03. Drainage

NOTES (INSIDE) →

- Drainage – The term drainage describes the river system of an area.
- Drainage Basin – The area drained by a single river system is called a drainage basin.
- Water Divide - Any elevated area, such as mountain or an upland separates two drainage basins. Such an upland is known as a water divide

- Himalayan Rivers and Peninsular Rivers

Himalayan Rivers	Peninsular Rivers
[i] They are perennial	[i] They are non-perennial
[ii] They rain the northern part of India	[ii] They rain the southern part of India
[iii] They rise from the Himalayan mountains	[iii] The rise from the mountains and hill located in Peninsular India
[iv] They have the longer courses than the Peninsular Rivers	[iv] They have the shorter courses than the Himalayan Rivers
[v] They have larger basins than the Peninsular Rivers	[v] They have smaller basins than the Himalayan Rivers
[vi] Example-R. Indus, R. Ganga	[vi] Example - R. Kaveri, R. Krishna

A. Himalayan Rives –

- Indus River -

[i] Source - The R. Indus rises in Tibet, near Lake Mansarowar.
[ii] Tributaries - Zaskar, Nubra, Shyok and Hunza.
[iii] Distributaries - Satluj, Beas, Ravi, Chenab and Jhelum.
[iv] Length - 2900 km.
[v] Area - Flowing west, it enters India in the Ladakh. The Indus flows through Baltistan and Gilgit and emerges from the mountains at Attok. Beyond Mithankot, the Indus flows southwards eventually reaching the Arabian Sea, east of Karachi. A little over a third of the Indus basin is located in India Ladakh, Jammu and Kashmir, Himachal Pradesh and Punjab and the rest is in Pakistan.
[vi] Other - It forms a picturesque gorge in Ladakh, Indus is the one of the longest rivers in the world.
[vii] Indus water Treaty (1960) - India can cause only 20% of the total water carried by the Indus River system. This water is used for irrigation in Punjab, Haryana and the southern and western parts of Rajasthan.

- Ganga River -

[i] Source - The headwaters of the Ganga called the 'Bhagirath is fed by the Gangotri Glacier and joined by the Alaknanda at Devaprayag in Uttarakhand.
[ii] Tributaries - The Yamuna, the Ghaghara, the Gandak, the Kosi, the Chambal, the Betwa and the Son.
[iii] Distributaries – Hooghly and Padma
[iv] Length - The length of the Ganga is over 2500km. The plains from Ambala to the Sunderbans stretch over nearly 1800km, but the fall in its slope is hardly 300 metres. Therefore, the river develops large meanders
[v] Area - At Haridwar, the Ganga emerges from the mountains on to the plains. Enlarged with the waters from its right and left bank tributaries, the Ganga flows eastwards till Farakka in West Bengal. This is the northernmost point of the Ganga-delta, Meghna River with waters from the Ganga and the Brahmaputra flows into the Bay of Bengal. The delta formed by these rivers is known as Sunderbans.

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[vi] Other - River Yamuna flows parallel to the Ganga and as a right bank tributary meets the Ganga at Allahabad. Ambala is located on the water divide between the Indus and the Ganga River system.

- Brahmaputra River→

[i] Source - The Brahmaputra rises in Tibet, east of Mansarowar lake very close to the sources of the Indus and the Satluj
[ii] Tributaries - Dihang River, Lohit River, Dibang River and many other tributaries in Assam.
[iii] Distributaries - Padma and others lie in Bangladesh.
[iv] Length - It is slightly longer than the Indus, and most of its course lies outside India.
[v] Area - On reaching the Namcha Barwa (7757m), River Brahmaputra takes a 'U' turn and enters India in Arunachal Pradesh. In India, it passes through a region of high rainfall. The river carries a large volume of water and considerable amount of silt. The Brahmaputra has a braided channel in its entire length in Assam and forms many riverine islands. The river also shifts its channel frequently.
[vi] Other - In Tibet, the river carries a smaller volume of water and less silts as it is a cold and dry area. Every year during the rainy season, the river overflows its banks, causing widespread devastation due to floods in Assam and Bangladesh. It flows eastwards parallel to the Himalayas.

