

## Chapter 3 – Drainage System

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### EXERCISES

1. Choose the right answer from the four alternatives given below:

**Question 1(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

**Answer:**

- (d) The Damodar

**Question 1(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

**Answer:**

- (c) The Ganga

**Question 1(iii).**

Which one of the following rivers is not included in ‘Panchnad’?

- (a) The Ravi
- (b) The Chenab
- (c) The Indus
- (d) The Jhelum

**Answer:**

- (c) The Indus

**Question 1(iv).**

Which one of the following rivers flows in a rift valley?

- (a) The Son
- (b) The Narmada

- (c) The Yamuna
- (d) The Luni

**Answer:**

- (b) The Narmada

**Question 1(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

**Answer:**

- (d) Deva Prayag

**2. State the differences between the following.**

**Question 2(i).**

River Basin and Watershed

**Answer:**

<b>River Basin</b>	<b>Basis</b>	<b>Watershed</b>
The catchments of large rivers are called river basins.	Meaning	Catchment of small rivulets and rills are often referred to as watersheds.
Rivers basins are larger in area.	Area	Watersheds are smaller in area.

**Question 2(ii).**

Dendritic and Trellis drainage pattern

**Answer:**

<b>Dendritic drainage pattern</b>	<b>Basis</b>	<b>Trellis drainage pattern</b>
<p>Dendritic drainage system is a drainage pattern resembling the branches of a tree is known as “dendritic”.</p> <p>The drainage pattern of Northern plain is the example of such pattern.</p>	Meaning	<p>When the primary tributaries of rivers flow parallel to each other and secondary tributaries join them at right angles, the pattern is known as ‘trellis’.</p> <p>This pattern is found in Himalayan mountains and the Eastern ranges (Purvanchal).</p>

**Question 2(iii).**

Radial and Centripetal drainage pattern

**Answer:**

<b>Radial drainage pattern</b>	<b>Basis</b>	<b>Centripetal drainage pattern</b>
<p>When the rivers originate from a hill and flow in all directions, the drainage pattern is known as ‘radial’.</p> <p>The rivers originating from the Amarkantak range present a good example of it.</p>	Meaning	<p>When the rivers discharge their waters from all directions in a lake or depression, the pattern is known as ‘centripetal’.</p> <p>Sambhar lake of Rajasthan is the good example of it.</p>

**Question 2(iv).**

Delta and Estuary

**Answer:**

<b>Delta</b>	<b>Basis</b>	<b>Estuary</b>
<p>Delta is a triangular land mass formed by depositional alluvium at the mouth of river.</p>	Shape	<p>Estuary is the sunken mouth of the river where the rivers meets the sea forming the tunnel shaped zone where saline and fresh water mix.</p>

They are formed on the tideless sea coast near the mouth of river where sediment brought by the rivers is deposited.	Formation	They are result of strong currents and hightides at the mouth of river where no deposition takes place.
They are rich agriculture ground.	Suitability	They are rich fishing ground and are suitable for inland transportation.
Rivers like Krishna, Kaveri, Mahanadi, Godavari form deltas.	Rivers	Narmada and Tapi forms estuaries.

### 3. Answer the following questions in about 30 words.

#### Question 3(i).

What are the socio-economic advantages of inter-linking of rivers in India?

#### Answer:

Indian rivers are of two types: perennial rivers in which there is water through out the year and peninsular rivers in which water is there in rainy seasons only. Rivers of India bear a large amount of water every year. But its distribution is not equal from the point of view of time and place. Most of the water gets wasted in floods during rainy seasons. It also causes loss of life and property. It ruins agriculture as well. At other places, there is situation of drought.

Therefore, if rivers are connected to each other through canals, then the problems of floods and drought will get solved. It will also solve the problem of drinking water and millions of rupees will be saved. It will also lead to increase in productivity. It will improve economic condition of farmers.

#### Question 3(ii).

Write three characteristics of the Peninsular rivers.

#### Answer:

These rivers originate in peninsular plateau and central highland. These are seasonal as it is dependent on monsoon rainfall. They reflect super imposed type of drainage pattern and rejuvenated resulting in trellis, radial and rectangular patterns. These rivers are smaller having fixed course with well-adjusted valleys. Their catchment area is relatively smaller basin. These rivers are old rivers with graded profile, and have almost reached their base levels.

### 4. Answer the following questions in not more than 125 words.

**Question 4(i).**

What are the important characteristic features of north Indian rivers? How are these different from Peninsular rivers?

**Answer:**

Important characteristics of north Indian rivers are as follows:

- Origin: They originate in Himalayan mountain covered with glaciers.
- Nature of flow: These are perennial because they receive water from glacier and rainfall.
- Drainage pattern: These are antecedent and consequently lead to dendritic pattern in plains.
- Nature of river: It has long course, flowing through the rugged mountains experiencing headward erosion and river capturing; In plains it exhibits meandering and shifting of course.
- Catchment area: Its catchment areas include very large basins.
- Age of river: These rivers are young and youthful. These are active and deepening in the valleys.

**These are different from peninsular rivers because these have following features:**

- Place of origin: Peninsular plateau and central highland.
- Nature of flow: Seasonal as it is dependent on monsoon rainfall.
- Type of drainage: Super imposed, rejuvenated resulting in trellis, radial and rectangular patterns.
- Nature of river: Smaller, fixed course with well-adjusted valleys.
- Catchment area: Relatively smaller basin.
- Age of the river: Old rivers with graded profile, and have almost reached their base levels.

**Question 4(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.

**Answer:**

While travelling from Haridwar to Siliguri along the foothills of the Himalayas, we shall come across Tons, Gomti, Saryu, Ramganga, Sharda, Gandak, Old Gandak, Kamla, Bagmati, Kosi and Ganga.

The Ganga is the most important river of India both from the point of view of its basin and cultural significance. It rises in the Gangotri glacier near Gaumukh which is 3,900 m high from sea level in the Uttarkashi district of Uttarakhand. It is known as the Bhagirathi in this region. At Devaprayag, the Bhagirathi meets the Alaknanda; hereafter, it is known as the Ganga. The Ganga enters the plains at Haridwar. From here, it flows first to the south, then to the south-east and east before splitting into two distributaries, namely the Bhagirathi and the Hugli.

The river has a length of 2,525 km. It is shared by Uttarakhand (110 km) and Uttar Pradesh (1,450 km), Bihar (445 km) and West Bengal (520 km). The Ganga basin covers about 8.6 lakh sq. km area in India alone. The Ganga River system is the largest in India having a number of perennial and non-perennial rivers originating in the Himalayas in the north and the Peninsula in the south, respectively.

Yamuna joins the Ganga at Prayag (Allahabad). It is joined by the Chambal, the Sind, the Betwa and the Ken on its right bank which originates from the Peninsular plateau while the Hindan, the Rind, the Sengar, the Varuna, etc. join it on its left bank. Much of its water feeds the western and eastern Yamuna and the Agra canals for irrigation purposes.

### **Project/Activity**

**Study the Appendix III and answer the following questions.**

**(i)** Which river has the largest proportion of catchment area in the country?

**Answer:**

Attempt yourself.

**(ii)** Make a comparative bar diagram on a graph paper to show the length of the courses of the rivers.

**Answer:**

Attempt yourself.