

3. Physiology and Drainage

1. Complete the sentences by choosing the right option:

(a) Brazil is covered mainly by

(i) Highlands.

(ii) Plains.

(iii) Mountainous region.

(iv) Dissected hills.

(b) Like Brazil, India too has

(i) high mountains.

(ii) ancient plateau.

(iii) west-flowing rivers.

(iv) snow-capped mountains.

(c) The Amazon Basin is mainly

(i) characterized by drought.

(ii) filled by swamps.

(iii) covered by dense forests.

(iv) fertile.

(d) Amazon is a large river in the world Near its mouth

(i) deltaic regions are found.

(ii) no deltas are found.

(iii) deposition of sediments occurs.

(iv) fishing is done.

(e) The Lakshadweep Islands of Arabian Sea are

(i) made from the part separated from the mainland.

(ii) coral islands.

(iii) volcanic islands.

(iv) continental islands

(f) To the foot hills of The Aravalis

(i) lies the Bundelkhand Plateau.

(ii) lies the Mewar Plateau.

(iii) lies the Malwa Plateau.

(iv) lies the Deccan Plateau.

Q. 2 Answer the following questions.

a) Differentiate between the physiography of Brazil and India.

Ans. The physiography of Brazil and India can be differentiated with the help of the following points:

- (1) The physiography of Brazil is divided into the Highlands, the Great Escarpment, the Coastal region the Plains and the Island groups. The physiography of India is divided into the Himalayas, the North Indian Plains, the Peninsula, the Coastal Plains and the Island groups.
- (2) There are no high and long extending mountains in Brazil. On the other hand, there are many high and long extending mountains in India.
- (3) The Himalayas mountain range extends in the northern part of India. Similarly, the mountainous region of Western Ghats is in the west and the mountainous region of Eastern Ghats is in the east of the peninsular region of India.
- (4) The highest range of altitude is 500 metres to 1000 metres in Brazil. On the other hand, the highest range of altitude is 6000 metres to 8000 metres in India.
- (5) The western part of the North Indian plains is occupied by desert. On the other hand, no such hot desert area lies in Brazil.
- (6) Many wide plains are located in the north and in the coastal areas in India. On the other hand, there are no wide plains in Brazil.
- (7) At many places, there are regions of backwaters in India. On the other hand, there are no such regions in Brazil.
- (8) The Great Escarpment is located in the northeast part of Brazil. This Great Escarpment demarcates the eastern side of the Brazilian Highlands. On the other hand, no such escarpments are located in India.

(b) What measures are being taken to control pollution in the rivers of India?

Ans. The following measures are being taken to control pollution in the rivers of India :

- (1) Controlling the discharge of human sewage into rivers.
- (2) Applying sufficient and appropriate pre treatment to the industrial effluent/waste before being discharged to the sewers.
- (3) Displaying hoardings informing tourists not to pollute water of rivers and highlighting the importance of cleanliness.
- (4) Removing solid waste from rivers and applying other river cleaning processes.

(c) Explain the characteristics of the North Indian Plains.

Ans. The characteristics of the North Indian

Plains are as follows:

- (1) A flat low-lying area is located in the north of India. This region is known as the North Indian Plains.
- (2) The North Indian Plains lie between Himalayan Mountain in the north and the Peninsula in the south. It extends from the states of Rajasthan and Punjab in the west to Assam in the east.
- (3) The North Indian Plains are divided into three parts.

- (4) The low-lying area to the east of the Aravalis is known as Ganga plains. It slopes to the east.
- (5) The delta of Ganga-Brahmaputra rivers extends in the state of West Bengal in India and Bangladesh. This region is known as Sunderbans. Sunderbans is the largest delta region in the world.
- (6) The western part of the North Indian Plains is occupied by desert. It is known as Thar Desert or Marusthali. The state of Rajasthan is occupied by Thar Desert
- (7) The Plains of Punjab lies to the north of Thar Desert. It is located to the west of Aravalis and Delhi ranges.
- (8) The Plains of Punjab slopes to the west. It has very fertile soil and therefore, agriculture is highly developed in this region.

