

TERM I

UNIT II

GEOGRAPHY

CLASS IX

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THE INDIAN SCHOOL BAHRAIN

Ch 1 - INDIA – SIZE AND LOCATION

1) Describe the size and location of India.

Location:-

- i) India is a vast country. It lies entirely on the north of the equator. India is a southward extension of the Asian continent.
- ii) The main land extends between latitudes $8^{\circ}4'N$ and $37^{\circ}6'N$ and longitudes $68^{\circ}7'E$ and $97^{\circ}25'E$.
- iii) The Tropic of Cancer ($23^{\circ} 30'N$) divides the country into almost two equal parts.
- iv) To the southeast and southwest of the mainland, lie the Andaman and Nicobar Islands and the Lakshadweep islands in Bay of Bengal and Arabian Sea respectively.

Size:-

- i) The land mass of India has an area of 3.28 million square km. India's total area accounts for about 2.4 per cent of the total geographical area of the world.
- ii) India is the seventh largest country of the world. India has a land boundary of about 15,200 km and the total length of the coastline of the mainland including Andaman and Nicobar and Lakshadweep is 7,516.6 km.
- iii) India is bounded by the young fold mountains in the northwest, north and north east. South of about 22° north latitude, it begins to taper, and extends towards the Indian Ocean, dividing it into two seas, the Arabian Sea on the west and the Bay of Bengal on its east.

2) Why do we need a standard meridian for India?

The latitudinal and longitudinal extent of the mainland is about 30° . From Gujarat to Arunachal Pradesh there is a time lag of two hours. Hence to avoid confusion, the time along the mid point of the two places i.e. $82^{\circ}30'E$ longitude, passing through Mirzapur (in Uttar Pradesh) is taken as the Standard Meridian for the whole country.

2) **The sun rises two hours earlier in Arunachal Pradesh as compared to Gujarat in the west but the watches show the same time. How does this happen?**

(Answer above)

3) The central location of India at the head of the Indian Ocean is considered of great significance. Why? (Or In what way central location of India in the Indian Ocean has been to its advantage?)

- i) The trans-Indian Ocean routes which connect the countries of Europe in the West and the countries of East Asia provide a strategic central location to India.
- ii) The Deccan Peninsula protrudes into the Indian Ocean, thus helping India to establish close contact with West Asia, Africa and Europe from the western coast and with Southeast and East Asia from the eastern coast.
- iii) No other country has a long coastline on the Indian Ocean as India has and indeed, it is India's eminent position in the Indian Ocean which justifies the naming of an Ocean after it.

4) Give a brief account of India's cultural contact with the outside world.

- i) The various passes across the mountains in the north have provided passages to the ancient travellers, while the oceans restricted such interaction for a long time.
- ii) These routes have contributed in the exchange of ideas and commodities since ancient times. The ideas of the *Upanishads* and the *Ramayana*, the stories of *Panchtantra*, the Indian numerals and the decimal system thus could reach many parts of the world.

- iii) The spices, muslin and other merchandise were taken from India to different countries. On the other hand, the influence of Greek sculpture, and the architectural styles of dome and minarets from West Asia can be seen in different parts of our country.

Q. How have the ancient and much older lands routes contributed to exchange of ideas and goods? Explain. (Write two answers above)

5) Name the neighbouring countries of India.

- i) India shares its land boundaries with Pakistan and Afghanistan in the northwest, China (Tibet), Nepal and Bhutan in the north and Myanmar and Bangladesh in the east.
- ii) Our southern neighbours across the sea consist of the two island countries, namely Sri Lanka and Maldives.
- iii) Sri Lanka is separated from India by a narrow channel of sea formed by the Palk Strait and the Gulf of Mannar while Maldives Islands are situated to the south of the Lakshadweep Islands.

6) Define the term sub-continent.

A big geographical unit which stands out distinctively from the rest of the continent is called a sub-continent.

7) The latitudinal and longitudinal extent of India is 30 degrees. But the north south distance is larger than the east west distance. Why?

The latitudinal and longitudinal extent of India is almost the same degrees. i.e 30 degrees. But the north south distance in Kilometers is 3214 and the east west distance is 2933 km. This is because of the nature of the lines. The latitudes are parallel lines and the distance is fixed between any two points and will not vary according to the area or shape. The longitudes are not parallel lines and the distance between the lines vary from equator to the poles. The distance is maximum near the equator and minimum at the poles.

