TEACHER'S HANDBOOK

STELLAR LEARNING

GEOGRAPHY

9

On Board! BOOKS

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India – Size and Location

Check Your Progress

Multiple-Choice Questions

1. The latitudinal extent of India is between
(a) 8°4′ North and 37°6′ North.
(b) 8°2′ North and 37°4′ North.
(c) 6°45′ North and 37°6′ North.
(d) 8°6′ North and 37°8′ North.

Ans. (a) 8°4′ North and 37°6′ North.

2. How much of the total geographical area of the world does India occupy?
(a) 32.8 per cent (b) 2.5 per cent
(c) 2.4 per cent (d) 10.0 per cent

Ans. (c) 2.4 per cent

3. Choose the correctly matched pair.
(a) Northwest – Pakistan
(b) North – Afghanistan
(c) East – Nepal
(d) South – Bhutan

Ans. (a) Northwest – Pakistan

4. Read the given statements and choose the correct option with regard to India's geographical features from the following.
I. India's east-west extent is more than its north-south extent.
II. India is bounded by the young fold mountains in the northwest, north and northeast.
III. South of about 22° north latitude, it begins to taper, and extends towards the Indian Ocean, dividing it into two seas.
IV. The Arabian Sea on the west and the Bay of Bengal on its east.

Options:
(a) I, II and III
(b) I, II and IV
(c) I, III and IV
(d) II, III and IV

Ans. (d) II, III and IV

5. Identify the canal with the help of the following information and choose the correct option.
- This canal was opened in the year 1869.
- With the help of this canal India is connected with Europe.
- Since its opening India's distance from Europe has been reduced by 7,000 km.
- It has reduced travel time between India and Europe.

Options:
(a) Panama Canal
(b) Grand Canal
(c) Suez Canal
(d) Corinth Canal

Ans. (c) Suez Canal

6. Read the given statements and choose the correct option with regard to location of India from the following.
I. India lies entirely in the Northern hemisphere.
II. The mainland extends between latitudes 8°4′ N and 37°6′ N and longitudes 68°7′ E and 97°25′ E.
III. The Tropic of Cancer (23° 30′ N) divides the country into almost two equal parts.
IV. To the northeast and northwest of the mainland lie the Andaman and Nicobar islands and the Lakshadweep islands.

Options:
(a) I, II and IV
(b) I, II and III
(c) I, III and IV
(d) II, III and IV

Ans: (b) I, II and III

7. Choose the correctly matched pair.

(a) Landmass area of India – 3.28 million square km

(b) Land boundary – 7,516 km

(c) Total length of coastline – 15,200 km

(d) Largest – 5th largest country

Ans: (a) Landmass area of India – 3.28 million square km

Very Short Answer Type Questions

8. What is the size of India ranked among the countries of the world? Comment on India's size.

Ans. India's total area accounts for about 2.4 per cent of the total geographical area of the world and 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.

9. What is the name given to the group of islands situated in the Bay of Bengal? Which nation is nearest to it?

Ans. Andaman and Nicobar Islands are situated in the Bay of Bengal. Myanmar is the nearest nation to this island group.

10. Identify the two water bodies that separate India from Sri Lanka. What can we infer about India's proximity to Sri Lanka from the presence of these two water bodies?

Ans. Sri Lanka is separated from India by a narrow channel of sea formed by the Palk Strait and the Gulf of Mannar.

11. What is the time difference between Gujarat and Arunachal Pradesh? How does one calculate it?

Ans. The time difference between Gujarat and Arunachal Pradesh is two hours. The Standard Meridian of India, located at 82°30′ E, passing through Mirzapur in Uttar Pradesh, is taken as the standard time reference for the entire nation. The variation in latitude affects the length of day and night as one travels from the southern to the northern regions.

12. Name the two island countries which are India's neighbours. Which water bodies surround them?

Ans. India's southern neighbours across the sea consist of the two island countries, namely Sri Lanka and Maldives. The Indian Ocean, the Gulf of Mannar, the Palk Strait, and the Laccadive Sea surrounds Sri Lanka and the Maldives.