(d) What could be the reasons behind the formation of swamps in the extensive continental location of Pantanal?

Ans. The following could be the reason behind the formation of swamps in the extensive continental location of Pantanal :

- (1) Paraguay river and its tributaries flow from the Pantanal region.
- (2) Pantanal receives runoff from the Brazilian Highlands.
- (3) The sediments brought by Paraguay river and its tributaries get deposited in the low lying Pantanal region.
- (4) The sediments and erosion residues as well as water remains filled throughout the years in Pantanal region leading to formation of swamps.

(e) Which are the major water divides of India giving examples?

Ans. The major water divides of India are as follows:

- (1) Himalayas, Aravali range, Vindhya range, Satpura range, Western Ghats are the major water divides of India.
- (2) For example, Western Ghats separates the west flowing rivers meeting the Arabian Sea from the east flowing rivers meeting the Bay of Bengal.
- (3) For example, Vindhya range separates the Ganga drainage basin and Narmada drainage basin.
- (4) For example, Himalayas separates the rivers flowing in Himalayan system from the rivers flowing in Trans Himalayan range.

Q. 3 Write note on

(a) Amazon river basin.

Ans. (1) Amazon river basin is the largest plain land of Brazil. It lies in the northern part of Brazil.

The slope of Amazon river basin is to the east.

- (2) The width of Amazon river basin is the maximum, i.e. nearly 1300 km in the west. Its width is the minimum, i.e. 240 km where the Guiana Highlands and Brazilian Highlands come

closer.

(3) As the Amazon river approaches the Atlantic Ocean, the width of Amazon river basin/plains increases.

(4) Amazon river basin/plains is covered by the evergreen tropical rainforests. Most of the area of Amazon river basin is inaccessible due to dense undergrowth and frequent flooding.

(b) Himalayas.

Ans. (1) Himalayas is one of the young fold mountains in the world. It extends from Pamir Knot in Tajikistan in the west to the east. Himalayas is one of the major mountain systems of the continent of Asia.

(2) In India, Himalayas extends from Jammu and Kashmir in the north to Arunachal Pradesh in the northeast. Himalayas as well as many other parallel mountain ranges get included in Himalayas mountain system. Shivalik is the southernmost mountain range of Himalayas. It is the youngest mountain range of Himalayas.

(3) As we move from Shivalik range in the south to the north, we come across Lesser Himalayas,

Greater Himalayas and Trans Himalayan ranges

Respectively. These ranges are young to old respectively.

(4) The Himalayan mountain ranges can also be divided from the west to the east into Western Himalayas (or Kashmir Himalaya), Central Himalaya (or Kumaun Himalayas) and Eastern Himalaya (Assam Himalayas.)

(c) The coasts of Brazil.

Ans. (1) The coastline of Brazil extends for approximately 7400 km. It is divided into the northern coast and the eastern coast.

(2) The coast extending from Amapa province in the north to Rio Grande do Norte is known as the northern coast/North Atlantic coast. The coast extending from Rio Grande do Norte to the south is known as the eastern coast/South Atlantic coast.

(3) Northern coast is a low-lying region as Amazon and its many tributaries flow to the northern coast and meet North Atlantic Ocean. Marajo island, Marajo and Sao Marcos Bays lie on this coast.

Marajo coastal island lying on the northern coast is located between the mouth of River Amazon and River Tocantins.

(4) Many small rivers flow to the eastern coast and meet South Atlantic Ocean. Sao Francisco is the only major river meeting the South Atlantic Ocean in this region. Many beaches and sand dune complexes lie on the eastern coast of Brazil. In some areas, the eastern coast of Brazil is protected by coral reefs and atoll islands.

(d) The Indian peninsula.

Ans. (1) The Indian peninsula lies to the south of North Indian Plains. This region tapers towards the Indian Ocean.

(2) Many plateaus and hill ranges are included in the Indian peninsula. The Aravalis range is located in the north of the Indian peninsula. It is the oldest mountain range in the Indian peninsula.

(3) The Indian peninsula also includes a series of plateaus bordering the Plains. Maharashtra

Plateau, Karnataka-Telangana Plateau, Chotanagpur Plateau, etc. are the main plateaus in this region.

