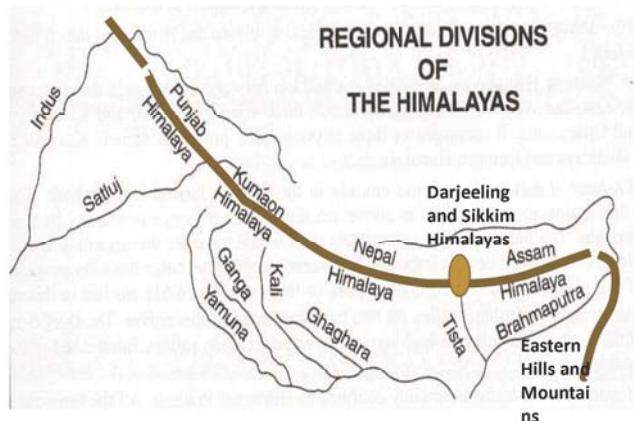


Longitudinal valley is an elongated valley found between two almost-parallel mountain chains in geologically young fold mountains

**Lacustrine Means  
Derived from Lake**



## Division of Northern mountains



### Punjab Himalayas:

- This part lies between the Indus and Sutlej. From west to east, this is also known as Kashmir Himalaya and Himachal Himalaya; respectively.

### Kumaon Himalayas:

- This part lies between Sutlej and Kali rivers.

### Nepal Himalayas:

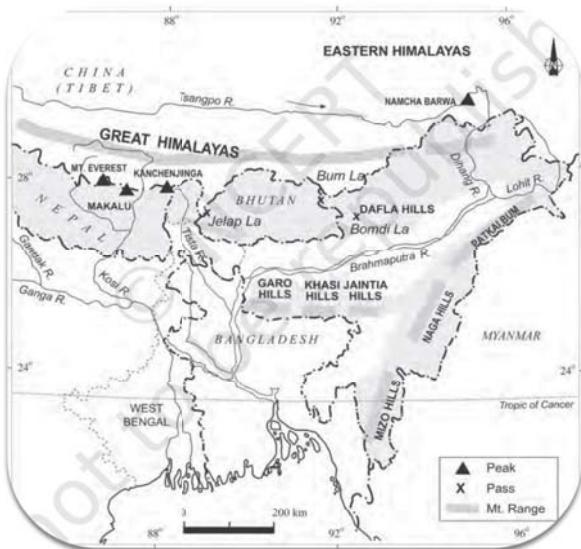
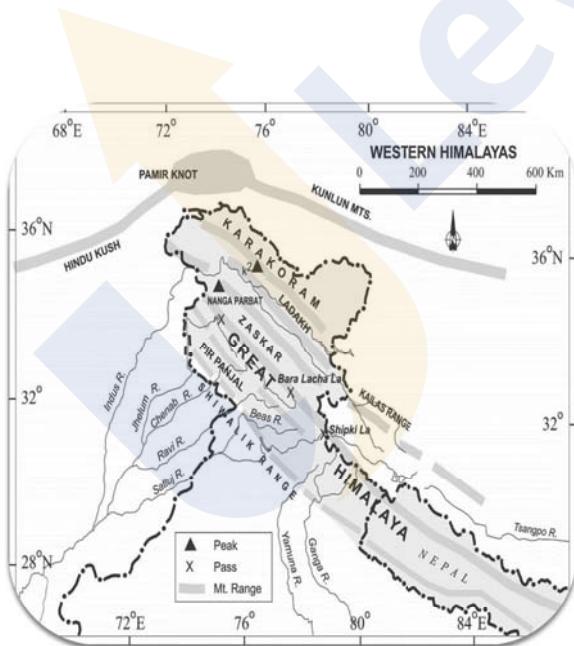
- This part lies between the Kali and Tista rivers.

### Assam Himalayas:

- This part lies between the Tista and Dihang

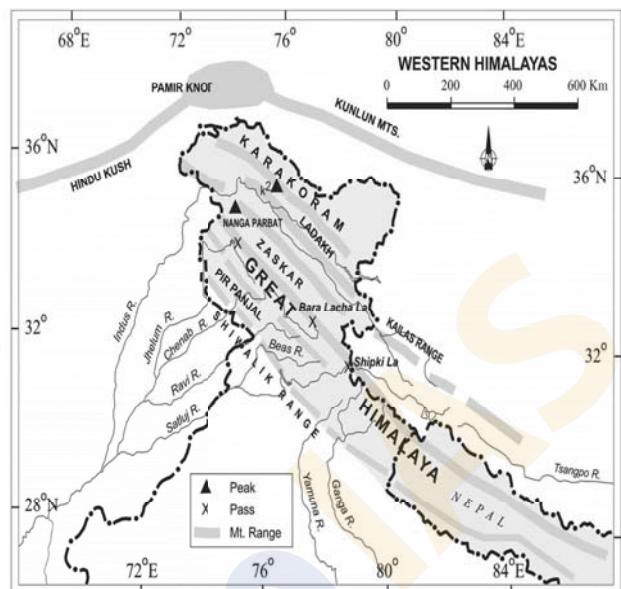
### Eastern hills

- Patkai Hills, Naga Hills, Manipuri Hills and Mizo Hills.



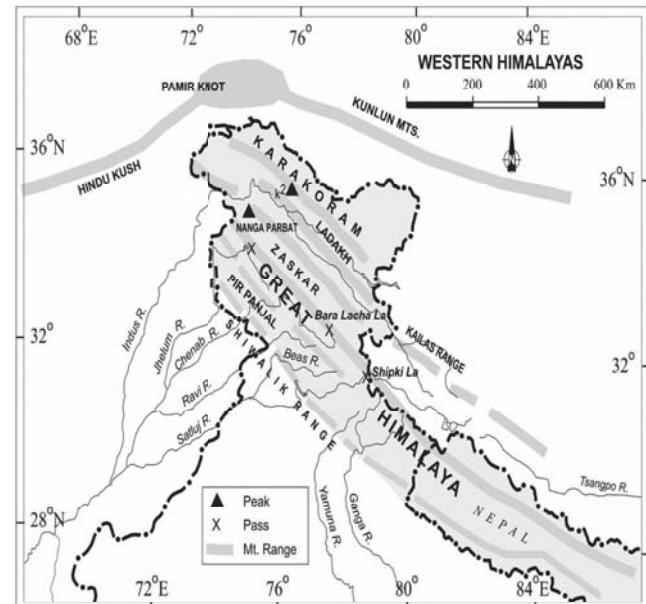
## Kashmir Himalayas

- Series of Range: Karakoram, Ladakh, Zaskar, Great Himalayas, Pir Panjal, Shivalik
- Valley of Kashmir and Dal Lake is in between Great Himalayas and Pir Panjal.
- Glacier: Baltoro and Siachen.
- Famous: Karewa formations for cultivation of Zafran, local variety of saffron.
- Imp passes of the region are
  - Zoji La on Great Himalayas,
  - Banihal on Pir Panjal,
  - Photu La on Zaskar
  - Khardung La on Ladakh range.



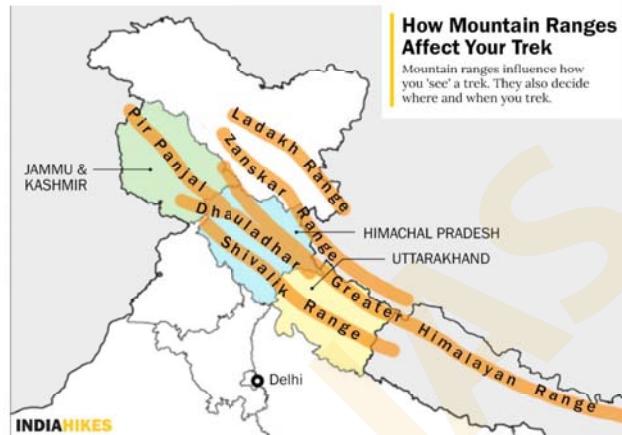
## Kashmir Himalayas

- Imp Fresh Water lakes: Dal (has Srinagar City) and Wular
- Salt water lakes: Pangong Tso and Tso Moriri
- River in regions: Indus, Jhelum (has Srinagar City), Chenab.
- Famous pilgrimage centre: Vaishno Devi, Amarnath Cave, Charar -e-Sharif,
- Has longitudinal valleys known as 'duns'. eg: Jammu dun, Pathankot dun
- Jhelum river meanders because of local base level provided by Dal Lake



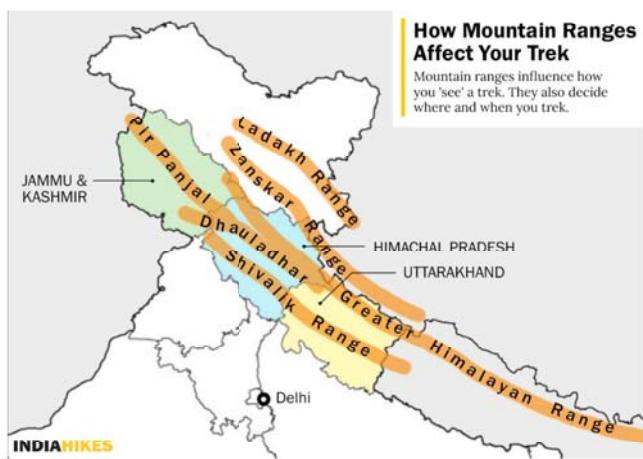
## Himachal and Uttarakhand Himalayas

- Between Ravi River (West) and Kali on East (tributary of Ghaghara)
- Drained by 2 major river systems: Indus & Ganga.
- Tributaries of Indus: Ravi, Beas and Satluj.
- Tributaries of Ganga: Yamuna and the Ghaghara.
- All 3 ranges of Himalayas are visible: Great Him, Middle Him (Known as Dhaoladhar in HP & Nagtibha in UTK) and Shiwalik Range.