13. What is the name of the southernmost point of India? Why is it not visible today? Substantiate your answer with any two reasons.

Ans. The southernmost point of India is Indira Point, located in the Great Nicobar Island in the Andaman and Nicobar Islands. Indira Point is not visible today because it was submerged underwater due to the 2004 Tsunami.

Short Answer Type Questions

14. State the latitudinal extent of India. What does it imply?

Ans. The latitudinal extent of India is 8°4′ N to 37°6′ N. This latitudinal extent tends to influence the duration of day and night. The duration of day and night changes as one moves from north to south. The latitudinal and longitudinal extent of our country is almost same in degrees, i.e. about 30°.

15. Why was 82°30′ East selected to be the Standard Meridian of India?

Ans. We know that the sun rises in the east and sets in the west. In this way, the sun rises two hours earlier in Gujarat as compared to Arunachal Pradesh. It means that sun takes approximately 4 minutes to move across one longitude. There is a time difference of minutes in every longitude. As a result, the eastern most point of India would be 2 hours ahead of the western most point (30 × 4 = 120 minutes), in accordance with the local time. Therefore, each country has selected a central meridian. The local time of this meridian is the standard time of that country. In India, a longitude passing through the midpoint of 68°7′ East (western most longitude) and 97°25′ East (eastern most longitude) is taken as the standard prime meridian of India (i.e., 82°30′). If this standard meridian wouldn't have been there, all the regions of India would have different time zones. This would have created problems in bringing a uniform time zone in our country.

16. The Tropic of Cancer cuts half-way through India. State its implications.

Ans. The Tropic of Cancer cuts India into two equal parts, Northern India and Southern India. Northern India experiences continental climate. This means that summers in Northern India are very hot and winters are very cold. Southern India experiences maritime climate that is moderate. Also, the day and night difference exists because of this divide.

17. 'India has had strong geographical and historical links with her neighbours.' Justify the statement.

Ans. (i) India shares land boundaries with Pakistan, China, Nepal, Bhutan, Myanmar and Bangladesh, facilitating cultural and economic exchange.

(ii) India is connected to Sri Lanka and Maldives through narrow sea channels, promoting maritime trade and cultural ties.

(iii) India's strategic location in South Asia has fostered historical links with its neighbours, shaping shared cultural heritage, political relationships, and economic partnerships.

18. What is the reason behind naming the Indian Ocean after the country India? Substantiate your answer with any three reasons.

Ans. (i) India has a long coastline along the Indian Ocean, with the Arabian Sea and Bay of Bengal bordering its western and eastern sides.

(ii) India's central location at the head of the Indian Ocean makes it a crucial hub for trade and navigation.

(iii) No other country has a longer coastline along the Indian Ocean, making India's connection to the ocean unique and significant.

Long Answer Type Question

19. Highlight the strategic importance of the geographical location of India. Write in points.

Ans. India's central location has helped the country in a number of ways, namely:

(a) India is located between East and West Asia. Because of India's location it has a strategic advantage over both water and land.

(b) Since India stands at the head of the Indian Ocean, it commands trade routes running in all directions.

(c) Sea routes and the land routes have proved to be a huge passage between India and the world to exchange ideas and commodities.

(d) Since the location of India is central, it has a moderate temperature which is neither too hot nor too cold.

(e) Tropic of Cancer passes through India. As a result, India is divided into two equal parts. While in the southern part, i.e. the peninsular India falls in the tropical zone, the northern half lies in the sub-tropical zone or warm temperate zone.

20. How has India's connectivity with the world evolved over time? Substantiate your answer with examples.

Ans.
- India's relationships through land routes are older than her maritime contacts. Mountain passes in the north facilitated ancient travel and exchange of ideas and commodities.
- Indian ideas from the Upanishads and the Ramayana, and knowledge of numerals spread globally, while knowledge of Greek sculpture and West Asian architectural styles influenced Indian art and architecture.
- Indian spices, muslin, and merchandise were traded internationally. These exchanges showcase India's significant cultural and commercial interactions with the world through land routes, predating its maritime connections.
- This rich history has shaped India's diverse cultural heritage and continues to influence its global relationships.

