Chapter 3: Drainage System

Exercises — Exercises

Q1 Choose the right answer. (i) Which one of the following rivers was known as the 'Sorrow of Bengal'?
(a) The Gandak
(b) The Son
(c) The Kosi
(d) The Damodar

(d) The Damodar. It flows through a rift valley on the eastern margin of the Chotanagpur Plateau and was once called the 'sorrow of Bengal' for its floods. It has since been tamed by the Damodar Valley Corporation, a multipurpose project. The Kosi is the 'sorrow of Bihar'.

Q2 Choose the right answer. (ii) Which one of the following rivers has the largest river basin in India?
(a) The Indus
(b) The Brahmaputra
(c) The Ganga
(d) The Krishna

(c) The Ganga. Its basin covers about 8.6 lakh sq. km in India alone, and the Ganga system is the largest in India, with perennial and non-perennial rivers rising in the Himalayas and the Peninsula.

Q3 Choose the right answer. (iii) Which one of the following rivers is not included in 'Panchnad'?
(a) The Ravi
(b) The Chenab
(c) The Indus
(d) The Jhelum

(c) The Indus. The Panjnad is the name for the five rivers of Punjab: the Satluj, Beas, Ravi, Chenab and Jhelum. They join the Indus a little above Mithankot, so the Indus itself is not one of the five.

Q4 Choose the right answer. (iv) Which one of the following rivers flows in a rift valley?
(a) The Son
(b) The Narmada
(c) The Yamuna
(d) The Luni

(b) The Narmada. It flows in a rift valley between the Satpura range in the south and the Vindhyan range in the north. The Tapi is the other Peninsular river in a rift valley, and both flow westward to the Arabian Sea.

Q5 Choose the right answer. (v) Which one of the following is the place of confluence of the Alaknanda and the Bhagirathi?
(a) Vishnu Prayag
(b) Rudra Prayag
(c) Karan Prayag
(d) Deva Prayag

(d) Deva Prayag. At Devprayag the Bhagirathi meets the Alaknanda and, from there, the river is called the Ganga. Vishnu Prayag, Karna Prayag and Rudra Prayag are confluences on the Alaknanda itself.

Q6 State the differences between the following. (i) River Basin and Watershed

An area drained by a river and its tributaries is a drainage basin; the catchments of large rivers are called river basins, while those of small rivulets and rills are called watersheds. Basins cover larger areas, whereas watersheds are small. The boundary line separating one basin from another is also called the watershed.

Q7 State the differences between the following. (ii) Dendritic and Trellis drainage pattern

A dendritic pattern resembles the branches of a tree, as in the rivers of the northern plain. In a trellis pattern, the primary tributaries flow parallel to each other and the secondary tributaries join them at right angles. Dendritic is irregular and branching; trellis is a regular, rectangular arrangement of streams.

Q8 State the differences between the following. (iii) Radial and Centripetal drainage pattern

In a radial pattern, rivers originate from a hill and flow outward in all directions; the rivers rising from the Amarkantak range are an example. In a centripetal pattern, the opposite happens: rivers from all directions discharge their waters into a lake or depression. Radial flows away from a centre, centripetal flows towards it.

Q9 State the differences between the following. (iv) Delta and Estuary

A delta is a depositional feature built near the river mouth, where the river drops alluvium and splits into branches, as the Godavari does after Rajamundri. An estuary is a broad river mouth with no such deposits, where the river meets the sea directly. The Narmada and Tapi, flowing in trough faults, lack deltaic deposits and form estuaries; the Narmada's is about 27 km long.

Q10 Answer in about 30 words. (i) What are the socio-economic advantages of inter-linking of rivers in India?

Rivers carry water unevenly in time and space, so floods hit one area while another suffers drought. Linking rivers can move surplus water to deficit basins, reducing floods and drought, saving rainy-season water wasted to the sea, and supporting irrigation and livelihoods.

Q11 Answer in about 30 words. (ii) Write three characteristics of the Peninsular river.

Peninsular rivers have a fixed course and no meanders, and their flow is non-perennial since they depend on rain. They lie in broad, shallow, mature valleys of an older drainage system, and most flow west to east into the Bay of Bengal, except the Narmada and Tapi.

Q12 Answer in not more than 125 words. (i) What are the important characteristic features of north Indian rivers? How are these different from Peninsular rivers?

North Indian (Himalayan) rivers such as the Ganga, Indus and Brahmaputra are fed by both snowmelt and rainfall, so they are perennial. In the mountains they cut deep gorges and V-shaped valleys, and their courses are highly tortuous. On the plains they meander strongly, shift course often and build depositional features such as flood plains, ox-bow lakes, braided channels and deltas. Peninsular rivers belong to an older drainage system with broad, shallow, graded valleys. Their courses are fixed, they do not meander, and their flow is non-perennial, depending on rainfall. Most flow west to east into the Bay of Bengal, except the Narmada and Tapi, which flow through rift valleys to the Arabian Sea.

Q13 Answer in not more than 125 words. (ii) Suppose you are travelling from Haridwar to Siliguri along the foothills of the Himalayas. Name the important rivers you will come across. Describe the characteristics of any one of them.

Travelling east from Haridwar, you would cross the Ganga at Haridwar, then the Ramganga, Sarda (Kali), Ghaghara, Gandak, Kosi and Mahananda before Siliguri. The Kosi is an antecedent river rising north of Mount Everest in Tibet, where its main stream Arun originates. After crossing the Central Himalayas in Nepal, it is joined by the Son Kosi from the west and the Tamur Kosi from the east, forming the Sapt Kosi. It carries huge sediment loads and deposits them in the plains; the course gets blocked and the river changes course often, so it is called the 'sorrow of Bihar'.