(4) Vindhya and Satpura ranges are located in the central part of the Indian peninsula. It also includes mountainous/hilly regions of the Western Ghats in the west and the Eastern Ghats in the east.

(e) The Great Escarpment.

Ans. (1) The Great Escarpment is the smallest physiographic region of Brazil. From Sao Paulo to Porto Alegre, the height of Brazilian Highlands/ Plateau decreases remarkably leading to the formation of the Great Escarpment. The Great Escarpment demarcates the eastern side of the Brazilian Highlands/Plateau.

(2) The altitude of Brazilian Highlands is approximately 790 m in the region of the Great Escarpment. In other regions, its height decreases gradually.

(3) The nature and the slope of the Great Escarpment affects the climatic conditions of Brazil. It acts as a barrier to the southeast Trade winds.

(4) The Great Escarpment leads to heavy rains in the Brazilian coastal areas and it also gives rise to the rain shadow area to the northeast of the Brazilian Highlands. This rain shadow area is known as Drought Quadrilateral'.

Q. 4 write geographical reasons.

(a) There are no west-flowing rivers in Brazil.

Ans. (1) Most of the rivers in Brazil originate from the Brazilian Highlands,

(2) The altitude of Brazilian Highlands gradually decreases from the south to the north and from the west to the east. As its effect, most of the rivers in Brazil flow towards the northern and eastern direction.

(3) The rivers flowing towards northern direction meet the North Atlantic Ocean and the rivers flowing towards eastern direction meet the South Atlantic Ocean. Thus, there are no west flowing rivers in Brazil.

(b) There are dissimilarities between the eastern coast and the western coasts of India.

Ans. (1) At places, spurs taking off from the Western Ghats have extended right up to the western coast. As its effect, the western coast is rocky in nature.

(2) The width of the western coast is comparatively less. Westward flowing rivers meeting the Arabian Sea form estuaries and not deltas on the western coast.

(3) On the other hand, the eastern coast of India is formed due to the depositional work of rivers.

The width of the eastern coast is comparatively more. Most of the eastward flowing rivers meeting the Bay of Bengal form deltas on the eastern coast.

Thus, there are dissimilarities between the eastern coast and the western coast of India.

(c) There are fewer natural ports on the eastern coast of India.

Ans. (1) The eastern coast of India is formed due to the depositional work of eastward flowing rivers meeting the Bay of Bengal.

(2) Most of the western coast of India is a coast of submergence. On the other hand, eastern coast of India is a coast of emergence. As its effect, the sea is deeper in the west than the sea on the eastern coast.

(3) Westward flowing rivers meeting the Arabian Sea form estuaries at many places on the western coast. On the other hand, eastward flowing rivers meeting the Bay of Bengal form deltas at many places on the eastern coast. As its effect, it becomes difficult for ships to reach the east coast covered with sediments. Therefore, there are fewer natural ports on the eastern coast of India.

(d) As compared to Amazon, pollution in river Ganga will affect human life greatly.

Ans. (1) The density of population in the Amazon river basin is comparatively low.

(2) The number of industries is also limited in this region. As its effect, the level of water pollution of Amazon river is comparatively low.

(3) The density of population in the Ganga river basin is comparatively high. Many industries have flourished in the Ganga river basin leading to increased water pollution. Therefore, as compared to Amazon, pollution in river Ganga will affect human life greatly.

Q.5 Identify the correct group.

(a) The order of physiographic units in Brazil while going from Northwest to Southeast :

(i) Parana river basin - Guiana Highlands - Brazilian Highlands

(ii) Guiana Highlands - Amazon river basin - Brazilian Highlands

(iii) Coastal plains - Amazon river basin - Brazilian Highlands

(b) These rivers of Brazil are north flowing:

(i) Juruika - Xingu - Aragua

(ii) Negro - Branco - Paru

(iii) Japura - Jarua - Purus

(c) The order of plateaus of India from south to north :

(i) Karnataka - Maharashtra - Bundelkhand

(ii) Chota Nagpur - Malwa - Marwad

(iii) Telangana - Maharashtra - Marwadi