21. What are the geographical boundaries and dimensions of India, and how does its location in the Northern hemisphere influence its landscape and coastline?

Ans.
- India is located in the Northern hemisphere, bounded by latitudes 8°4′ N and 37°6′ N, and longitudes 68°7′ E and 97°25′ E.
- It spans 3,214 km from north to south and 2,933 km from east to west, forming a peninsula that tapers into the Indian Ocean.
- With a land area of 3.28 million sq km, India accounts for 2.4% of the world's total area, making it the seventh largest country globally.
- Its diverse landscape and 7,516.6 km coastline, including the Andaman and Nicobar and Lakshadweep islands, are influenced by its unique location, which borders the Arabian Sea and Bay of Bengal.

Self-Assessment

Multiple-Choice Questions

1. Which of these island groups do not form a part of India?

(a) Daman and Diu (b) Andaman and Nicobar
(c) Maldives (d) Lakshadweep

Ans. (c) Maldives

2. Name the place situated at the meeting point of three seas.

(a) Kolkata (b) Lakshadweep
(c) Kanniyakumari (d) Mumbai

Ans. (c) Kanniyakumari

3. In which of the following Union Territories does Kavaratti lie?

(a) Puducherry (b) Lakshadweep
(c) Andaman and Nicobar (d) Daman and Diu

Ans. (b) Lakshadweep

4. Identify the country with the help of following information and choose the correct option.
- This country is our southern neighbour.
- It is separated from India by a narrow channel of sea.
- The names are Palk Strait and Gulf of Mannar.

- Buddhism is followed by a large segment of its population.

Options:

(a) Maldives (b) Sri Lanka
(c) Bangladesh (d) Myanmar

Ans. (b) Sri Lanka

5. Read the given statements and choose the correct option with regard to India's contact with the world.

I. The various passes across the mountains in the north have provided passages to the ancient travellers, while the oceans route was also open for a long time.
II. These routes have contributed to the exchange of ideas and commodities since ancient times.
III. 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.
IV. The spices, muslin and other merchandise were taken from India to different countries.

Options:

(a) I, II and III
(b) I, II and IV
(c) I, III and IV
(d) II, III and IV

Ans: (d) II, III and IV

Assertion-Reason Type Questions

For question numbers 6 to 12, two statements are given as Assertion (A) and Reason (R). Read the statements and choose the correct option.

Options:

(a) Both A and R are true and R is the correct explanation of A.
(b) Both A and R are true but R is not the correct explanation of A.
(c) A is true but R is false.
(d) A is false but R is true.

6. Assertion (A): India is a vast country.

Reason (R): The main land extends between latitudes 8°4′ N and 37°6′ N and longitudes 68°7′ E and 97°25′ E.

Ans. (a) Both A and R are true and R is the correct explanation of A.

7. Assertion (A): The land mass of India has an area of 3.28 million square km.

Reason (R): India's total area accounts for about 4.2 per cent of the total geographical area of the world.

Ans. (c) A is true but R is false.

8. Assertion (A): From Gujarat to Arunachal Pradesh, there is a time lag of three hours.

Reason (R): The time along the Standard Meridian of India (82°30′ E) passing through Mirzapur (in Uttar Pradesh) is taken as the standard time for the whole country.

Ans. (d) A is false but R is true.

9. Assertion (A): The Standard Meridian of India passes through Mirzapur in Uttar Pradesh.

Reason (R): The time along this meridian is taken as the standard time for the whole country.

Ans. (b) Both A and R are true but R is not the correct explanation of A.

10. Assertion (A): India has contributed significantly to world history.

Reason (R): India has made remarkable progress in agriculture, industry, technology, and economic development in the last five decades.

Ans. (b) Both A and R are true but R is not the correct explanation of A.

11. Assertion (A): India's contacts with the world have continued through ages.

Reason (R): India's maritime contacts are older than those through land routes.

