Drainage

Long Answer Questions

1. State some economic benefits of rivers and lakes.

Ans. (i) Water from the rivers is a basic natural resource, essential for various human activities.
(ii) The river banks have attracted settlers from ancient times. The settlements have now become big cities.
(iii) Using rivers for irrigation, navigation, hydro-power generation is special significance.
(iv) Rivers are very significant for countries like India where agriculture the livelihood for a majority of the population.
(v) Lakes help to develop tourism and provide recreation. Rivers have been of fundamental importance throughout human history.

2. Discuss the significant differences between the Himalayan and the Peninsular rivers.

Ans. Himalayan rivers:
(i)These rivers are perennial, i.e., they flow throughout the year.
(ii)They receive water from the melting of the glaciers, as well as rains.
(iii)They have long and deep courses.
(iv)They perform erosional activity in their upper course and carry hup loads of silt and sand.
(v) They have large drainage basins.
(vi) They make huge deltas at their mouths, which are well developed.
Examples'. Ganga and Brahmaputra
Peninsular rivers:
(i) These rivers are seasonal, i.e., they flow for a certain period in a year.
(ii) They depend mainly on the rains and dry up during the dry season.
(iii) They have short and shallow courses.
(iv) They carry less or no silt and sand during their course.
(v) They have comparatively smaller drainage basins.
(iv) They make smaller deltas and two of the rivers also make estuaries.
Examples: Godavari and Narmada

3. Compare the East flowing and West flowing rivers of the Peninsular plateau.

Ans. The East flowing rivers:
(i) These rivers originate from the Western Ghats and flow eastwards.
(ii) They all form deltas at their mouths.
(iii) They drain into the Bay of Bengal.
(iv) They have large volume of water.

Examples: Mahanadi, Godavari, Krishna and Kaveri

The West flowing rivers:

(i)These rivers originate in Central India and flow westwards.

(ii)They form estuaries since they flow from rift valleys.

(iii) They drain into the Arabian Sea.

(iv) They have lesser volume of water.

Examples: Narmada and Tapi

4. Define the following drainage patterns: Dendritic, Trellis, Rectangular and Radial.

Ans. (i) Dendritic: The dendritic pattern develops where the river channel follows the slope of the terrain. The stream with its tributaries resembles the branches of a tree.

(ii) Trellis: A river joined by its tributaries at approximately right angles develops a trellis pattern. A trellis drainage pattern develops where hard and soft rocks exist parallel to each other.

(iii) Rectangular: A rectangular drainage pattern develops on a strongly joined rocky terrain.

(iv) Radial: A radial pattern develops when streams flow in different directions from a central peak or dome-like structure.

5. What are the main causes of pollution of Indian rivers?

Ans. The main causes of pollution of Indian rivers are:

(i) The growing domestic, municipal, industrial and agricultural demand for water from rivers naturally affects the quality of water.

(ii) As a result, more and more water is drained out of the rivers, thereby reducing their volume.

(iii) A heavy load of untreated sewage and industrial effluents are emptied into the rivers.

(iv) This affects not only the quality of water but also the self-cleansing capacity of the river.

(v) The increasing urbanisation and industrialisation has increased the pollution levels of the rivers.

6. What types of lakes are found in India? Give suitable examples.

Ans. India has many lakes. They differ in size and other characteristics. Most are permanent, whereas some contain water only during the rainy season. There are lakes which are formed by the action of glaciers and ice sheets while the others have been formed by human activities.

(i) Salt water lakes: Spit and bars form lagoons or salt water lakes in coastal areas like the Chilika lake, Pulicat lake and the Kolleru lake. Sometimes salt water lakes are formed with island drainage like Sambhar lake in Rajasthan. Its water is used for producing salt.

(ii) Freshwater lakes: Most of these are in the Himalayan region. They are of glacier origin. They are formed when glaciers dug out a basin, which was later filled with snow melt. The Wular lake in Jammu and Kashmir the largest freshwater lake in India. Other freshwater lakes are the Dal Bhimtal, Nainital, Loktak and Barapani.

(iii) Man-made lakes: The damming of the rivers for the generation of hydel power has also led to the formation of lakes. These lakes are formed to excessive water of the river during floods and adding water to during the dry season. Such lakes are the Guru Gobind Sagar (Bhakra) Nangal Project), Nizam Sagar, Nagarjuna Sagar, Rana Pratap Sagar, etc.

7. What are the benefits of lakes to human beings?

Ans. The benefits of lakes to human beings are:

(i) A lake helps to regulate the flow of a river.

(ii) During heavy rainfall, it prevents flooding and during the dry season helps to maintain an even flow of water.

(iii) Lakes can be used for developing hydel power too.

(iv) They help in maintaining a moderate climate.

(v) They are able to maintain the aquatic ecosystem.

(vi) They enhance the natural beauty and help in developing tourism and provide recreation.