8) Why is the difference in day and night hardly felt at Kanyakumari, but not in Delhi?

Kanyakumari is located near to the equator. Therefore it experience direct sunrays for nearly 6 to 8 months continuously. Delhi is located far away from the equator. So the difference of day and night is longer in Kashmir.

Additional Questions:

1. Name the countries which are larger than India. Russia, Canada, China, USA, Brazil, Australia.
2. Which island group of India lies to its south-east? Andaman & Nicobar Islands
3. Which island countries are our southern neighbours? Srilanka, Maldives.
4. The Island groups of India lying in the Arabian Sea and the Bay of Bengal. Lakshadweep Islands and Andaman & Nicobar Islands respectively.
5. The countries constituting Indian Subcontinent: India, Pakistan, Nepal, Bhutan, Bangladesh, Srilanka and Maldives.
6. The states through which the Tropic of Cancer passes: Gujarat, Madhya Pradesh. Chhatisgarh, Jharkhand, West Bengal and Mizoram.
7. The place situated on the three seas. Kanyakumari.
8. The strait separating Sri Lanka from India. Palk Strait.
9. The Union Territories of India: Andaman & Nicobar Islands, Lakshadweep Islands, Dadra & Nagar Haveli, Daman & Diu, Pondicherry, (Puducherry) Delhi, Chandigarh.
10. Name the canal that shortened the distance between India and Europe: Suez Canal
11. Name the southern most point of Indian Union. Indira Point (Andaman & Nicobar Island)
12. Name the smallest and largest states of India. Smallest: Goa ; Largest: Rajasthan
13. Name the states of India having common boundary with Pakistan, China, Myanmar and Bangladesh. (Refer atlas)

Chapter 2 **PHYSICAL FEATURES OF INDIA**

Q.1 What are tectonic plates? (What is the theory of plate tectonics?)

The crust (upper part) of the earth has been formed out of seven major and some minor plates. These are called tectonic plates.

Q.2. How are tectonic plates movement classified?

- i) Convergent boundary: While some plates come towards each other and form convergent boundary. In the event of two plates coming together they may either collide and crumble, or one may slide under the other.
- ii) Divergent boundary: Some plates move away from each other and form divergent boundary.
- iii) Transform boundary: When tectonic plates move horizontally past each other, it is called transform boundary.

(Distinguish between Converging and diverging tectonic plates. Answer point i and ii above)

Q. 3. What are the causes for the formation of the relief to its present form?

Besides geological formations, a number of processes such as weathering, erosion and deposition have created and modified the relief to its present form.

Q. 4. How are the Himalayas formed?

- i) The oldest landmass, (the Peninsula part), was a part of the **Gondwana land**. The Gondwanaland included India, Australia, South Africa and South America as one single land mass.
- ii) The convectional currents split the crust into a number of pieces, thus leading to the drifting of the Indo-Australian plate after being separated from the Gondwana land, towards north.
- iii) The northward drift resulted in the collision of the plate with the much larger Eurasian Plate. Due to this collision, the sedimentary rocks which were accumulated in the geosyncline known as the **Tethys** were folded to form the mountain system of western Asia and Himalaya.

Q.5. How are the Northern Plains formed? Or How did the upliftment of the Himalayas influence the formation of Indian Northern Plains ?

- i) The Himalayan uplift out of the Tethys sea and subsidence of the northern flank of the peninsular plateau resulted in the formation of a large basin.
- ii) In due course of time this depression, gradually got filled with deposition of sediments by the rivers flowing from the mountains in the north and the peninsular plateau in the south.
- iii) A flat land of extensive alluvial deposits led to the formation of the northern plains of India.

Q. 6. What are the major physiographic divisions of India?

Ans. The physical features of India can be grouped under the following physiographic divisions:

- i. The Himalayan Mountains
- ii. The Northern Plains
- iii. The Peninsular Plateau
- iv. The Indian Desert
- v. The Coastal Plains
- vi The Island Groups

Q.7. Describe the features of the Himalayan Mountains.