Ans. (c) A is true but R is false.

12. Assertion (A): The passes across the mountains in the north have contributed to the exchange of ideas and commodities.

Reason (R): The oceans facilitated interaction between India and the world in ancient times.

Ans. (c) A is true but R is false.

Match the Following

13. Match the following items given in Column A with those in Column B. Choose the correct answer from the options given below:

Column A	Column B
A. East–West Extent	1. 15,200 km
B. North–South Extent	2. 7,516.6 km
C. Length of the Coastline	3. 3,214 km
D. Land boundary of India	4. 2,933 km

Codes:

	A	B	C	D
(a)	3	4	2	1
(b)	2	4	1	3
(c)	4	3	2	1
(d)	1	3	2	4

Ans. (c) 4 3 2 1

Find the Correct Sequence

14. Arrange the following countries in ascending order of their areas.

(a) Brazil, India, USA, Russia

(b) India, Brazil, USA, Russia

(c) Russia, Brazil, India, USA

(d) Russia, USA, Brazil, India

Ans. (b) India, Brazil, USA, Russia

Find the Incorrect Option

15. (a) Before 1947, there were two types of states in India – the provinces and the princely states.

(b) India has 28 states and 8 Union Territories.

(c) The latitudinal and longitudinal extent of the Indian mainland is about 25°.

(d) The total length of the coastline of the mainland, including Andaman and Nicobar and Lakshadweep, is 7,516.6 km.

Ans. (c) The latitudinal and longitudinal extent of the Indian mainland is about 25°.

Fill in the Blanks

16. India's neighbours with common land boundaries are **Pakistan** and **Afghanistan** in the north west.

17. The ancient travellers took the **land** routes which were through the mountain passes.

18. The Indian land mass is centrally located between the east and the **West** Asia.

Very Short Answer Type Questions

19. Name the northernmost latitude of India.

Ans. 37°6′ North is the northernmost latitude of India.

20. What is the total latitudinal and longitudinal extent of India's mainland?

Ans. The geographical extents of India are:

(a) Latitude - 8°4' N to 37°6' N

(b) Longitude - 68°7' E to 98°25' N

21. 'India has also contributed significantly to the making of world history.' Do you agree with this statement? Substantiate your position with any two reasons.

Ans. India's contributions to world history include:

- Achieving remarkable progress in agriculture, industry, technology, and economic development over the last five decades.
- Displaying multi-faceted socioeconomic progress, making a significant impact on global advancements.

22. What makes India a crucial link between East and West Asia? Substantiate your answer with any two reasons.

Ans: India's central location makes it a crucial link between East and West Asia because it connects the two regions physically and facilitates trade and cultural exchange. Its long coastline facilitates connections with countries in Africa, Europe, and Southeast Asia.

23. Why was a specific longitude (82°30′ E) chosen as the standard reference point for time in India? Substantiate your answer with any two reasons.

Ans. A specific longitude (82°30′ E) was chosen as India's standard reference point for time because:

(i) It approximately passes through the centre of the country.

(ii) It provides a convenient reference point for timekeeping and geographical measurements across the nation.

24. How have mountain passes been helpful in India since historic times? Give two reasons.

Ans. Mountain passes have been helpful to India:

(i) Provide passages allowed ancient travellers to travel to and from India, facilitating the exchange of ideas and cultures.

(ii) Enabled the trade of Indian commodities such as spices, muslin, and other merchandise to different countries.

25. What is the reason behind the nearly equal duration of daylight and darkness throughout the year in Kanniyakumari?

Ans. Kanniyakumari, situated at India's southernmost tip in Tamil Nadu, lies close to the equator at a latitude of 8°4′ N, resulting in minimal variation in the length of day and night.

Short Answer Type Questions

26. Explain how a long coastline is beneficial for India.

Ans. Advantages of having a long coastline are as follows:

(a) Since India has a long coastline, it means it has more ports for its ships. This helps in an easier connectivity with the neighbouring countries. Also, the trade with other countries become easy.