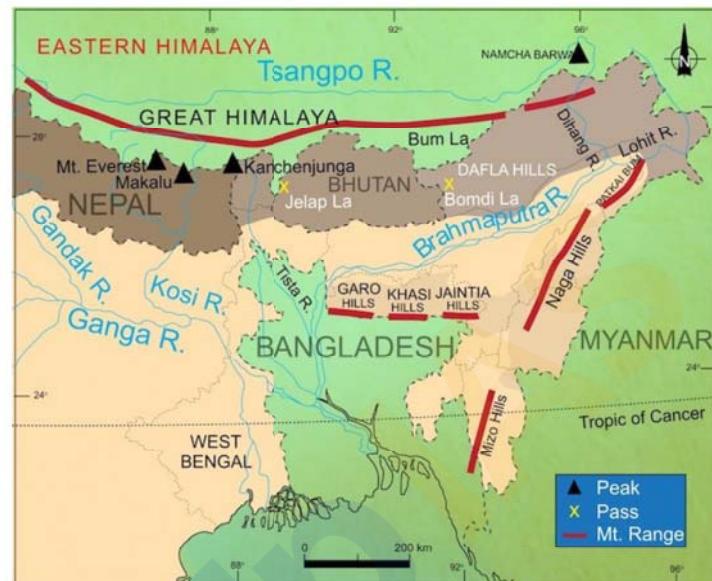
## Himachal and Uttarakhand Himalayas

- Imp hill stations: Dharamshala, Mussoorie, Shimla, Kaosani, Kasauli, Almora, Lansdowne and Ranikhet,
- Imp dun: Chandigarh-Kalka dun, Nalagarh dun, Dehra Dun, Harika dun, Kota dun, etc.
- Tribes: Inhabited by nomadic Bhotia tribe who migrate to 'Bugyals' (the summer grasslands in higher reaches) during summer months and return to the valleys during winters.
- Imp tourist location: 'Valley of flowers', Gangotri, Yamunotri, Kedarnath, Badrinath, Hemkund Sahib



## Darjiling and Sikkim Himalayas

- Flanked by Nepal Himalayas (West) & Bhutan Himalayas (East).
- Rivers such as Tista
- Peaks: Kanchenjunga
- Tribe: Lepcha tribes
- Tea Gardens: Moderate slope, thick soil cover with high organic content, well distributed rainfall throughout the year and mild winters (Duar formations)



## Arunachal Himalayas

- East of Bhutan Him upto Diphu pass (in East)
- Imp Mtn Peak: Namcha Barwa.
- Imp Rivers: Bhramaputra, Kameng, Subansiri, Dihang, Dibang, Lohit.
- Imp Tribe: Monpa, Abor, Mishmi, Nyishi and Nagas.
- Tribes practise Jhumming (Shifting or slash and burn cultivation).



## Eastern Hills and Mountains

- General alignment: North to South direction.
- Local Names: Patkai Bum, Naga hills, Manipur hills, Mizo or Lushai hills.
- Imp River: Barak River
- Manipur has famous lake (Loktak lake)
- Mizoram has 'Molassis basin': soft unconsolidated deposits.



### Important Passes:

- Sasser La: Karakoram
- Khardung La: Ladakh
- Photu La: Zaskar
- Zozila: Great Himalayas
- Rohtang Pass: Pir Panjal
- Banihal Pas: Pir Panjal
- Shipki La: Dhauladar
- Wular Lake & Dal Lake: Between Great Himalayas & Pir Panjal



- Passes:
  - Sikkim: Jelep La, Nathu La:
  - Tse La: Dafla

## 2022: Location

Consider the following pairs:

Peak	Mountains
1. Namcha Barwa	Garhwal Himalaya
2. Nanda Devi	Kumaon Himalaya
3. Nokrek	Sikkim Himalaya

Which of the pairs given above is/are correctly matched?

- (a) 1 and 2
- (b) 2 only
- (c) 1 and 3
- (d) 3 only

## 2017: Location

**Consider the following statements:**

1. In India, the Himalayas are spread over five States only
2. Western Ghats are spread over five States only.
3. Pulicat Lake is spread over two States only.

Which of the statements given above is/are correct?

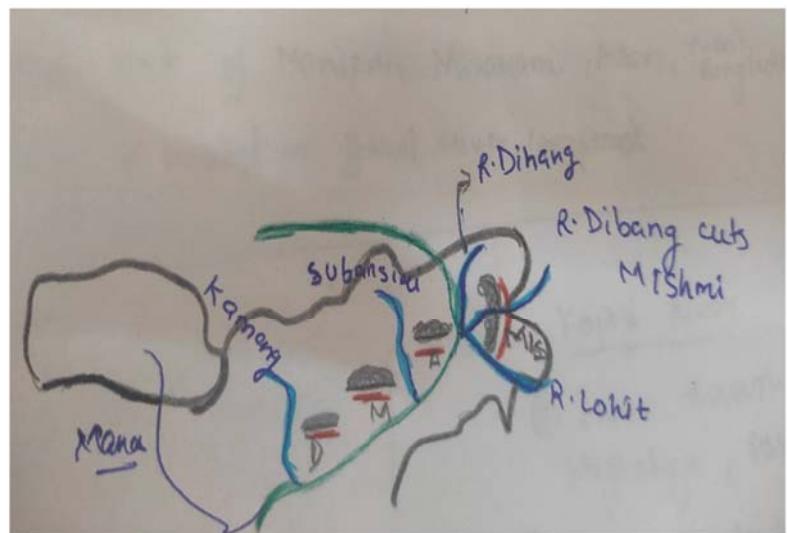
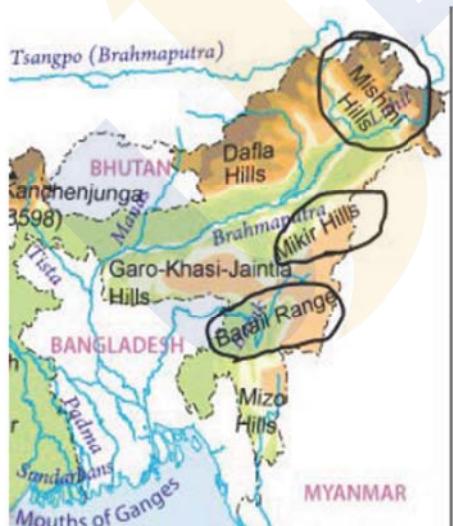
- (a) 1 and 2 only
- (b) 3 only
- (c) 2 and 3 only
- (d) 1 and 3 only

### Himalayas Spread

1. JNK, HP, UTK, SIKKIM, West Bengal, Arunachal Pradesh and West Bengal
2. Western Ghat: Guj, Mah, Goa, Karnataka, Kerala, Tamil Nadu
3. Pulicat: Andra and T. N



D, M, A, M



## North East

- Patkai: Arunachal: Diphu pass, Monpa Tribe
- Naga Hills: Nagaland: Saramati Peak, Mollen Nation Park
- Manipur: Loktak Lake, Metei tribe, Lalmatol Range
- Barail Range: Assam, Naga, Manipur, Source of Barak River, Watershed between Brahma and Barak River
- Mizo Hill: Blue Mountain, Molassis Basin, Lushai Hills
- Meghalaya: Nokrek peak is on???? Khasi which is capital of Shillong is on? Bamboo Drip???
- Sikkim: Kunchenjugna Peak, Lepcha Tribe, Khecopalri Lake, Zemu Glacier, Rumtek Monastery, Teesta river
- Tripura: Kamlasagar Lake, Rudrasagar Lake

## India Map Location

**2013:**

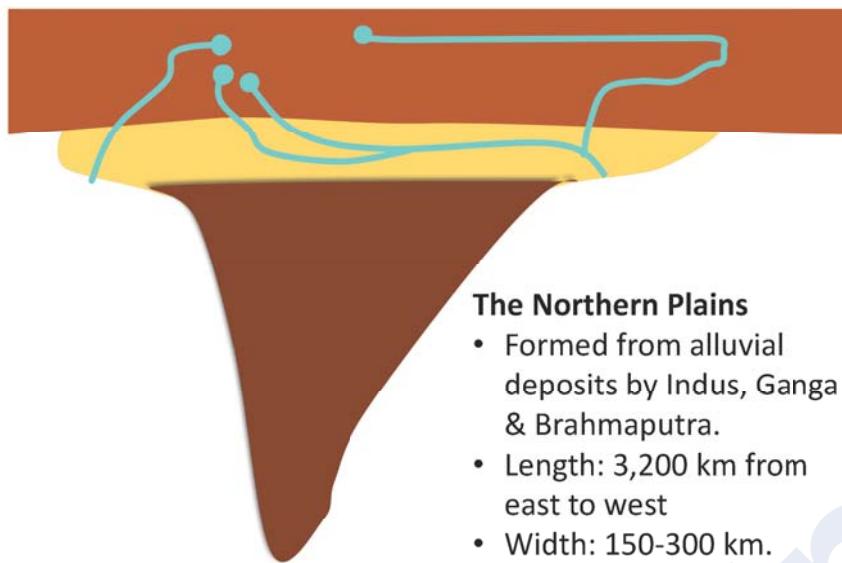
Consider the following pairs:

1. Nokrek Biosphere Reserve : Garo Hills
2. Loktak Lake : Barail Range
3. Namdapha National Park : Dafla Hills

Which of the above pairs is/are correctly matched?

- (a) 1 only
- (b) 2 and 3 only
- (c) 1, 2 and 3
- (d) None

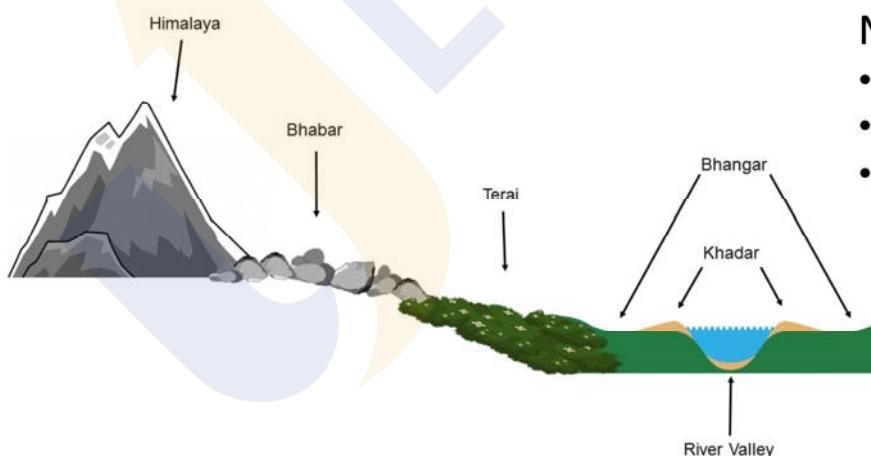
## Formation of northern plains



### The Northern Plains

- Formed from alluvial deposits by Indus, Ganga & Brahmaputra.
- Length: 3,200 km from east to west
- Width: 150-300 km.
- Depth: 1,000-2,000 m.

## THE NORTHERN PLAINS



### North to south Division:

- Bhabar
- Tarai
- Alluvial plains: Khadar and Bhangar.

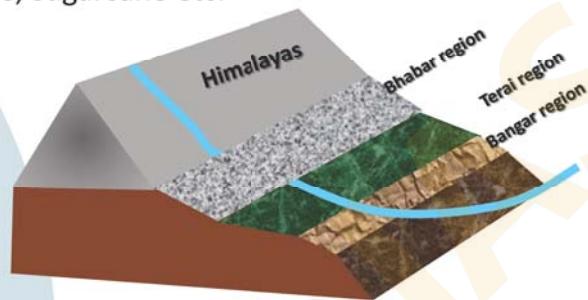
# PLAINS OF THE NORTHERN INDIA

## THE BHABAR PLAINS

- Narrow belt: 8-10 km parallel to Shiwalik
- Lie to the south of Shiwalik
- Jammu to Assam.
- Rivers coming from mountains deposit bigger rocks, boulders
- River disappear in this zone
- Not suitable for cultivation: Forested Areas and Big trees

## THE TARAI PLAIN

- South of the Bhabar tract
- Width: 10-20 km
- Rivers re-emerge here creating marshy-swampy conditions
- Good for the cultivation of Wheat, rice, maize, sugarcane etc.