Ans. The Himalayas, geologically young and structurally fold mountains stretch over the northern borders of India. Their features are:

- i. They form an arc, which covers a distance of about 2,400 k.m.
- ii. Their width varies from 400 km in Kashmir to 150 km in Arunachal Pradesh.
- iii. The altitudinal variations are greater in the eastern half than those in the western half.
- iv. The Himalaya consists of three parallel ranges in its longitudinal extent; namely Himadri, Himachal and Shiwalik. (Continue two points each)

Q.8. Describe the features of the Himadri. (Greater Himalayas)

Ans. The northern most range of the Himalayas is known as the Greater or Inner Himalayas or the 'Himadri'. Its features are:

- i. It is the most continuous range consisting of the loftiest peaks with an average height of 6,000 metres.
- ii. It contains all the prominent Himalayan peaks like Mount Everest and Kanchenjunga.
- iii. The folds of Great Himalayas are asymmetrical in nature. The core of this part of Himalayas is composed of granite.
- iv. It is perennially snow bound, and a number of glaciers descend from this range.

Q.9. Describe the features of the Himachal. (Lesser Himalayas)

Ans. The range lying to the south of the Himadri forms the most rugged mountain system and is known as Himachal or lesser Himalaya. Its features are:

- i. The ranges are mainly composed of highly compressed and altered rocks.
- ii. The altitude varies between 3,700 and 4,500 metres and the average width is 50 k.m.
- iii. The Pir Panjal range forms the longest and the most important range, the Dhaula Dhar and the Mahabharat ranges are also prominent ones.
- iv. This range consists of the famous valley of Kashmir, the Kangra and Kullu Valley in Himachal Pradesh. This region is well known for its hill stations.

Q.10. Describe the features of the Shiwaliks.

Ans. The outer most range of the Himalayas is called the Shiwaliks. Their main features are:

- i. They extend over a width of 10-50 k.m and have an altitude varying between 900 and 1100 metres.
- ii. These ranges are composed of unconsolidated sediments brought down by rivers from the main Himalayan ranges located farther north. Hence they are prone to landslides.
- iii. These valleys are covered with thick gravel and alluvium.
- iv. The longitudinal valley lying between lesser Himalaya and the Shiwaliks are known as Duns. Dehra Dun, Kotli Dun and Patli Dun are some of the well-known Duns.

Q. Describe the division of Himalayas in its longitudinal extent. (Write three answers above)

Q.11. Why are Shiwaliks prone to landslides?

Ans. Shiwaliks are prone to landslide since they are composed of unconsolidated sediments.

Q.12. Describe the division of Himalayas from west to east. (based on river valleys)

Ans. The division of the Himalayas has been demarcated by river valleys:

- i. The part of Himalayas lying between Indus and Satluj has been traditionally known as **Punjab Himalayas** but it is also known regionally as Kashmir and Himachal Himalaya from west to east respectively.
- ii. The part of the Himalayas lying between Satluj and Kali rivers is known as **Kumaon Himalayas**.
- iii. The Kali and Tista rivers demarcate the **Nepal Himalayas**.
- iv. The part lying between Tista and Dihang rivers is known as **Assam Himalayas**.
- v. The Brahmaputra marks the eastern most boundaries of the Himalayas. Beyond the Dihang gorge, the Himalayas bend sharply to the south and spread along the eastern boundary of India. They are known as the **Purvanchal** or the Eastern hills and mountains. These hills running through the north-eastern states are mostly composed of strong sandstones which are sedimentary rocks. Covered with dense forests, they mostly run as parallel ranges and valleys. The Purvanchal comprises the Patkai hills, Naga hills, Manipur hills and Mizo hills.

Describe the features of the Purvanchal Range. (Write 5th point above)

Q.13. Describe the features of the northern plains. (Answer continued in the next 2 questions.)

Ans. The features of the northern plains are:

- i. The northern plain has been formed by the interplay of the three major river systems, namely– the Indus, the Ganga and the Brahmaputra along with their tributaries.
- ii. This plain is formed of alluvial soil. The deposition of alluvium in a vast basin lying at the foothills of the Himalaya over millions of years formed this fertile plain.
- iii. It spreads over an area of 7 lakh sq. km. The plain being about 2400 Km long and 240 to 320 Km broad, is a densely populated physiographic division.
- iv. The Northern Plain is broadly divided into three sections. Continue the next answer.