(b) The longer coastline provides more water for fisheries. This helps in the development and growth of marine industry of the country.

(c) Indian fisheries in turn benefits ancillary activities such as boat building, plant processing, etc.

(d) Such a large water resource helps in moderating the climate of the country. It helps to moderate the temperature range of coastal areas through the phenomena like land breeze and sea breeze.

27. Write three main points about how India has contributed in the making of world history.

Ans. India has contributed towards world history in a number of ways. These have been discussed as follows:

(a) India had trade relations with other countries through land routes. These land routes are older than the maritime ones.

(d) Through these routes, the ideas of Ramayana and Upanishads reached various parts of the world.

(c) India gave the decimal system to the world.

28. 'India is a vast country'. Support the statement with suitable examples.

Ans. India lies entirely in the Northern hemisphere. The main land extends between latitudes 8°4′ N and 37°6′ N and longitudes 68°7′ E and 97°25′ E. The Tropic of Cancer divides India into almost two equal parts. To the southwest and southeast of the mainland, lie the Lakshadweep islands and Andaman and Nicobar Islands in Arabian Sea and Bay of Bengal respectively. The total land area of India is 3.28 million square km. India's total area accounts for about 2.4 per cent of the total geographical area of the world.

29. 'India has had strong geographical and historical links with her neighbours'. Support the statement with suitable examples.

Ans. India has a strong geographical and historical link with neighbours because Indian subcontinent is centrally located between east and west Asia. Asian continent connects India through mountain passes and different land routes. India shares its land boundaries with Pakistan and Afghanistan in the north-west, China, Nepal and Bhutan in the north, Bangladesh and Myanmar in the east and Sri Lanka and Maldives in the south.

30. What is the extent of India's land mass and its ranking in terms of size globally?

Ans.
- India's land mass covers an area of 3.28 million square km.
- It accounts for 2.4 per cent of the world's geographical area.
- India is the seventh largest country globally, with a land boundary of 15,200 km and a coastline of 7,516.6 km.

Paragraph Based Questions

31. Read the sources given below and answer the questions that follow:

Source A – Size

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.

(a) What is the total length of the coastline of the mainland of India?

Source B – India's Neighbours

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.

(b) Name the country that shares the longest border with India.

Source C – Location

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.

(c) In which of these Islands India's southernmost point is located?

Ans. (a) The total length of the coastline of the mainland, including Andaman and Nicobar and Lakshadweep, is 7,516.6 km.

(b) Bangladesh shares the longest border with India.

(c) Indira Point is the southernmost point of India. It is located in the Andaman and Nicobar islands.

Case Based Questions

32. The Indian landmass has a central location between the East and the West Asia. India is a southward extension of the Asian continent. 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. 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. 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. India's relationships with the rest of the world through the land routes are much older than her maritime contacts. 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. 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. 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.

32.1 What were the items of trading that India sent to the outside world?

Ans. The spices, muslin and other merchandise were taken from India to different countries.

32.2 How has India's location helped it?

Ans. 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.

32.3 What makes India a strategically blessed country?

Ans. The Indian landmass has a central location between the East and the West Asia. India is a southward extension of the Asian continent. 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.

33. India occupies an important strategic position in South Asia. India has 28 states and 8 Union Territories. 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. Our southern neighbours across the sea consist of the two island countries, namely Sri Lanka and Maldives. 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. India has had strong geographical and historical links with her neighbours.

33.1 Explain how India has strong geographical and historical links with its neighbours.

Ans. 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.

33.2 Name any two countries in South Asia besides India.

Ans. South Asia includes Bangladesh, Bhutan, India, Pakistan, Nepal, Maldives and Sri Lanka.

33.3 Sri Lanka is separated from India by a narrow channel of sea formed by which two water bodies?

Ans. Sri Lanka is separated from India by a narrow channel of sea formed by the Palk Strait and the Gulf of Mannar.

34. India's contacts with the world have continued through ages but her relationships through the land routes are much older than her maritime contacts. 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. 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. 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.