## Alluvial Plain: Bhangar and Khadar

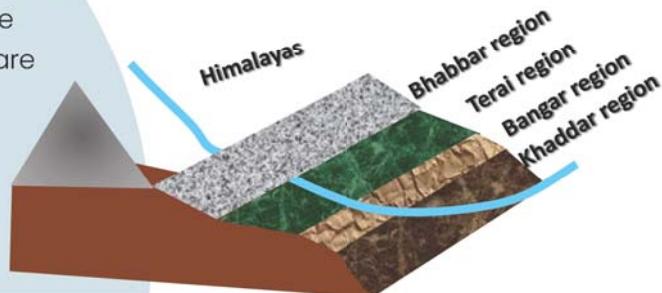
- Features: Sand bars, meanders, oxbow lakes and braided channels.
- Have periodic floods and shifting river courses
- Mouths of rivers has largest deltas of the world. For eg: Sunderbans delta

## THE BHANGAR PLAINS

- Older alluvial plains.
- Contains the calcium carbonate nodules called 'Kankars' which are impure in nature.

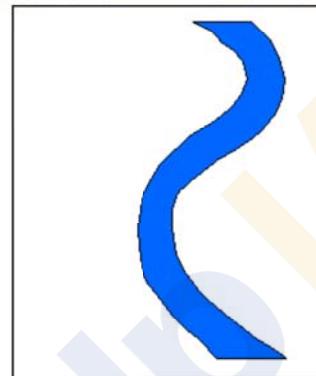
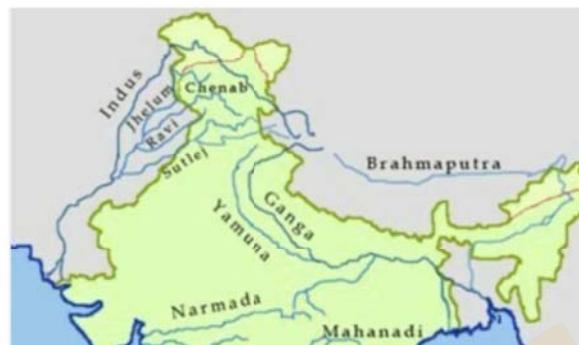
## THE KHADAR PLAINS

- Newer Alluvial Plain
- Enriched by fresh deposits of silt every year.
- Consists of silt, mud, clay, and sand.
- Cultivation of sugarcane, rice, wheat, maize and oilseeds.



## Features of North Plain

1. Form some of the largest deltas of the world like Sunderbans delta.
2. Generally featureless plain with an elevation of 50-150 m
3. Haryana and Delhi form a water divide between the Indus and the Ganga river systems.
4. Brahmaputra river flows from the northeast to the southwest direction before it takes an almost 90° southward turn at Dhubri before it enters into Bangladesh.
5. River valley plains have a fertile alluvial soil cover which supports a variety of crops like wheat, rice, sugarcane and jute, and hence, supports a large population.



## Islands: 2 Major Group

- Andaman and Nicobar:
  - 572 islands/islets.
  - Between 6°N-14°N and 92°E -94°E.
  - The two principal groups of islets include the Ritchie's archipelago and the Labrynth island.
  - Two broad Category: Andaman in the north and the Nicobar in the south separated by a waterbody which is called the Ten degree channel.
  - Some believe it is an elevated portion of submarine mountains.
  - However, some smaller islands are volcanic in origin.
  - Barren island, the only active volcano in India is also situated in the Nicobar islands
  - Has corals and has equatorial vegetation

## Islands: 2 Major Group

- Lakshadweep:
  - 8°N-12°N and 71°E -74°E longitude.
  - Entire island is coral deposits.
  - 36 islands of which 11 are inhabited.
  - Minicoy is the largest island
  - Islands are divided by the Ten degree channel, north of which is the Amini Island and to the south of the Canannore Island..

2021

With references to India, Didwana, Kuchaman, Sargol and khatu are the names of

- (a) Glaciers
- (b) Mangrove areas
- (c) Ramsar sites
- (d) Saline lakes

2018

Consider the following statements:

1. The Barren Island volcano is an active volcano located in the Indian territory.
2. Barren Island lies about 140 km east of Great Nicobar.
3. The last time the Barren Island volcano erupted was in 1991 and it has remained inactive since then.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 and 3
- (c) 3 only
- (d) 1 and 3



### Indus:

- Origin: Bokarchu Glacier (West of Mansarovar)
- Has Blind Indus Dolphin
- Aka Singhikhambab
- Lake: Satpara Lake
- Hemis High Altitude National: Largest and Highest NP, Snow Leopard
- Imp left Bank Tributary: Suru, Zaskar River
- River Shyok, Gilgit( Tributary:Hunza) are right bank tributary.
- River Shyok has origin in Siachen



## INDUS RIVER

### LEFT TRIB.

Jhelum  
Chenab  
Ravi, Beas  
Satluj  
Zanskar, Panjnad

### RIGHT TRIB.

Shyok  
Hunza, Gilgit  
Swat  
Kunar, Kabul  
Kurram

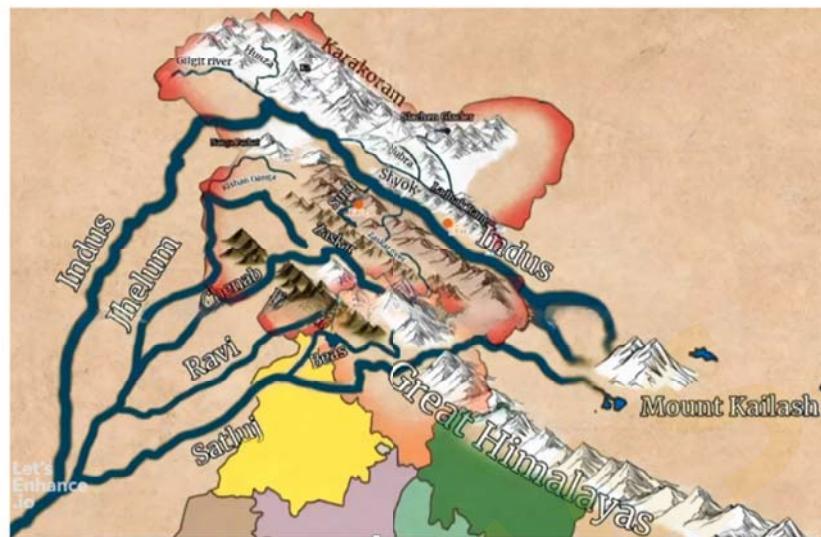
### Jhelum:

- Origin: Verinag Spring at foot of PirPanjal
- Tributary: Neelam, Kishenganga
- Has wular lake, Dal Lake, Srinagar
- Forms border between India and Pakistan
- Meets Chenab in Pakistan



### Chenab:

- Made of Chandra and Bhaga: Both meets at Keylong: Hence called as Lady of Keylong
- Origin: Baralacha La Pass
- Largest Tributary of Indus
- Meets Indus River



### Ravi

- Origin: Rohtang Pass (HP) in Kullu
- Between Pir Panjal and Dhauladhar
- Cuts Dhauladhar
- Dalhousie is on Ravi
- Meets Chenab River in Pakistan



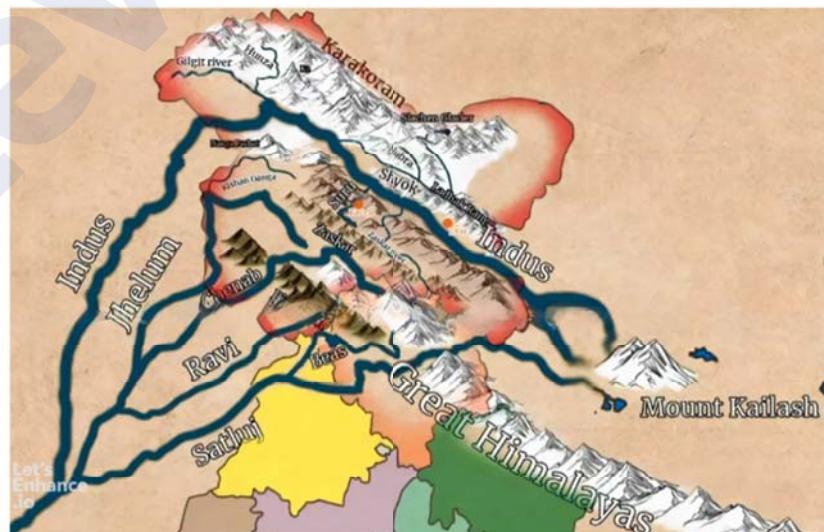
### Beas:

- Origin: Beas Kund (HP) near Rohtang Pass
- Dam: Pong Dam aka Maharana Pratap Sagar Dam
- Has Pong Wetland, Harike Wetland
- Flows entirely in India
- Beas and Sutlej meet at Harike to form Harike wetland



### Sutlej:

- Origin Rakas Lake near Mansarovar
- Aka Langchen Khambab in Tibet
- Passes through Shipki La Pass in Dhauladhar Range
- Dam: Bhakra Nangal Dam aka Govind Sagar Dam (HP);
- Has Harike Wetland
- Meets River Chenab in Pakistan



2021: UPSC

With reference to the Indus River system, of the following four rivers, three of them pour into one of the which joins the Indus direct. Among the following, which one is such river that joins the Indus direct?

- (a) Chenab
- (b) Jhelum
- (c) Ravi
- (d) Sutlej

2020: UPSC

Siachen Glacier is situated to the

- (a) East of Aksai Chin
- (b) East of Leh
- (c) North of Gilgit
- (d) North of Nubra Valley

Practise Question:

Q) This Flows entirely in India. This River meets Sutlej meet at Harike to form Harike wetland?