Q.14. How are the northern plains divided according to the rivers present?

Ans. The northern plains are divided as follows:

- i. **Punjab Plains:** The Western part of the Northern Plain is referred to as the Punjab Plains. Formed by the Indus and its tributaries, the larger part of this plain lies in Pakistan. The Indus and its tributaries–the Jhelum, the Chenab, the Ravi, the Beas and the Satluj originate in the Himalayas. This section of the plain is dominated by the doabs
- ii. **Ganga plain:** It extends between Ghaggar and Teesta rivers. It is spread over the states of North India, Haryana, Delhi, U.P., Bihar, partly Jharkhand and West Bengal.
- iii. **Brahmaputra plain:** To the East of the Ganga plain particularly in Assam lies the Brahmaputra plain.

Q.15. How are the northern plains divided according to the variations in the relief features? Or Divide Northern plains on the basis of variation and explain their characteristics.

Ans. According to the variations in relief features, the Northern plains can be divided into four regions.

They are:

- i. **Bhabar:** The rivers, after descending from the mountains deposit pebbles in a narrow belt of about 8 to 16 km in width lying parallel to the slopes of the Shiwaliks. It is known as bhabar. All the streams disappear in this bhabar belt.
- ii. **Terai:** South of the bhabar belt, the streams and rivers re-emerge and create a wet, swampy and marshy region known as terai. This was a thickly forested region full of wildlife.
- iii. **Bhangar:** The largest part of the northern plain is formed of older alluvium. They lie above the flood plains of the rivers and present a terrace like feature. This part is known as bhangar. The soil in this region contains calcareous deposits locally known as kankar.
- iv. **Khadar:** The newer, younger deposits of the flood plains are called khadar. They are renewed almost every year and so are fertile, thus, ideal for intensive agriculture.

Q.16. Distinguish between bhangar and khadar.

Ans. Those parts of the northern plains formed of older alluvium lying above the flood plains of the rivers and presenting a terrace like feature are known as bhangar. The newer, younger deposits of the flood plains are called khadar. They are renewed almost every year and so are fertile, thus, ideal for intensive agriculture. Bhangar is away from rivers and Khadar is close to rivers.

Q.17 What are the features of the central highland?

Ans. The features of the central highland are:

- i. The part of the peninsular plateau lying to the north of the Narmada River covering a major area of the Malwa plateau is known as the Central Highlands.
- ii. The Vindhyan range is bounded by the Central Highlands on the south and the Aravali range on the northwest.
- iii. The flow of the rivers draining this region, namely the Chambal, the Sind, the Betwa and Ken is from southwest to northeast, thus indicating the slope. The Central Highlands are wider in the west but narrower in the east.
- iv. The eastward extensions of this plateau are locally known as the Bundelkhand and Baghelkhand.
- v. The Chotanagpur plateau marks the further eastward extension, drained by the Damodar River.

Q.18 What are the features of the Deccan plateau?

Ans. The features of the Deccan plateau are:

- i. The Deccan Plateau is a triangular landmass that lies to the south of the river Narmada.
- ii. The Satpura range is in the north while the Mahadev, the Kaimur hills and the Maikal range form its eastern extensions.

- iii. The Deccan Plateau is higher in the west and slopes gently eastwards. An extension of the Plateau is also visible in the northeast– locally known as the Meghalaya and Karbi-Anglong Plateau.
- iv. The **Western Ghats** and the **Eastern Ghats** mark the western and the eastern edges of the Deccan Plateau respectively.

Q.19 Differentiate between Eastern Ghats and Western Ghats. (Explain 5 features of the Ghats of the Deccan plateau)

Ans.	Western Ghats	Eastern Ghats
	<ul style="list-style-type: none"> i. Western Ghats lie parallel to the western coast. ii. They are continuous and can be crossed through passes only. iii. The Western Ghats are higher than the Eastern Ghats. Their average elevation is 900– 1600 metres iv. The highest peaks include the Anai Mudi (2,695metres) and the Doda Betta (2,637metres). 	<ul style="list-style-type: none"> i. Eastern Ghats lie parallel to the eastern coast. ii. They are discontinuous and are dissected by rivers draining into the Bay of Bengal. iii. The Eastern Ghats are lower than the Western Ghats. Their average elevation is 600 metres iv. Mahendragiri (1,501 metres) is the highest peak in the Eastern Ghats.