B. Peninsular Rivers -

- Narmada Basin –
  [i] The Narmada rises in Amarkantak hills in Madhya Pradesh.
  [ii] It flows towards the west in a rift valley formed due to faulting.
  [iii] All tributaries of Narmada are very short and most of these join the mainstream at right angles.
  [iv] The Narmada Basin covers parts of Madhya Pradesh and Gujarat.

- Tapi Basin -
  [i] The Tapi rises in the Satpura ranges, in the Betul district of Madhya Pradesh.
  [ii] It also flows in a rift valley parallel to the Narmada but it is much shorter in length.
  [iii] Its basin covers parts of Madhya Pradesh, Gujarat and Maharashtra.

- The Godavari Basin –
  [i] The Godavari is the largest Peninsular River.
  [ii] It rises from the slopes of the Western Ghats in the Nasik district of Maharashtra.
  [iii] Its length is about 1500 km and it drains into the Bay of Bengal.
  [iv] Its drainage basin is also the largest among the peninsular rivers. The basin covers parts of the Maharashtra, Madhya Pradesh, Odisha and Andhra Pradesh.
  [v] It is joined by a number of tributaries, such as the Purna, the Wardha, the Pranhita, the Manjra, the Wainganga and the Penganga.

- The Mahanadi Basin-
  [i] The Mahanadi rises in the highlands of Chhattisgarh.
  [ii] It flows through Odisha to reach the Bay of Bengal. The length of the river is about 860km.
  [iii] Its drainage basin is shared by Maharashtra, Chhattisgarh, Jharkhand, and Odisha.

03. Drainage

- The Krishna Basin -
  [i] Rising from a spring near Mahabaleshwar, the Krishna flows for about 1400km and reaches the Bay of Bengal.
  [ii] The Tungabhadra, the Koyana, the Ghatprabha, the Musi and the Bhima are some of its tributaries.
  [iii] Its drainage basin is shared by Maharashtra, Karnataka and Andhra Pradesh.

- The Kaveri Basin-
  [i] The Kaveri rises in the Brahmagiri range of the Western Ghats and it reaches the Bay of Bengal in south of Cuddalore in Tamil Nadu.
  [ii] The total length of the river is about 760km.
  [iii] Its main tributaries are Amravati, Bhavani, Hemavati and Kabini.
  [iv] Its basing drains parts of Karnataka, Kerala and Tamil Nadu.

- East Flowing Rivers & West Flowing Rivers -

East Flowing Rivers	West Flowing Rivers
[i] They flow from west to east direction	[i] They flow from east to west direction
[ii] They drain into the Bay of Bengal	[ii] They drain into the Arabian Sea
[iii] They form deltas	[iii] They form estuaries
[iv] They have comparatively large basins and longer courses	[iv] They have comparatively small basins and shorter courses
[v] They cross through the eastern coastal plains	[v] They cross through the western coastal plains

- Lake - A Lake is a huge depression filled with water
- Types of Lakes -
  [i] On the basis of rate of salinity present – a. Fresh water
  b. Salt water lake.
  [ii] On the basis of their formation - a. Natural Lake
  b. Man-made Lake

Ques/Ans (Inside) →

Q1. Explain the importance of Lakes?

[i] They provide water to the industries and people.
[ii] They are used for generating hydro-electricity.
[iii] Salt is extracted from salt water lakes.
[iv] They support tourism.
[v] They are used for pisciculture.
[vi] They keep the surrounding environment clean.
[vii] They are used as a means of transportation.
[viii] They prevent flooding of rivers.

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[ix] Lakes maintain aquatic ecosystem.

Q2. Define oxbow lake.

A meandering river across the flood plain forma cut-offs that later develops into ox-bow lakes.

Q3. Define lagoons.

Splits and bars forms lagoons in the coastal areas, e.g. the Chilika Lake.