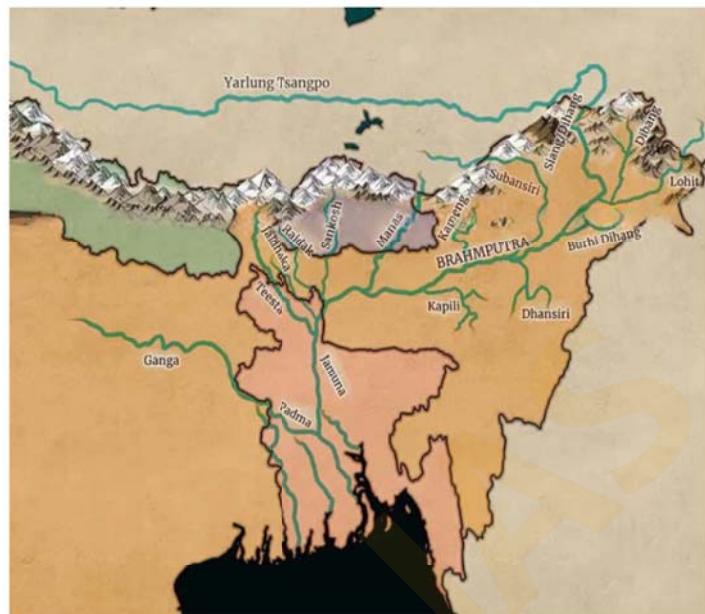
Q) This river has origin in Rakas Lake in Tibet and passes through Shipki la

Q) This river has Dal Lake on it and it forms border between India and Pakistan



## BRAHMAPUTRA

- Origin: Chemayungdung glacier of Kailash range near Mansarovar lake.
- It travels eastward in Tibet (Known as Tsangpo)
- Enters India near Namcha Barwa
- The river is named of Siang or Dihang
- After meeting left bank tributaries of Dibang/Sikang and Lohit it is known as Brahmaputra.
- Major left bank tributaries: Burhi Dihing, Dhansari (South)
- Right bank: Subansiri, Kameng, Manas and Sankosh.
- In Bangladesh, the Tista joins it on its right bank then it is known as Jamuna.



## 2016: Brahmaputra River

**Which of the following is/are tributary tributaries of Brahmaputra?**

1. Dibang
2. Kameng
3. Lohit

Select the correct answer using the code given below.

- (a) 1 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

## 2014: Brahmaputra River

Consider the following rivers:

1. Barak
2. Lohit
3. Subansiri

Which of the above flows / flow through Arunachal Pradesh?

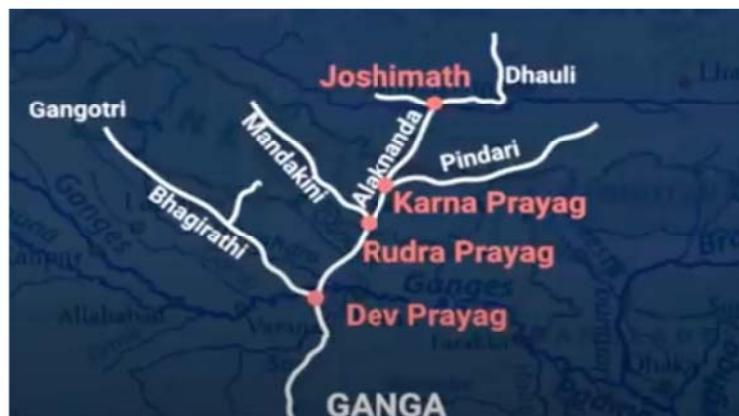
- (a) 1 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

### Sources of Ganga:

- Bhagirathi Origin: Gangotri Glacier
- Alaknanda Origin: Saptapanth Glacier. It passes via Valley of Flowers
- **Left Bank Tributaries are:** Ramganga (origin: India), Gomti (origin: India), Ghagra (origin: Nepal), Gandhak (origin: Nepal), Kosi (origin: Nepal), Mahananda (origin: India)
- **Right Bank Tributaries:** Yamuna, Son

### Ganga river:

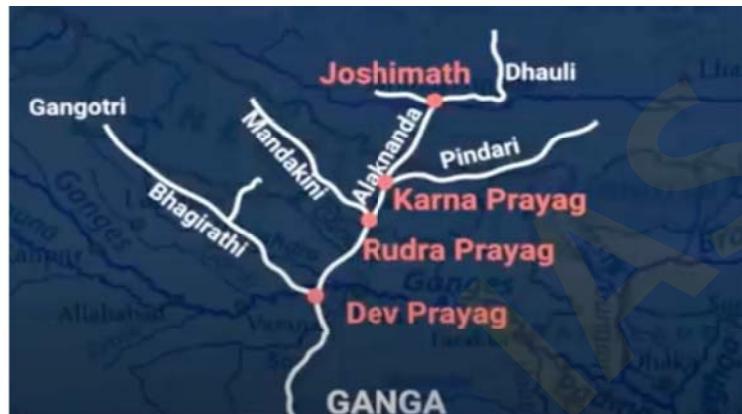
- Origin: Gangotri Glacier near Gomukh in Uttarakhand where river Alaknanda meets Bhagirathi at Devprayag to form Ganga



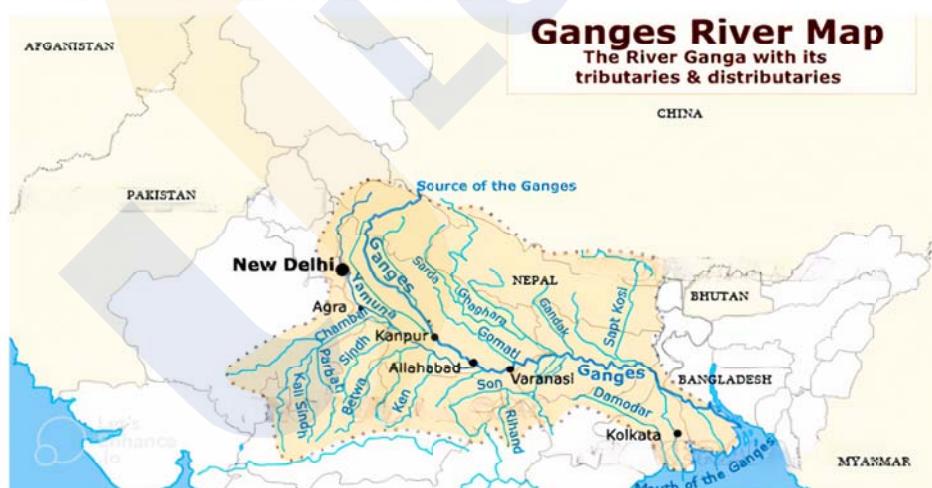
- **Important Lake:**  
Kanwar Lake. Asia's largest freshwater Oxbow Lake in India. Made by Gandhak River
- **Ganga Passes via Rajaji National Park**
- **Ganga** breaks at Malda Gap into River Hooghly and River Padma
- **Sagar Island** is in Bay of Bengal near Ganga's Mouth

**Ganga river:**

- Origin: Gangotri Glacier near Gomukh in Uttarakhand where river Alaknanda meets Bhagirathi at Devprayag to form Ganga



## GANGA RIVER SYSTEM



- Barila wetland is at confluence of Ganga, Punpun and Gandhak in River;
- Uduwa Wetland which is the only bird sanctuary in Jharkhand

- **Important Dam:**  
Tehri on River Bhagirathi (Highest Dam in India),
- Narora Dam on Ganga in U.P.  
Narora is also Nuclear Power Plant



### Ramganga River:

- Origin: Namik Glacier near Garhwal Hills
- It passes via Corbet National Park

### Gomti:

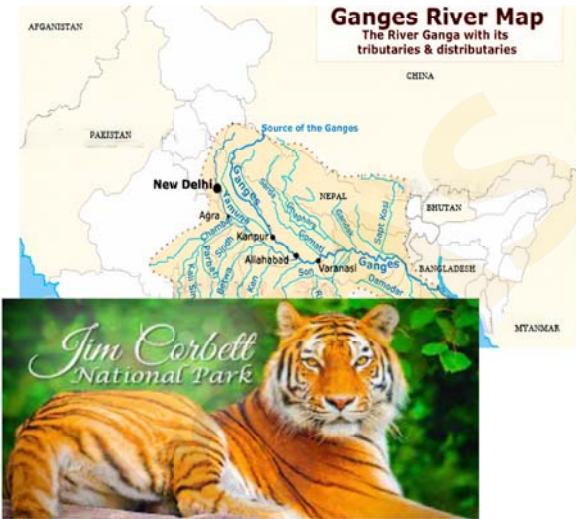
- Origin: Gomat Tal (U.P)

### Ghagra:

- **Origin:** Mapchachungo Glacier near Mansarovar in Tibet
- **By Volume,** ghagra is largest tributary of Ganga

### Ganga river:

- Origin: Gangotri Glacier near Gomukh in Uttarakhand where river Alaknanda meets Bhagirathi at Devprayag to form Ganga



### Ramganga River:

- Origin: Namik Glacier near Garhwal Hills
- It passes via Corbet National Park

### Gomti:

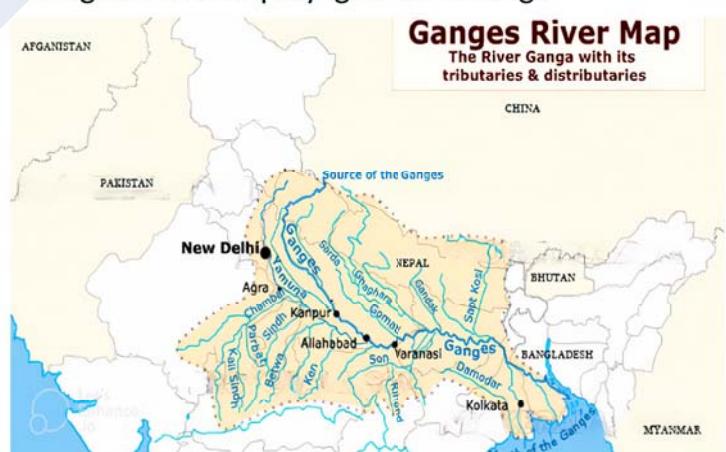
- Origin: Gomat Tal (U.P)

### Ghagra:

- **Origin:** Mapchachungo Glacier near Mansarovar in Tibet
- **By Volume,** ghagra is largest tributary of Ganga

### Ganga river:

- Origin: Gangotri Glacier near Gomukh in Uttarakhand where river Alaknanda meets Bhagirathi at Devprayag to form Ganga



2013

Consider the following pairs

National Park	Rivers flowing through the Park
1. Corbett National Park	Ganga
2. Kaziranga National Park	Manas
3. Silent Valley National Park	Kaveri

Which of the above pair is/are correctly matched?