34.1 In context to this passage, write about the importance of land routes in ancient times.

Ans. Land routes were helpful in establishing and maintaining trade relationships across the world. In ancient times it was easier to establish contacts with foreign countries through land routes in comparison to sea routes. These routes have contributed in the exchange of ideas and commodities since ancient times.

34.2 Land routes helped in the propagation of which ideas throughout the world? Explain.

Ans. The ideas of the Upanishads and the Ramayana, the stories of Panchtantra, the Indian numerals and the decimal system reached many parts of the world through land routes. 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. Land routes have played an important role in exchange of ideas throughout the world.

34.3 Do you think that land routes were easy to travel in ancient times?

Ans. No, land routes were not easy to travel in ancient times because there were no proper roads and means of transportation.

35. India is surrounded by the young fold mountains called the Himalayas in the northwest, north and northeast. South of about 22° north latitude, it begins to taper, and spreads towards the Indian Ocean, dividing it into two seas: the Arabian Sea on the west and the Bay of Bengal on its east. The latitudinal and longitudinal extent of the mainland is about 30°. However, the east-west extent appears to be smaller than the north-south extent.

Between Gujarat and Arunachal Pradesh, there is a time difference of two hours. Hence, time along the Standard Meridian of India (82°30' E) passing through Mirzapur (in Uttar Pradesh) has been chosen as the standard time for the whole country. The latitudinal extent affects the duration of day and night, as one moves from south to north.

35.1 How do India's geographical boundaries influence its climate and culture?

Ans. India's geographical boundaries, including the young fold mountains in the northwest, north, and northeast, influence its climate and culture by creating diverse regions with unique weather patterns, vegetation, and cultural practices.

35.2 Why does India's east-west extent appear smaller than its north-south extent?

Ans. India's east-west extent appears smaller than its north-south extent due to the country's tapering shape, which narrows as it extends towards the Indian Ocean, creating a larger north-south distance.

35.3 What is the significance of the Indian Ocean in shaping India's geography, climate, and culture?

Ans. The Indian Ocean plays a crucial role in shaping India's geography, climate, and culture by regulating weather patterns, facilitating trade and cultural exchange, and influencing the country's coastal regions and marine ecosystems.

36. India shares its land boundaries with some other countries of south-east Asia such as Pakistan and Afghanistan in the northwest, China (Tibet), Nepal and Bhutan in the north and Myanmar and Bangladesh in the east. Its neighbours across the sea are the two island countries, namely Sri Lanka and the Maldives. Sri Lanka, its southern neighbour, is separated from it 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.

The Maldives are situated in the Indian Ocean. This island nation is located southwest of Sri Lanka and India, spanning approximately 870 kilometres across the equator. The Maldives consists of 26 atolls, which are made up of more than 1,000 coral islands.

36.1 Name the countries India shares land boundaries with.

Ans. 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.

36.2 What are the island countries that are India's southern neighbours across the sea?

Ans. Sri Lanka and Maldives are the island countries that are India's southern neighbours across the sea.

36.3 What are the geographical features that separate Sri Lanka and Maldives from India?

Ans. 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.

Long Answer Type Questions

37. The Deccan Peninsula is jutting into the Indian Ocean. Explain how it is beneficial to India.

Ans. The Deccan Peninsula is jutting into the Indian Ocean. It is beneficial in the following ways:

(a) It has helped 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.

(b) India has a long coastline which is beneficial in a number of ways. This has given India an eminent position in the Indian Ocean.

38. Where do you think the Sun's rays would be direct, on Jammu and Kashmir or on the Great Nicobar island? Give reasons to justify your answer.

