DRAINAGE

1. INTRODUCTION

- Drainage' is a term which describes the river system of an area.
- A river along with its tributaries is called a river system.
- A drainage basin or river basin is an area which is drained by a single river system.
- An upland that separates two drainage systems that are next to each other is called a water divide.

2. DRAINAGE SYSTEMS IN INDIA

HIMALAYAN RIVERS	PENINSULAR RIVERS
1. These rivers are perennial in nature.	1. These rivers are seasonal in nature. They dry up in summers as they are dependent upon rainfall.
2. These rivers cause much erosion and have great flow of water.	2. These rivers create much less erosion and also have weaker flow of water.
3. These rivers are meandering.	3. These rivers are straight.
4. These rivers originate in the Himalayas.	4. These rivers originate in small hills and plateaus.
5. These rivers irrigate the northern plains.	5. These rivers irrigate the Deccan Plateaus.
6. Himalayan river basins are very fertile.	6. Peninsular river basins are not so very fertile.
7. These rivers cover a very long distance.	7. These rivers cover a shorter distance.
8. The Ganga, The Indus, and the Brahmaputra are the major Himalayan rivers.	8. The Narmada, The Tapi, The Mahanadi, The Godavari, The Krishna and The Kaveri are the major Peninsular rivers.

3. THE HIMALAYAN RIVERS

The major Himalayan rivers are the Indus, the Ganga and the Brahmaputra.

a. The Indus River System

- Indus is one of the longest rivers in the world, with a total length of 2900 km.
- The river Indus rises in Tibet near Lake Mansarovar.
- Its tributaries are the Zaskar, the Nubra, the Shyok and the Hunza and join the Indus in Kashmir.
- The Satluj, the Beas, the Ravi, the Chenab and the Jhelum join together to enter the Indus near Mithankot in Pakistan.

Note: The Indus Water Treaty (1960) allows India to use 20 per cent of water carried by the Indus. This water is used for irrigation activities in Punjab, Haryana and Rajasthan.

b. The Ganga River System

- The headwaters of the Ganga are called 'Bhagirathi' and are fed by the Gangotri Glacier and joined by the Alaknanda at Devprayag in Uttarakhand.
- Ganga meets the tributaries from the Himalayas such as Ghaghara, Gandak and Kosi.
- A major river Yamuna, arising from Yamunotri Glacier in the Himalayas, joins the Ganga at Allahabad.
- Farakka in West Bengal is the northernmost point of the Ganga Delta.
- The delta formed when the Ganga and the Brahmaputra flow into the Bay of Bengal known as the Sunderban Delta.
- The length of the Ganga is over 2500 km.

c. The Brahmaputra River System

- The Brahmaputra rises in Tibet east of Mansarowar Lake.
- It is slightly longer than the Indus.
- On reaching the Namcha Barwa (7757 m), it takes a 'U-turn' and enters India in Arunachal Pradesh, where it is called the Dihang.
- The Brahmaputra is known as Tsang Po in Tibet, and Jamuna in Bangladesh.
- Dihang is joined by the Dibang, the Lohit, and Kenula are tributaries to form the Brahmaputra in Assam.

4. THE PENINSULAR RIVERS

a. The Narmada Basin

- The Narmada rises in the Amarkantak hills in Madhya Pradesh.
- The Narmada flows through a deep gorge at the 'Marble Rocks' near Jabalpur.
- At Dhuadhar Falls, the river jumps over steep rocks.
- The Narmada basin covers parts of Madhya Pradesh and Gujarat.

b. The Tapi Basin

- The Tapi rises in the Satpura ranges in the Betul district of Madhya Pradesh.
- Its basin covers parts of Madhya Pradesh, Gujarat and Maharashtra.

c. The Godavari Basin

- The Godavari is the largest Peninsular River. Its length is about 1500 km.
- It rises from the slopes of the Western Ghats in the Nasik district of Maharashtra.
- The basin covers parts of Maharashtra, Madhya Pradesh, Odisha and Andhra Pradesh.
- It is also known as the Dakshin Ganga.

d. The Mahanadi Basin

- The Mahanadi rises in the highlands of Chhattisgarh.
- The length of the river is about 860 km.
- Its drainage basin is shared by Maharashtra, Chhattisgarh, Jharkhand, and Odisha.

e. The Krishna Basin

- It rises from a spring near Mahabaleshwar.
- The length of the river is about 1400 km.
- Its drainage basin is shared by Maharashtra, Karnataka and Andhra Pradesh.

f. The Kaveri Basin

- The Kaveri rises in the Brahmagiri range of the Western Ghats.
- The total length of the river is about 760 km.
- Its basin drains parts of Karnataka, Kerala and Tamil Nadu.
- The river Kaveri makes the second biggest waterfall in India known as Sivasamudram.

5. LAKES

- Most lakes are permanent while others contain water only during the rainy season.
- A river meandering across a floodplain forms cut-offs that later develop into oxbow lakes.
- Glacial lakes are formed when glaciers dig out a basin which is later filled with snowmelt.
- Wular Lake in Jammu and Kashmir results from tectonic activity. It is the largest freshwater lake.
- The damming of the rivers has also led to the formation of lakes. E.g., Guru Gobind Sagar

6. IMPORTANCE OF LAKES

- Lakes help to regulate the flow of a river.
- During heavy rains, these lakes prevent flooding.
- During the dry season, these lakes help to maintain an even flow of water.
- Lakes can also be used for developing hydel power.

7. ROLE OF RIVERS IN THE ECONOMY

- Water from rivers is a basic natural resource, essential for various human activities.
- Rivers are used for irrigation, navigation, hydropower generation etc.

8. RIVER POLLUTION

- The quality of river water is affected by the growing domestic, industrial and agricultural demand.
- A heavy load of untreated sewage and industrial effluents are emptied into the river.
- Rising pollution in our rivers led to the launching of various action plans to clean the rivers like Narmada Bachao Movement.
- National River Conservation Plan (NRCP): Ganga Action Plan was launched in 1985 to clean Ganga.