Q.20. What are the features of the peninsular plateau? (Describe about the formation of the Peninsular Plateau. Write any four of its distinct features.)

- Ans. The features of the peninsular plateau are:
- i. The Peninsular plateau is a tableland composed of the old crystalline, igneous and metamorphic rocks. It was formed due to the breaking and drifting of the Gondwana land and thus, making it a part of the oldest landmass. The plateau has broad and shallow valleys and rounded hills.
 - ii. One of the distinct features of the peninsular plateau is the black soil area known as Deccan Trap. This is of volcanic origin hence the rocks are igneous. Actually these rocks have denuded over time and are responsible for the formation of black soil.
 - iii. This plateau consists of two broad divisions, namely, the Central Highlands and the Deccan Plateau.
 - iv. The part of the peninsular plateau lying to the north of the Narmada River covering a major area of the Malwa plateau is known as the Central Highlands. The Deccan Plateau is a triangular landmass that lies to the south of the river Narmada. The Deccan plateau is higher in the west and slopes gently eastwards.

Q.21. What are the features of the Indian desert?

- Ans. The features of the Indian desert are:
- i. The Indian desert lies towards the western margins of the Aravali Hills.
 - ii. It is an undulating sandy plain covered with sand dunes called barchans

- iii. This region receives very low rainfall below 150 mm per year (15 cm) . It has arid climate with low vegetation cover.
- iv. Streams appear during the rainy season. Soon after they disappear into the sand as they do not have enough water to reach the sea. Luni is the only large river in this region.

Q.22. Write a short note on the coastal plains.

Ans. These are narrow coastal strips, running along the Arabian Sea on the west and the Bay of Bengal on the east.

- i) The Western Coastal Plain: It is sandwiched between the Western Ghats and the Arabian Sea, is a narrow plain. It consists of three sections. The northern part of the coast is called the Konkan (Mumbai – Goa), the central stretch is called the Kannad Plain while the southern stretch is referred to as the Malabar coast.
- ii) The Eastern Coastal Plain: The plain along the Bay of Bengal are wide and level. In the northern part, it is referred to as the Northern Circar, while the southern part is known as the Coromandal Coast. Large rivers such as the Mahanadi, the Godavari, the Krishna and the Kaveri have formed extensive delta on this coast. Lake Chilika is an important feature along the eastern coast.

Q.23. Write a short note on the island groups of India.

Ans. India has 2 main island groups, namely Lakshadweep and Andaman and Nicobar islands
Their main features are:

Lakshadweep islands:-

- i. This group of islands is composed of small coral islands.
- ii. Earlier they were known as Laccadive, Minicoy and Amindive. In 1973 these were named as Lakshadweep.
- iii. It covers a small area of 32 sq km. Kavaratti island is the administrative headquarters of Lakshadweep.
- iv. This island group has great diversity of flora and fauna. The Pitli island, which is uninhabited, has a bird sanctuary.

Andaman and Nicobar islands:-

- i. They are bigger in size and are more numerous and scattered. The entire group of islands is divided into two broad categories – The Andaman in the north and the Nicobar in the south.
- ii. It is believed that these islands are an elevated portion of submarine mountains.
- iii. These island groups are of great strategic importance for the country.
- iv. There is great diversity of flora and fauna in this group of islands too. These islands lie close to the equator and experience equatorial climate and have thick forest cover.

(Find the points of difference between these two islands)

Q.24. How are the physiographic divisions of India complimentary to each other?

Ans. the physiographic divisions of India contemporary to each other in the following ways:

- i. The northern mountains are the major sources of water and forest wealth.
- ii. The northern plains are the granaries of the country. They provide the base for early civilisations.

- iii. The plateau is a storehouse of minerals, which has played a crucial role in the industrialisation of the country.
- iv. The coastal region and island groups provide sites for fishing and port activities.