Ans. The Great Nicobar lies in the tropical zone. This means that the Andaman and Nicobar islands are closer to the equator as compared to Jammu and Kashmir. Jammu and Kashmir lies in the sub-tropical zone. Now the sun shines vertically on the equator. As a result, places closer to equator get more sunshine and become hotter. Sun rays would be direct on the Great Nicobar as compared to Jammu and Kashmir. On the other hand, the sun's rays would be more oblique or slanting on the northern frontiers of India. Jammu and Kashmir is considered as a part of Indian Northern frontier. Therefore, there would be lesser amount of heat to these areas. Thus, it may be noted that the Great Nicobar Islands lie quite nearer to the equator where the sun's rays are always vertically overhead while Jammu and Kashmir is situated much beyond the Tropic of Cancer where the sun's rays are never vertically overhead.

Let's Compete

Multiple-Choice Questions

1. The latitude which divides India into two equal parts is

(a) the Equator.

(b) Standard Meridian.

(c) the Tropic of Cancer.

(d) the Tropic of Capricorn.

Ans. (c) the Tropic of Cancer.

2. The Lakshadweep Islands lie in the

(a) Indian Ocean.

(b) Bay of Bengal.

(c) Arabian Sea.

(d) Tethys Sea.

Ans. (c) Arabian Sea.

3. The narrow channel of water which separates India from Sri Lanka is the

(a) Gulf of Mannar. (b) Palk Strait.

(c) Gulf of Kachchh. (d) Bay of Bengal.

Ans. (b) Palk Strait.

4. The longitude which is taken as the Standard Meridian of India is

(a) 82°50′ E. (b) 82°40′ E.

(c) 82°30′ E. (d) 82°55′ E.

Ans. (c) 82°30′ E.

5. The neighbouring countries of India on the western side are

(a) Afghanistan and Pakistan.

(b) Sri Lanka and Maldives.

(c) Nepal and Bhutan.

(d) Myanmar and Bangladesh.

Ans. (a) Afghanistan and Pakistan.

6. A narrow gap found in the mountain ranges is called

(a) a pass. (b) a valley.

(c) an island. (d) a strait.

Ans. (a) a pass.

7. Which of the following states does not share its border with Bhutan?

(a) Assam (b) Sikkim

(c) Meghalaya (d) Arunachal Pradesh

Ans. (c) Meghalaya

8. Name of the southernmost tip of the Indian mainland.

(a) Kanniyakumari (b) Kavaratti

(c) Indira Point (d) Palk Strait

Ans. (a) Kanniyakumari

9. Name the latitude from which India starts tapering towards the south.

(a) 68°7′ E (b) 8°4′ N

(c) 22° N (d) 23°30′ N

Ans. (c) 22° N

10. The Tropic of Cancer passes through

(a) Gujarat. (b) Uttar Pradesh.

(c) Uttarakhand. (d) Maharashtra.

Ans. (a) Gujarat.

Life Skills

1. 'India has progressed in a multi-fold socio-economic manner during the last five decades'. Write any three points in favour of this statement.

Ans. In the last five decades, India has undergone a number of socioeconomic developmental processes. In this geographically diverse subcontinent of India, studies from *Upanishads* and *Vedas* have led the to the development of various indigenous knowledge systems. After independence, geography acquired new functions in the context of national development, expansion of the educational system and strengthening of planning projects.

(a) Farming practices have changed in India since independence. There has been an increase in the farming area now which has also led to an introduction of high-yielding varieties of crops. These were the major factors of growth in agricultural production. The agricultural sector thereby ended its dependency on imported products. The food grains are now being produced in the various parts of India with the help of improved facilities. It has progressed both in terms of yield and structural changes. There has been a consistent investment in research, land reforms, expansion of scope for credit facilities, and improvement in rural infrastructure. This has brought an agricultural revolution in India. The agri-biotech industry has grown in India.

(b) India has managed to create a platform where all the children are required to gain education from the age of six till fourteen years. India has managed to bring its education system at par with the global standard. There has been a dramatic increase in the number of schools post-independence. The Parliament of India has made elementary education a fundamental right for children in the age group of 6–14 years.

(c) Independent India has paved a path for its scientific developments over the years. India now takes pride in its space programmes. These programmes began in 1975 with the launch of its first satellite, Aryabhatta. Ever since the launch of first satellite, India has never looked back. Gradually it has emerged as a space power that can successfully launch foreign satellites. Its first mission to Mars was launched in November 2013 which successfully reached the planet's orbit on 24 September 2014.