Q4. How are fresh water lakes formed?

Fresh water lakes are formed by two ways -

[i] A meandering river across a floodplain forms cut-offs that later develops into ox-bow lakes.
[ii] They are formed when glaciers dug out basin, which was later filled with snowmelt, e.g. Wular Lake in Jammu and Kashmir.

Q5. How are man-made lakes formed?

Man-made lakes are formed by two ways -

[i] The damming of rivers for the generation of hydel power has also led to the formation of lakes, such as Guru Gobind Sagar (Bhakra-Nangal Project)
[ii] Humans dig out land to store rain water.

Q6. Explain the economic importance of rivers.

[i] Rivers are used as a means of transportation.
[ii] Hydro-electricity is generated.
[iii] It supports tourism.
[iv] It provides water for irrigation.
[v] It provides water to the industries.

Q7. Mention the reasons for river pollution.

[i] Industrial waste.
[ii] Sewage released into rivers.
[iii] People throw non-biodegradable substances into rivers.
[iv] Dead bodies and carcasses are also thrown into rivers.
[v] Oil spillage from ships pollutes the rivers.

Q8. What are the preventive measures of river pollution?

[i] Industries should treat their water before releasing into rivers.
[ii] Sewage water should be cleaned and reused for doing agriculture.
[iii] People should not throw non-biodegradable substances into rivers.
[iv] Dead bodies and carcasses should be properly disposed instead of throwing into rivers.
[v] Rivers should be cleaned at different places in their courses.

03. Drainage

Exercise -

01. Choose the right answer:

[i] In which of the following states is the Wular Lake located?

[d] Jammu and Kashmir.

[ii] The river Narmada has its source at

[c] Amarkantak

[iii] Which of the following lakes is a salt water lake? [011] Wh

[a] Sambhar

[iv] Which one of the following is the longest river of the Peninsular India?

[c] Godavari

[v] Which one amongst the following rivers flows throug a rift valley?

[d] Tapi

02. Answer the following questions briefly:

[i] What is meant by a water divide? Give an example.

Any elevated area, such as a mountain or an upland, separates two drainage basins. Such an upland is known as a water divide. Example - River Ganga & River Indus.

[ii] Which is the largest river basin in India?

Ganga River Basin

[iii] Where do the rivers Indus and Ganga have their origin?

River Indus - Near Mansarowar lake, Tibet.

River Ganga - Gangotri Glacier in Uttaranchal.

[iv] Name two headstreams of the Ganga. Where do they meet to form the Ganga?

Two headstreams of the Ganga are - Bhagirathi and Alaknanda: They meet at Devaprayag form Ganga

[v] Why does the Brahmaputra in its Tibetan part have less silt, despite a longer course?

In Tibet, the Brahmaputra carries a smaller volume of water and less silt as it is a cold and a dry area. In India, it passes through a region of high rainfall. Hence, the river carries a large amount of water and considerable amount of silt.

[vi] Which two Peninsular rivers flow through trough?

River Narmada, and River Tapi.

03. Drainage

03. Below are given names of a few lakes of India. Group them under two categories - Natural and Man-made.

(a) Wular	(b) Dal
(c) Nainital	(d) Bhimtal
(e) Gobind Sagar	(f) Loktak
(g) Barapani	(h) Chilika
(i) Sambhar	(j) Rana Pratap Sagar
(k) Nizam Sagar	(l) Pulicat
(m) Nagarjuna Sagar	(n) Hirakund

Natural -

[i] Wular
[ii] Dal
[iii] Nainital
[iv] Bhimtal
[v] Loktak
[vi] Barapani
[vii] Chilika
[viii] Sambhar
[ix] Pulicat

Man-made -

[i] Gobind Sagar
[ii] Rana Pratap Sagar
[iii] Nizam Sagar
[iv] Nagarjuna Sagar
[v] Hirakund

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Sources: Shibani Banerjee Ma'am – Geography Teacher at BMSSS

NCERT and Byju's notes.

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