- a) 1 and 2
- b) 3 only
- c) 1 and 3
- d) None of the above



#### Gandak:

- Origin: Nepal
- It meets Ganga at Patna
- It has Valmiki Nagar National Park/Tiger Reserve
- Lies between Dhaulagiri Peak and Mount Everest
- It divides Nepal into Half

#### #5) Kosi:

- Origin: Tibet
- Aka Sorrow of Bihar

#### #6) Mahananda:

- Origin: Darjeeling Hills

### Important Right Bank Tributary:

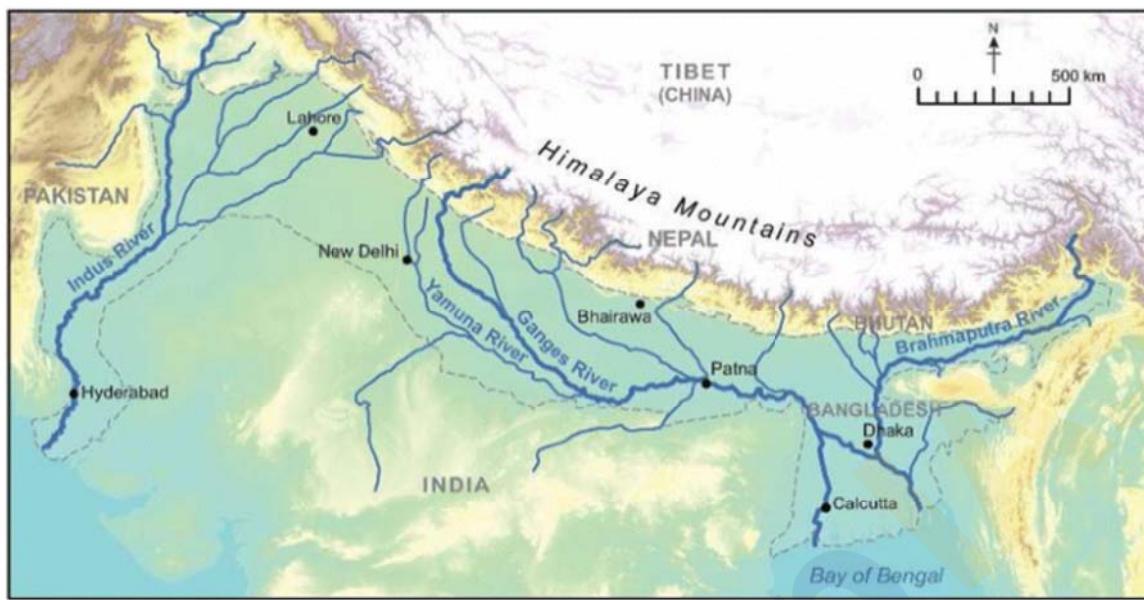
#### #1) Yamuna:

- Origin: Yamunotri Glacier from Banderpunch Peak in Uttarakhand
- Joins Ganga at Prayag (Allahabad) in U.P
- Longest Tributary of Ganga
- Forms a border between UP and Haryana
- Passes via 4 states and 1 UT: Uttarakhand, Himachal Pradesh, Haryana, UP and Delhi
- Tributaries: **Left:** Chambal, Sindh, Betwa, Ken



### Evolution of Himalayan Drainage:

- Mighty River Shiwalik or Indo-Brahma traversed the entire longitudinal extent of the Himalaya from Assam to Punjab and Sindh, and finally discharged into the Gulf of Sind near lower Punjab during the Miocene period (5-24 million years ago)
- Continuity of Shiwalik and its lacustrine origin and alluvial deposits support this viewpoint.
- In time Indo-Brahma river was dismembered into three main drainage systems:
  - (i) The Indus and its five tributaries in the western part;
  - (ii) The Ganga and its Himalayan tributaries in the central part; and
  - (iii) Brahmaputra in Assam and its tributaries in the eastern part.
- The dismemberment was due to the Pleistocene upheaval of the Potwar Plateau (Delhi Ridge), which acted as the water divide between the Indus.
- Downthrusting of the Malda gap area between the Rajmahal hills and the Meghalaya plateau during the mid-pleistocene period, diverted the Ganga and the Brahmaputra systems to flow towards the Bay of Bengal

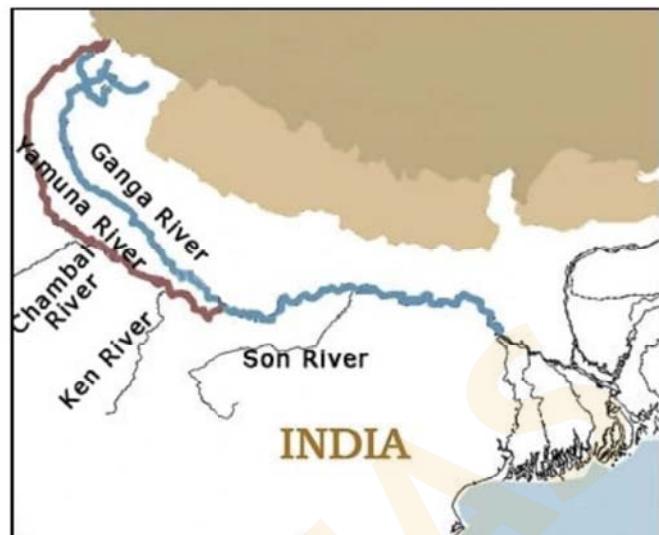


## Evolution of Peninsular Drainage:

- Three major geological events in the distant past have shaped the present drainage systems of Peninsular India:
- (i) Subsidence of the western flank of the Peninsula leading to its submergence below the sea during the early tertiary period. Generally, it has disturbed the symmetrical plan of the river on either side of the original watershed.
- (ii) Upheaval of the Himalayas when the northern flank of the Peninsular block was subjected to subsidence and the consequent trough faulting. The Narmada and The Tapi flow in trough faults and fill the original cracks with their detritus materials. Hence, there is a lack of alluvial and deltaic deposits in these rivers.
- (iii) Slight tilting of the Peninsular block from northwest to the southeastern direction gave orientation to the entire drainage system towards the Bay of Bengal during the same period.

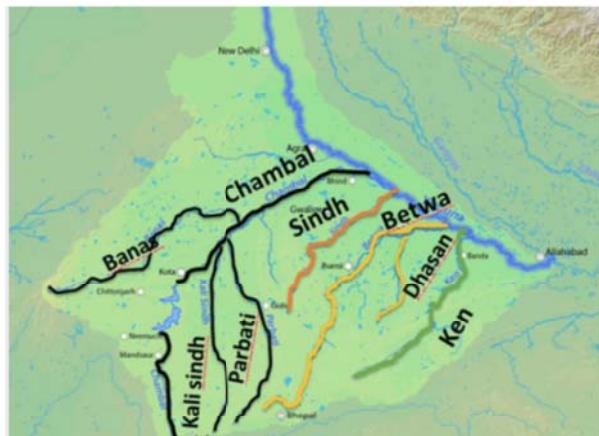
## #2) River Son

- Origin: Amarkanthak Plateau
- Tributary: Rihand and North Koel
- Dam: Rihand Dam (aka Ballabh Pant Sagar Dam) on Rihand River in UP;
- Bansagar Dam on River Son in U.P



## Chambal River

- Vindhyan Range
- National Chambal Sanctuary is at confluence of Chambal and Yamuna.
- It is famous for Gharial, Red Crowned Turtle
- Chambal forms the boundary between Rajasthan & M.P ; and also between M.P & U.P.
- Kota is on Chambal River



### Gharial:

**Does not attack humans**

Feed on corpses

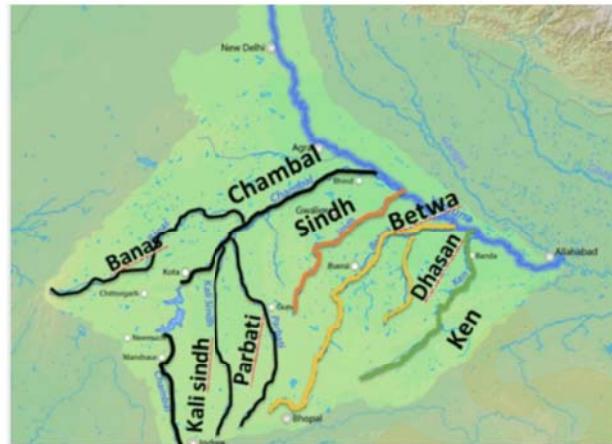
Gavial or fish-eating crocodile





### Chambal River

- Tributaries:
  - Left: Banas (Origin: Aravalli Range)
  - Right: Kalisindh (Origin: Vindhyan Range), Parbati (Origin: Vindhyan Range), Kshipra (Origin: Vindhyan Range near Ujjain, joins Chambal at M.P Raj Border, Famous for Kumbh)
- Chambal & Banas meets at Ranthambore National Park in Rajasthan
- Gandhi Sagar Dam is on Chambal River (MP)



### Betwa:

- Origin: Vindhyan Range
- Dam: Parichha
- Tributary: Dhasan River rises from Vindhyas in M.P

### Ken

- Origin: Vindhya Range near Banher Range
- Falls: Raneh Falls
- It has Ken Gharial Sanctuary and Panna National Park
- **Ken Betwa Link:** Dhaudhan Dam: River from Ken to Betwa



## Practise Question:

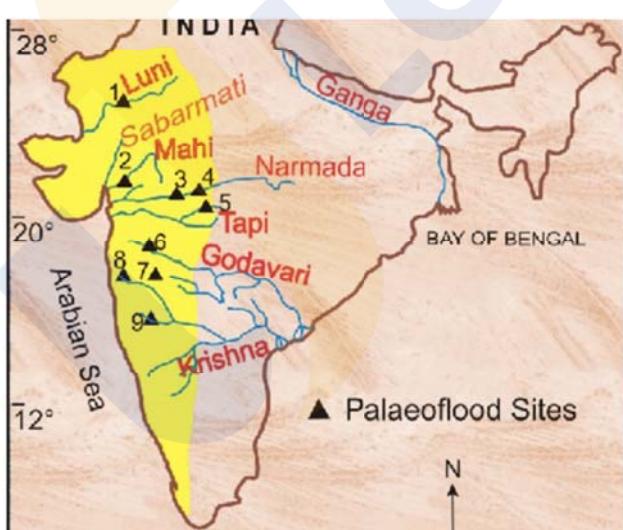
- Q) Dhauli meets alknanda at?
- Q) Mandakini meets at?
- Q) Tehri Dam is on?
- Q) Rajaji NP is on?
- Q) Origin of Ghagra?
- Q) Origin of Son?
- Q) Chambal & Banas meets at Ranthambore National Park in Rajasthan
- Q) Ken Betwa Link. Which Dam

## The superlative

Let's practise!