25. The diverse physical features of India are of immense value". Justify the statement by giving five suitable examples. (Same answer above)

Additional Questions:

1. What is a Peninsula ?
A landmass bounded by sea on three sides is referred to as Peninsula
2. Name the mountain ranges in the eastern part of India forming its boundary with Myanmar.- Purvanchal
3. Name the western coastal strip, south of Goa- Kannad Plain
4. Name the highest peak in the Eastern Ghats.-Mahendragiri
5. Which continents of today were part of the Gondwana land?
Asia, Australia, South Africa and South America
6. What are distributaries?
The rivers in their lower course split into numerous channels due to the deposition of silt. These channels are known as distributaries.
7. Which plateau lies between the Aravali and the Vindhyan ranges?
Malwa Plateau.
8. Name the island group of India having coral origin.
Lakshdweep islands.
9. "The Himalayas are known for some of the beautiful valleys and Duns." Explain.

Chapter 3- Drainage

1. **What is meant by a drainage basin?**

The area drained by a single river system is called a *drainage basin*.

2. **What is a water divide?**

Any elevated area, such as a mountain or upland, separates two drainage basins is known as a *water divide*.

3. **How are Indian rivers divided? / Distinguish between Himalayan and peninsular rivers.**

- i) Most of the Himalayan Rivers are perennial. It means that they have water throughout the year. These rivers receive water from rain as well as from melted snow from the lofty mountains where as a large number of the peninsular rivers are seasonal, as their flow is dependent on rainfall. During the dry season, even the large Peninsular rivers have reduced flow of water in their channels.
- ii) The Himalayan Rivers have cut through the mountains making gorges where as Peninsular rivers do not.
- iii) The Himalayan rivers have longer courses from their source to the sea compared to the Peninsular rivers.
- iv) The Himalayan rivers perform intensive erosional activity in their upper courses and carry huge loads of silt and sand where as peninsular rivers do not.
- v) In the middle and the lower courses, the Himalayan rivers form meanders, oxbow lakes, and many other depositional features in their floodplains where as peninsular rivers do not.
- vi) The Himalayan Rivers have well-developed deltas.

What are the features of the rivers originating from the Himalayas?-

(Select points from the above answer)

4. **What is a gorge?**

A gorge is a deep narrow channel created by flowing water.

5. **State any two depositional features of Himalayan Rivers.**

Ox bow lakes, meanders, riverine islands.

6. **What are the features of Indus river system?**

- a) The river Indus rises in Tibet, near Lake Mansarowar. Flowing west, it enters India in the Ladakh district of Jammu and Kashmir. It forms a picturesque gorge in this part.
- b) The Sutlej, the Beas, the Ravi, the Chenab and the Jhelum join together to enter the Indus near Mithankot in Pakistan. Beyond this, the Indus flows southwards eventually reaching the Arabian Sea, east of Karachi.
- c) With a total length of 2900 km, the Indus is one of the longest rivers of the world. A little over a third of the Indus basin is located in India in the states of Jammu and Kashmir, Himachal Pradesh and the Punjab and the rest is in Pakistan.

7. **What are the features of Ganga river system?**

- i) The headwaters of the Ganga, called the 'Bhagirathi' is fed by the Gangotri Glacier and joined by the Alaknanda at Devaprayag in Uttaranchal. At Haridwar the Ganga emerges from the mountains on to the plains.
- ii) The Ganga is joined by many tributaries from the Himalayas, a few of them being major rivers such as the Yamuna, the Ghaghara, the Gandak and the Kosi.
- iii) The main tributaries, which come from the peninsular uplands, are the Chambal, the Betwa and the Son. These rise from semi arid areas, have shorter courses and do not carry much water in them.
- iv) 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.
- v) The river bifurcates here; the Bhagirathi-Hooghly (a distributary) flows southwards through the deltaic plains to the Bay of Bengal. The mainstream flows southwards into Bangladesh and is joined by the Brahmaputra.
- f) Further downstream, it is known as the Meghna. This mighty river, with waters from the Ganga, and the Brahmaputra, flows into the Bay of Bengal.
- vi) The length of the Ganga is over 2500 km. The river develops large meanders

8. What are the features of the Brahmaputra river system?

- i) The Brahmaputra rises in Tibet east of Mansarowar Lake very close to the sources of the Indus and the Sutlej.
- ii) It is slightly longer than the Indus, and most of its course lies outside India.
- iii) It flows eastward parallel to the Himalayas. On reaching the Namcha Barwa, it takes a 'U' turn and enters India in Arunachal Pradesh through a gorge. Here, it is called the Dihang and it is joined by the Dibang, the Lohit, the Kenula and many other tributaries to form the Brahmaputra in Assam.
- iv) In Tibet the river carries a smaller volume of water and less silt as it is a cold and a dry area.
- v) In India it passes through a region of high rainfall. Here the river carries a large volume of water and considerable amount of silt.
- 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.