8. Give characteristics of the Ganga-Brahmaputra River System.

Ans. The basin is separated from the Indus by the watershed in Haryana. Ambala. It covers the Central and the Eastern parts of the northern alluvial plains in Haryana, U.P, West Bengal and Assam. Its large central part drained by river Ganga and its many tributaries. The general slope of Ganga plain is from the north-west to south-east and south into Bay of Bengal Its eastern part is drained by the mighty Brahmaputra river. It slopes the north-east to south-west and then southward into Bangladesh.

9. Write main features of Indus Basin.

Ans. (i) The river Indus rises in Tibet, near lake Mansarovar.

(ii) Flowing west, it enters India in the Ladakh district of Jammu & Kashmir.
It forms a picturesque gorge in this part.

(iii) It flows through Baltistan and Gilgit and emerges from the mountain at Attock.

(iv) All its major tributaries-the Satluj, the Beas, the Ravi, the Chenab and the Jhelum-join together to enter the Indus near Mithankot in Pakistan.

(v) Beyond this, the Indus flows southwards eventually reaching the Arabian Sea, east of Karachi. Indus is 2,900-km long and is one of the longest rivers of the world.

10. Give main characteristics of the Ganga River System.

Ans. (i) The headquarters of the Ganga called the 'Bhagirathi' is fed by the Gangotri Glacier and joined by Alkananda at Devaprayag in Uttarakhand.

(ii) At Haridwar the Ganga emerges from the mountains on to the plains.

(iii) Its tributaries flood parts of the northern plains every year, causing widespread damage to life and property but enriching the soil for the extensive agricultural lands.
(iv) Enlarged with the waters from its right and left bank tributaries, the Ganga flows eastward till Farakka in West Bengal. This is the northern most point of Ganga Delta.
(v) The mainstream flows southwards into Bangladesh and is joined by river along with Brahmaputra flows into the Bay of Bengal and the delta formed by these rivers is known as Sunderban delta.

11. What are the main characteristics of the mighty river Brahmaputra?

Ans. (i) The Brahmaputra rises in Tibet east of Mansarovar Lake very close to the sources of the Indus and the Satluj.
(ii) It is slightly longer than the Indus and most of its course lies outside India.
(iii) In Tibet, the river carries a smaller volume of water and less silt as it is a cold and a dry area.
(iv) In India, it passes through a region of high rainfall. Here the river carries a large volume of water and considerable amount of silt.
(v) The Brahmaputra has a braided channel in its entire length in Assam and forms many riverine islands.
(vi) Every year during the rainy season, the river overflows its banks causing widespread devastation due to floods in Assam and Bangladesh.
(vii) Unlike other north Indian rivers, the Brahmaputra is marked by huge deposits of silt on its bed causing the river bed to rise. The river also shifts its channel frequently.

12. Write down the differences between a delta and an estuary.

Ans. **Delta**
(i) It is a triangular-shaped piece of land formed at the mouth of a river where it meets the sea.
(ii) With the continuous deposition of silt on its bed, a river goes on splitting itself into channels or distributaries. They carry river water into the sea.
(iii) Delta shows an extension of land into sea. It is continuously grown seawards.
(iv) The sea is shallow. Tidal currents are not strong enough to removal deposits effectively.
(v) The world's largest and the fastest growing delta is the Gang Brahmaputra delta known as the Sunderban delta. Known as the Sunderban delta. Peninsular rivers likes the Mahanadi, Godavari, Krishna and Kaveri also form big deltas.

Estuary
(i) An estuary is an inlet formed generally by the submergence of the mouth of a river.
(ii) It has a single mouth or channel. It has steep banks or slopes. Where a estuary is formed, sea is deep.
(iii) Strong tidal waves carry away the little amount of sediments deposit by a river.
(iv) Estuaries produce an indented coastline and provide sites of natural harbours. They create conditions for better navigation.
(v) The mouths of rivers Narmada and Tapi present good examples estuaries.

13. Give main characteristics of the largest peninsular river.

Ans. (i) The Godavari is the largest peninsular river.

(ii) Its length is about 1500 km. Its drainage basin is also the largest among the peninsular rivers.

(iii) The basin covers parts of Maharashtra, Madhya Pradesh, Odisha a Andhra Pradesh.

(iv) The Godavari is joined by a number of tributaries such as the Purna, Wardha, the Pranhita, the Manjra, the Wainganga and the Penganga.

(v) The last three tributaries are very large. Because of its length and area it covers, it is also known as 'Dakshin Ganga'.

14. How Indian lakes differ from each other?

Ans. India has many lakes. These differ from each other in size, and other characteristics. Most lakes are permanent; some contain water only during the rainy season, like the lakes in the basins of inland drainage of semi-arib region. There are some of the lakes which are the result of the action glaciers and ice sheets, while the others have been formed by wind, action and human activities.