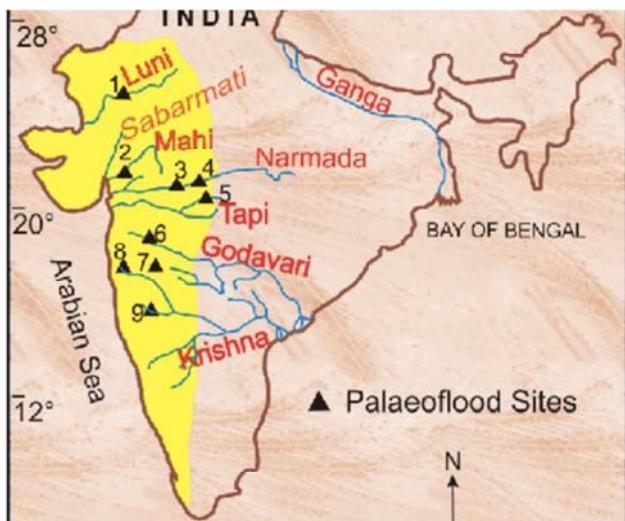


Some Small Rivers



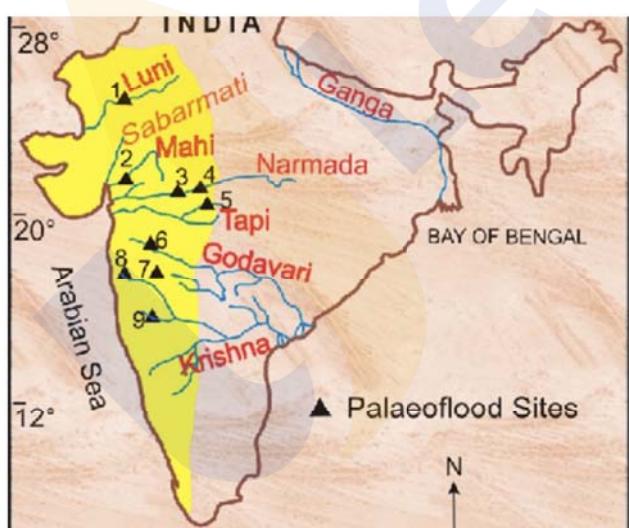
### 1) Luni River

- **Origin:** Aravalli Range near Pushkar Lake in Ajmer Rajasthan
- Originate in 2 branches: Saraswati & Sabarmati which join at Govingarh
- Lakes: Sambhar Lake, Pushkar Lake and Pachpadra Lake
- Passes via Thar Desert and end in Rann of Kutch
- It is the largest river system of Rajasthan



### #2) Sabarmati River

- Origin: Debbar Lake in Aravali Range in Rajasthan in Udaipur
- Dam: Dharoi Reservoir
- Lake: Vastrapur Lake and Kankaria Lake
- Drain: Gulf of Khambat
- Ahmedabad City is on Sabarmati River

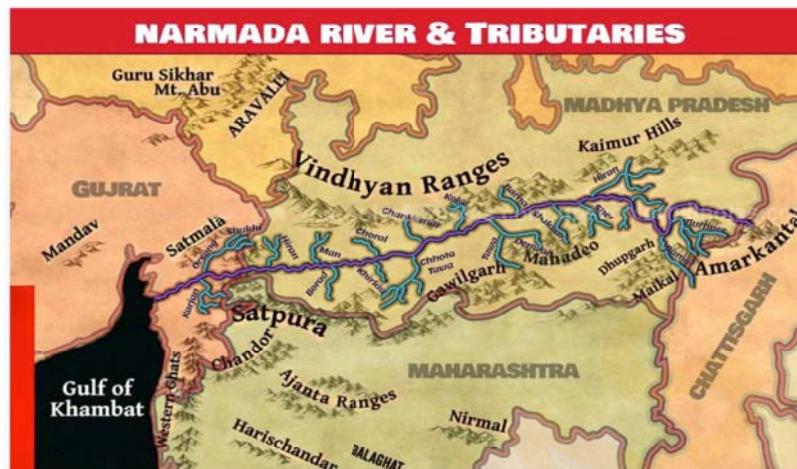


### #3) Mahi River

- Origin: Bagh Hills in MP
- Dam: Mahisagar Dam in Rajasthan
- Mahi encircles Ratan Mahal Wildlife Sanctuary in Gujarat. It is a sloth bear sanctuary
- It cuts tropic of cancer twice
- Drains in Gulf of Khambat

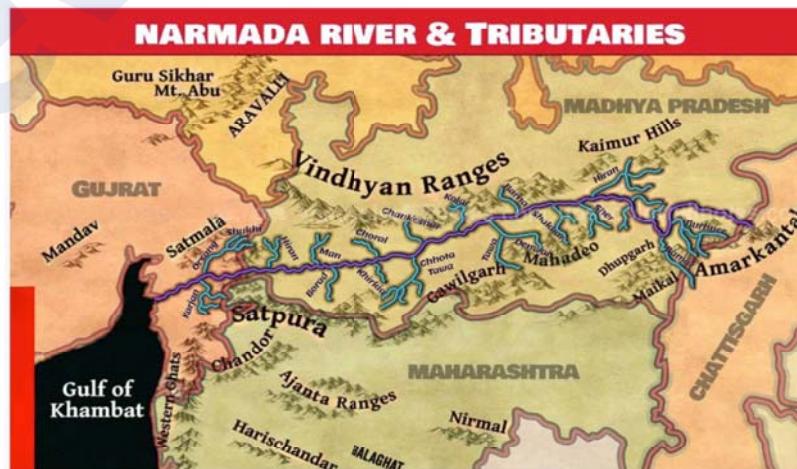
### Narmada:

- Origin: Amarkanthak Plateau
- Passes via M.P, Mah & Gujarat
- Flows via Rift Valley
- Between Satpura and Vindhya Ranges and drains in Gulf of Khambat
- Tributaries: Tawa (Rises from Betul)
- Waterfall: Dhuandhar Waterfall; Marble Rock



### Narmada:

- Longest West Flowing River
- Aliabet is estuary of Narmada formed at the mouth of River
- Dam:
  - Sardar Sarovar Dam in Gujarat
  - Indira Sagar Dam in MP
  - Gandhi Sagar Dam in MP
  - Omkareshwar Dam in M.P
  - Tawa Reservoir in MP
- Narmada passes via Mandla Fossil National Park in M.P



2013

The Narmada river flows to the west, while most other large peninsular rivers flow to the east. Why?

1. It occupies a linear rift valley.
2. It flows between the Vindhya and the Satpuras.
3. The land slopes to the west from Central India.

Select the correct answer using the codes given below.

- (a) 1 only
- (b) 2 and 3
- (c) 1 and 3
- (d) None

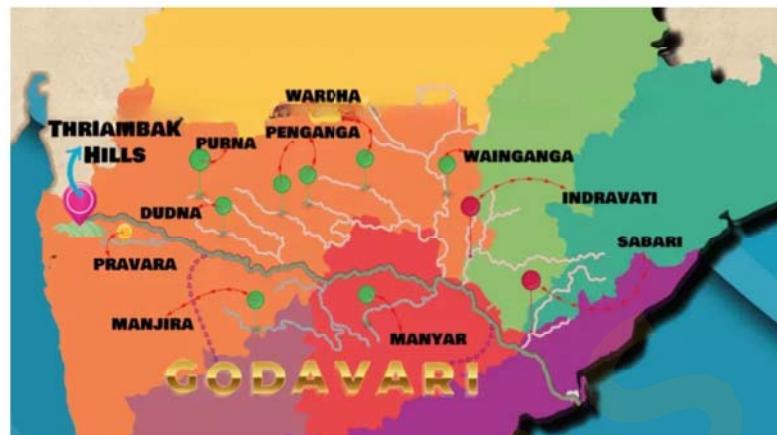
#### Tapi

- Origin: Betul district in MP
- Passes via MP, Mah and Gujarat
- Tributaries: Purna, Girna
- Dam: Ukai Dam
- WLS: Yawal WLS(Mah),
- Melghat Tiger Reserve (MP-MAH border)



## Godavari

- Origin: Trimbakeshwar in Nashik district in Maharashtra
- Main River and Tributaries flows through Maharashtra, Telangana, Andhra, Chattisgarh, Odisha
- Largest Peninsular River: aka Dakshin Ganga



## Godavari

- Left bank tributaries:
  - Left: Dudhna, Purna, Peinganaga Weinganga, Indravati (Indravati NP), Sabari, Silleru, Pranhita (Kaleshwaram lift irrigation system)
- Right bank tributaries: Manjhra, Pravara



**Pranhita River** is the largest tributary of Godavari River covering about 34% of its drainage basin conveying the combined waters of the Penganga River, the Wardha River, and the Wainganga River

## 2015: UPSC

Consider the following rivers :

1. Vamsadhara
2. Indravati
3. Pranahita
4. Pennar

Which of the above are tributaries of Godavari ?

- (a) 1, 2 and 3
- (b) 2, 3 and 4
- (c) 1, 2 and 4
- (d) 2 and 3 only

## 2015

Consider the following rivers :

1. Vamsadhara
2. Indravati
3. Pranahita
4. Pennar

Which of the above are tributaries of Godavari ?

Answer: 2 and 3

- Vamsadhara: River Vamsadhara is an important east flowing river between Rushikulya and Godavari, in Odisha and Andhra Pradesh states in India.
- Pennar: Pennar rises in the Nandi Hills in Karnataka and runs north and east through the states of Karnataka and Andhra Pradesh to empty into bay of Bengal in Andhra Pradesh.

## Krishna River

- Origin: Mahabaleshwar in Maharashtra
- Right bank: Ghat-prabha, Tungabhadra, Mallaprabha.
- Left: Bhima, Musi
- River Koyna rises in Mahabaleshwar and Joins Krishna
- Bhima river is also known as **ChandraBhaga** river.
- Bhima is the **longest** (largest is tungabhadra) tributary of the river Krishna.



## #7) Krishna River

- Krishna has: Almati dam, Srisalam dam, Nagarjuna sagar dam are on Krishna River
- It has Nagarjuna Srisagar Tiger Reserve and Srisalem Tiger Reserve
- Musi river has Hyderabad city
- Vijaywada is on Krishna river



Places: 2019

Famous place: River

1. Pandharpur : Chandrabhaga
2. Tiruchirapalli : Cauvery
3. Hampi : Malaprabha

Which of the pair given above are correctly matched

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

## Answer: a

The Chandrabhaga (Bhima is also known as Chandrabhaga) river flows through the Pandharpur. So #1 is right.

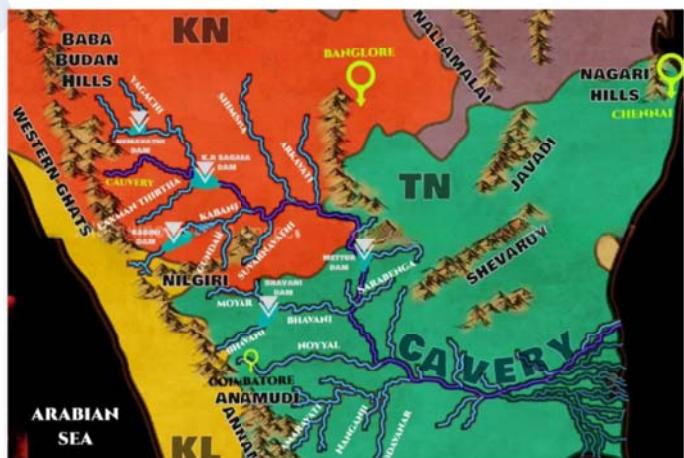
Tiruchirappalli, situated on the banks of the river Cauvery is the fourth largest city in Tamil Nadu. So #2 is right.