9. What are the features of river Narmada?

The Narmada rises in the Amarkantak hills in Madhya Pradesh. It flows towards the west in a rift valley formed due to faulting. On its way to the sea, the Narmada creates many picturesque locations. The 'Marble rocks', near Jabalpur where the Narmada flows through a deep gorge, and the 'Dhuadhar falls' where the river plunges over steep rocks, are some of the notable ones. All the tributaries of the Narmada are very short and most of these join the main stream at right angles. The Narmada basin covers parts of Madhya Pradesh and Gujarat.

10. What are the features of river Tapi?

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

11. What are the features of River Godavari?

The Godavari is the largest Peninsular River. It rises from the slopes of the Western Ghats in the Nasik district of Maharashtra.

Its length is about 1500 km.

It drains into the Bay of Bengal. Its drainage basin is also the largest among the peninsular rivers. The basin covers parts of Maharashtra Madhya Pradesh, Orissa and Andhra Pradesh.

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

Because of its length and the area it covers, it is also known as the 'Dakshin Ganga'.

12. What are the features of River Mahanadi?

The Mahanadi rises in the highlands of Chhattisgarh. It flows through Orissa to reach the Bay of Bengal. The length of the river is about 860 km. Its drainage basin is shared by Maharashtra, Chhattisgarh, Jharkhand, and Orissa.

13. What are the features of River Krishna?

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

14. What are the features of River Kaveri?

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. Total length of the river is about 760 km. Its main tributaries are Amravati, Bhavani, Hemavati and Kabini. Its basin drains parts of Karnataka, Kerala and Tamil Nadu.

15. How do lakes differ from each other?

Lakes differ from each other in the 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-arid regions. There are some of the lakes which are the result of the action of glaciers and ice sheets, while the others have been formed by wind, river action, and human activities. Wular lake in Jammu & Kashmir is the result of tectonic activity. It is the largest fresh water lake in India.

16. What are the uses of lakes?

- i) Lakes are of great value to human beings. A lake helps to regulate the flow of a river. During heavy rainfall, it prevents flooding and during the dry season, it helps to maintain an even flow of water.
- ii) Lakes can also be used for developing hydel power. Guru Gobind Sagar (Bhakra Nangal Project) is a lake formed by damming of a river for generating hydel power.
- iii) They moderate the climate of the surroundings; maintain the aquatic ecosystem, enhance natural beauty, help develop tourism and provide recreation.

17. How is an ox-bow lake formed?

A meandering river across a flood plain forms cut-offs that later develops in to ox-bow lakes.

18. What is the role of rivers in the economy? (Economic benefit of rivers)

- i) Rivers have been of fundamental importance throughout the human history. Water from the rivers is a basic natural resource, essential for various human activities.
- ii) The river banks have attracted settlers from ancient times. These settlements have now become big cities.
- iii) Using rivers for irrigation, navigation, hydro-power generation is of special significance – particularly to a country like India, where agriculture is the major source of livelihood of the majority of its population.

19. How do rivers get polluted?

- a) The growing domestic, municipal, industrial and agricultural demand for water from rivers naturally affects the quality of water.
- b) As a result, more and more water is being drained out of the rivers reducing their volume. On the other hand, a heavy load of untreated sewage and industrial effluents are emptied into the rivers. This affects not only the quality of water but also the self-cleansing capacity of the river.
- c) But the increasing urbanisation and industrialisation do not allow it to happen and the pollution level of many rivers has been rising.
- d) Concern over rising pollution in our rivers led to the launching of various action plans to clean the rivers

20. Differentiate between the salient features of the East flowing rivers and the West flowing rivers of peninsular India.

21. Name the largest inhabited riverine island in the Brahmaputra River.

22. Describe the following drainage patterns of streams: (i) Radial (ii) Dendritic (iii) Trellis

Suggestions if any: ennem56@gmail.com