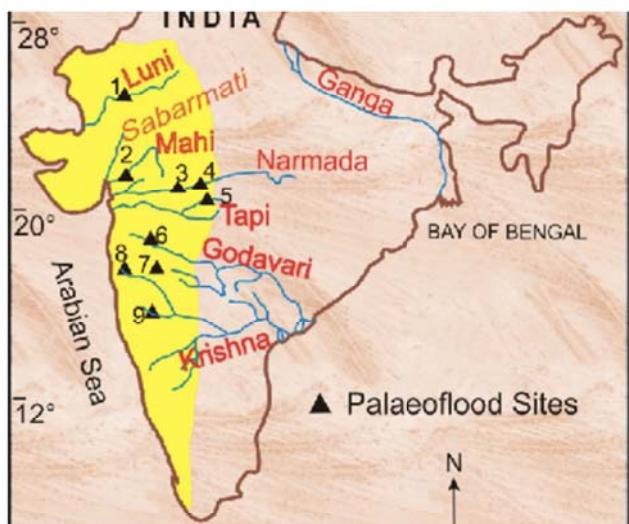
Hampi, the 14th century capital of one of the greatest empires of medieval India called the Vijayanagar Empire, lies in the state of Karnataka protected by the tempestuous river Tungabhadra. So #3 is wrong



### Kaveri River

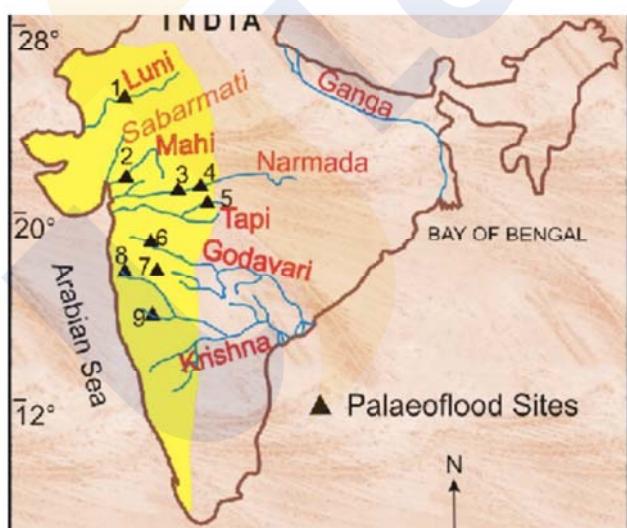
- Origin: Tala Kaveri in Brahmagiri Hills
- Tributary: Amravati, Hemavati, Kabini, Shimsha, Bhavani, Noyil
- Dam: Krishnaraj sagar dam, Mettur dam, bhavanisagr dam on bhavani river
- Falls: Shivasamudram falls
- Hongenekkal Falls
- Srirangam Island and Shivasamudram island





### # ) Vagai

- Origin: Varusunadu hills
- Dam: Vaigai Dam
- Empties into Palk Strait

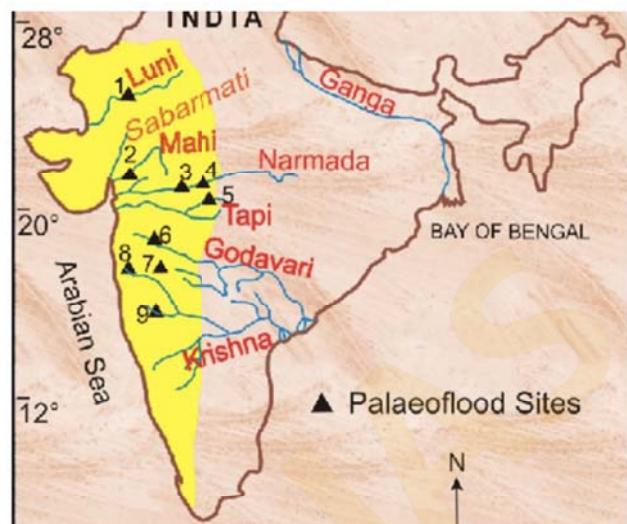


### #) Periyar Reserve

- Longest river of Kerala (ORIGIN: Kerala and flows through Kerala only)
- It is between Palani Hills and Cardamom Hills
- Dam: Idukki Dam, Mullaperiyar dam
- Lake: Vembanad Lake, Vembanad wetland
- Sabarimala temple is in Periyar Tiger Reserve

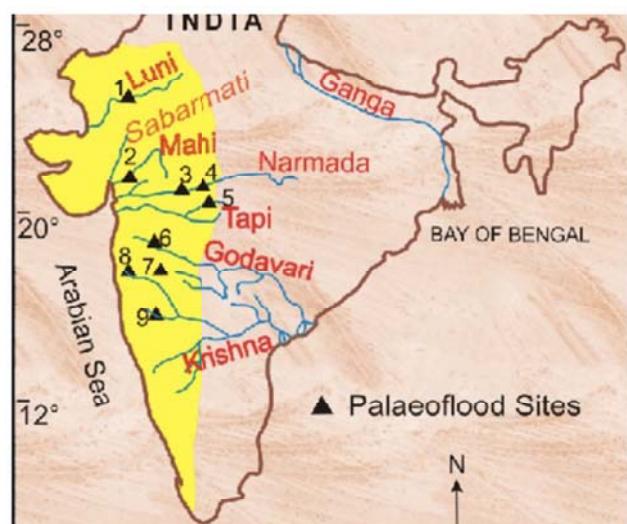
## Luni River

- **Origin:** Aravalli Range near Pushkar Lake in Ajmer Rajasthan
- Originate in 2 branches: Saraswati & Sabarmati which join at Govingarh
- Lake: Sambhar Lake, Pushkar Lake and Pachpadra Lake
- Passes via Thar Desert and end in Rann of Kutch
- It is the largest river system of Rajasthan



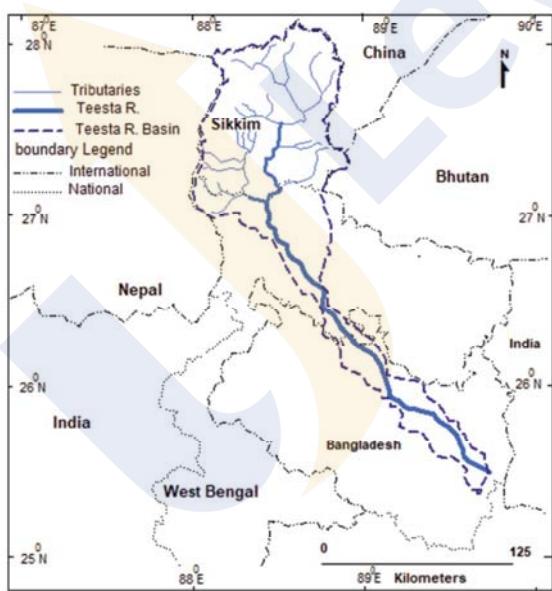
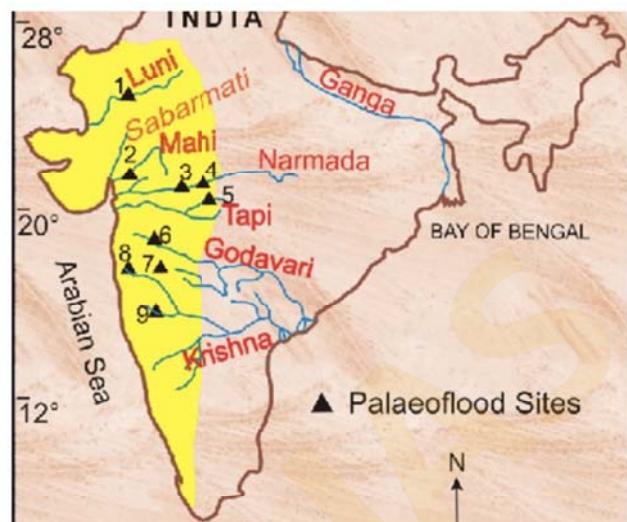
## Sabarmati River

- Origin: Debbar Lake in Aravali Range in Rajasthan in Udaipur
- Dam: Dharoi Reservoir
- Lake: Vastrapur Lake and Kankaria Lake
- Drain: Gulf of Khambat
- Ahmedabad City is on Sabarmati River



## Mahi River

- Origin: Bagh Hills in MP
- Dam: Mahisagar Dam in Rajasthan
- Mahi encircles Ratan Mahal Wildlife Sanctuary in Gujarat. It is a sloth bear sanctuary
- It cuts tropic of cancer twice
- Drains in Gulf of Khambat



### #) Teesta

- Origin: Tso-lhamo lake, cholamu lake, Zemu Glacier
- Tributary of Brahmaputra
- Rangit river is tributary of Teesta
- Dam: Teesta Barrage
- BR: Kunchenjunga BR
- Flows through Sikkim and West Bengal only and meets Brahmaputra in Bangladesh

2017: River Teesta

**With reference to river Teesta, consider the following statements**

1. The source of river Teesta is the same as that of Brahmaputra but it flows through Sikkim
2. River Rangeet originates in Sikkim and it is a tributary of river Teesta.
3. River Teesta flows into Bay of Bengal on the border of India and Bangladesh.

Which of the statements given above is/are correct?

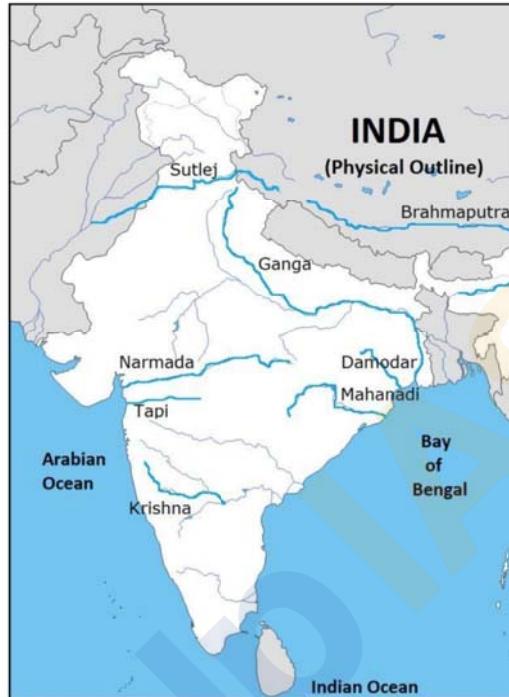
- (a) 1 and 3 only
- (b) 2 only**
- (c) 1 and 3 only
- (d) 1, 2 and 3

#### Teesta River

- **Teesta River** rises in the eastern Himalayas,
- flows through the Indian states of Sikkim and West Bengal
- Enters Bangladesh: Meets brahmaputra river
- Origin:: Tso Lamo Lake/ Zemu Glacier

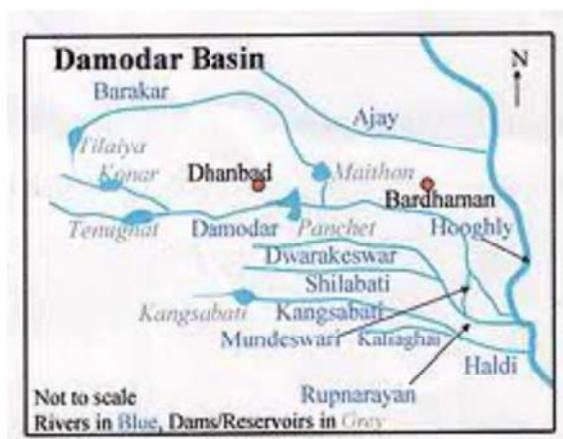
# Rivers of Peninsular Plateau and above Eastern Ghat

- #) Damodar
- #) Subarnarekha
- #) Baitarni
- #) BRAHMANI
- #) Mahanadi



## #) Damodar

- Origin: CNP
- Divide CNP in two parts: Hazaribagh and Ranchi
- Tributaries: Barakar, konar
- Dam: **Tillaya** and **Maithon**: Barakar, Panchet: Damodar, Konar: Konar River
- DVC

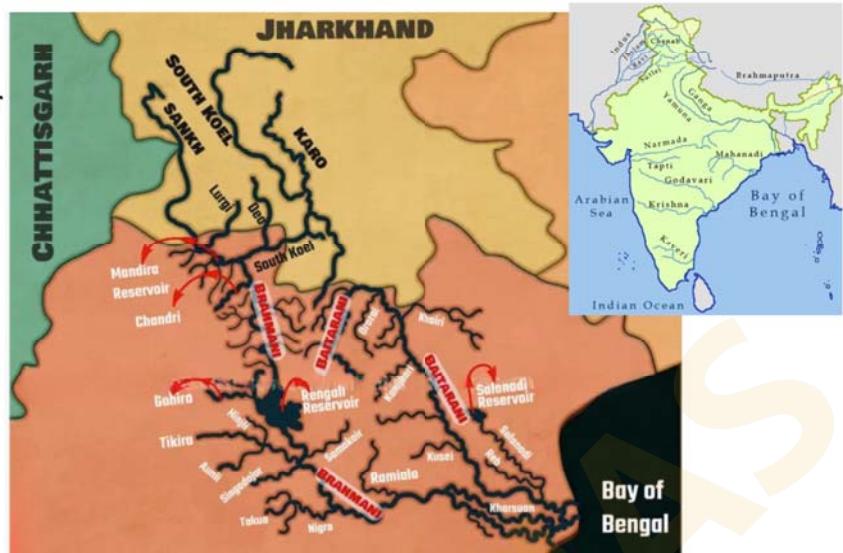


## #) Subarnarekha

- Origin: Ranchi along CNP
- Falls: Hundru Falls

### #) Baitarni

- Gonasika hills of Keonjhar district
- Origin: Garjhat Hills
- Passes through Bhitarkanika



### #) Brahmani

- Brahmani river is formed by the combined waters of **Koel and Sankh rivers which originate in CNP**
- Passes through Bhitarkanika
- It has Wheeler Island (Abdul Kalam Island)



### #) Mahanadi

- Origin: Dandakarna plateau
- Tributaries: Hasdeo, Seonath, Mand, Ib, Tel
- Flows via Satkosia Tiger Reserve in Odisha
- Flows via Chhattisgarh and Odisha
- Hirakud Reservoir



### MAHANADI RIVER MAP



2021

Consider the following Rivers:

1. Brahmani
2. Nagavali
3. Subarnarekha
4. Vamsadhara

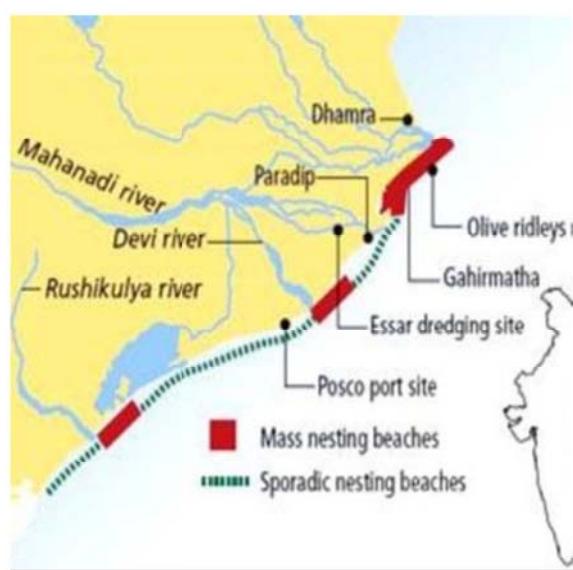
Which of the above rise from the Eastern Ghats?

- (a) 1 and 2
- (b) 2 and 4
- (c) 3 and 4
- (d) 1 and 3

2021

1. Nagavali: The River Nagavali also known as Langulya is one of the main rivers of Southern Odisha and North Andhra States in India, between Rushikulya and Godavari basins

2. Vamsadhara: River Vamsadhara is an important east flowing river between Rushikulya and Godavari, in Odisha and Andhra Pradesh states in India.



## Quick Revision

-----: Hemis High Altitude National

-----: Has wular lake, Dal Lake, Srinagar

-----: Made of Chandra and Bhaga: Both meets at Keylong: Hence called as Lady of Keylong

**Beas and Sutlej meet at ----- wetland**

----- **Origin:** It passes via Valley of Flowers

**Ganga Passes via ----- National Park**

----- : It passes via Corbet National Park

**National Chambal Sanctuary** is at confluence of ----- and -----

**Chambal & Banas** meets at ----- National Park in Rajasthan

## 2019: Rivers

**Consider the following Pairs :**

Glacier: River

1. Bandarpunch : Yamuna

2. Bara Shigri : Chenab

3. Milam : Mandakini

4. Siachen : Nubra

5. Zemu : Manas

Which of the following pairs given above are correctly matched?

(a) 1,2 and 4

(b) 1,3 and 4

(c) 2 and 5

(d) 3 and 5

## 2019: Rivers

1. Siachen Glacier, one of the world's longest mountain glaciers, lying in the Karakoram Range system of Kashmir. It is the source for Nubra River
2. Bandarpunch: Yamuna as correct.
3. River Mandakini actually originates from the springs fed by melting snow of Chorabari glacier about one km above Kedarnath temple.
4. Ncert: Sarda or Saryu river rises in the Milam glacier in the Nepal Himalayas
5. Bara Shigri is the largest glacier located in Lahaul Spiti region in Chandra Valley, Himachal Pradesh. It is a 30-km long glacier, the second longest glacier in the Himalayas after Gangotri. It flows northwards and feeds the Chenab river.

2022

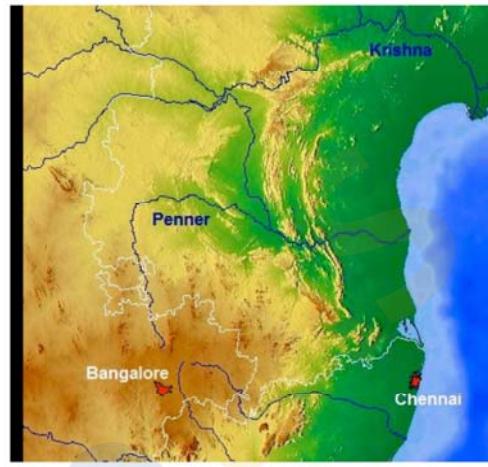
Gandikota canyon of South India was created by which one of the following rivers ?

- (a) Cauvery
- (b) Manjira
- (c) Pennar
- (d) Tungabhadra

**CASE STUDY**


**Figure 4.10** The Canyon of Gandikota, the Pennar River in Andhra Pradesh

Gandikota, Kadapa district of Andhra Pradesh is known for its spectacular gorge formed by river Pennar that cuts through the Erramala hills. This handsome piece of Nature's architecture is known as the **Hidden Grand Canyon of India**. Magnificent Gandikota fort is located majestically on top of this gorge. Belum Cave found here is the second largest cave system in India. In fact, geologists have also found **surplus deposits of Quartz** in the stalactite and stalagmite formations of the cave. Adjacent to Gandikota fort, lies a magnificent lake that is believed to have been established by emperor Sri Krishnadevaraya using water from the Pennar river.



2022

Consider the following pairs:

Reservoirs : States

1. Ghataprabha : Telangana
2. Gandhi Sagar : Madhya Pradesh
3. Indira Sagar : Andhra Pradesh
4. Maithon : Chhattisgarh

How many pairs given above are not correctly matched?

- (a) Only one pair
- (b) Only two pairs
- (c) Only three pairs
- (d) All four pairs

2022

Consider the following pairs:

Reservoirs : States

1. Ghataprabha : Telangana
2. Gandhi Sagar : Madhya Pradesh
3. Indira Sagar : Andhra Pradesh
4. Maithon : Chhattisgarh

1. Ghataprabha : Karnataka
2. Gandhi Sagar : M.P.
3. Indira Sagar : M.P.
4. Maithon : Jharkhand

How many pairs given above are **not** correctly matched?

- (a) Only one pair
- (b) Only two pairs PAY
- (c) Only three pairs
- (d) All four pairs



**Focus:**

- Nilgiri Biosphere Reserve,
- Agasthamalai Biosphere Reserve

- Palghat Pass: Anamalai Hills
- Bhaoghat: Mumbai-Pune
- Thalghat: Mumbai-Nasik
- Mekrai: Cardamom Hills

## 2023 Rivers

Consider the following statements:

1. Jhelum River passes through Wular lake.
2. Krishna River directly feeds Kolleru Lake.
3. Meandering of Gandak River formed Kanwar Lake.

How many of the Statements given above are correct?

- a) Only one
- b) Only two
- c) All three
- d) None

## Mains Questions: 2013-2022

**2013:** There is no formation of deltas by rivers of the Western Ghats. Why?

**2013:** Bring out the causes for the more frequent occurrence of landslides in the Himalayas than in the Western Ghats

**2014:** Bring out the relationship between the **shrinking Himalayan glaciers and the symptoms of climate change** in the Indian sub-continent.

**2016:** “**The Himalayas are highly prone to landslides.**” Discuss the causes and suggest suitable measures of mitigation.

**2021:** Why is India considered as a sub-continent? Elaborate your answer. (Answer in 150 words) 10

**2022:** Discuss the natural resource potentials of ‘Deccan trap’. (Answer in 150 words) 10