2. 'The Suez Canal has been a great boon for India'. Give three points.

Ans. Suez Canal is an artificial waterway. It is located in Egypt that connects the Red Sea to the Mediterranean Sea. Suez Canal has helped ships in avoiding their travel to the southern tip of Africa. The Suez Canal separates Africa and Asia into two distinct land masses by cutting across the Isthmus of Suez. The Suez Canal was opened

in 1869. As a result of this canal, continents namely, Pacific, Asia, and Europe have been benefitted a lot. The distance between India and Europe also got reduced by 7000 km. There are a number of reasons why India considers the Suez Canal to be of great importance. They are as follows:

(a) Due to the construction of this canal, the distance between India and Europe reduced considerably. When the Suez Canal was not there, the Indian ships would travel around the Cape of Good Hope – Southern tip of Africa and all the way up the west coast of Africa – a much longer and expensive route. Due to less travelling distance, transportation of Indian products has become easier.

(b) The largest importers of Suez southbound oil flows through China, India and Singapore.

(c) One of the major benefits of Suez Canal is that it is a secure route.

2

Physical Features of India

Check Your Progress

Multiple-Choice Questions

1. The only large river in Rajasthan is

(a) Kosi. (b) Chenab.

(c) Luni. (d) Ken.

Ans. (c) Luni.

2. The island having a bird sanctuary is

(a) Minicoy. (b) Pitti.

(c) Kavaratti. (d) Laccadive.

Ans. (b) Pitti.

3. The highest peak in Western Ghats is

(a) Doda Betta. (b) Mahendragiri.

(c) Anai Mudi. (d) Makalu.

Ans. (c) Anai Mudi.

4. Read the given statements and choose the correct option with regard to Himalayan Mountains from the following.

I. The Himalayas represent the loftiest and one of the most rugged mountain barriers of the world.

II. They form an arc, which covers a distance of about 2,400 km.

III. Their width varies from 800 km in Kashmir to 50 km in Arunachal Pradesh.

IV. The Himalaya consists of three parallel ranges in its longitudinal extent.

Options:

(a) I, II and IV (b) I, II and III

(c) I, III and IV (d) II, III and IV

Ans. (a) I, II and IV

5. Choose the correctly matched pair from the following.

(a) Kanchenjunga – 8598 metres

(b) Makalu – 8491 metres

(c) Dhaulagiri – 8180 metres

(d) Nanga Parbat – 8126 metres

Ans. (a) Kanchenjunga – 8598 metres

Very Short Answer Type Questions

6. Define *Bhangar*. Where is it found in India?

Ans. The largest part of the northern plain is formed of older alluvium. It lies above the floodplains of the rivers and presents a terracelike feature. This part is known as *bhangar*.

7. Name the two eastward extensions of the Central Highlands. Which state(s) are they found in?

Ans. The eastward extensions of the Central Highlands are locally known as the *Bundelkhand* and *Baghelkhand*. The Central Highlands of India are located in the states of Maharashtra, Madhya Pradesh, Telangana, Andhra Pradesh, Karnataka, and Tamil Nadu.

8. Identify the soil found in the Deccan Trap region. What are the properties of this variety of soil?

Ans. Black soil is found in the Deccan Trap region. 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.

9. Why do the streams of Rajasthan disappear into the sand? Do they form deltas?

Ans. The Indian desert receives very low rainfall below 150 mm per year. It has arid climate with low vegetation cover. Streams appear during the rainy season. Soon after they disappear into the sand as they do not have enough water to reach the sea. These streams do not form deltas.

10. Which island has the administrative headquarters of the Lakshadweep? Under which nation's dominion does it fall?

Ans. Kavaratti Island is the administrative headquarters of Lakshadweep. Earlier they were known as Laccadive, Minicoy and Amindivi. In 1973, these were named as Lakshadweep. It is one of the UTs of India.

Short Answer Type Questions

11. Write a short note on the Lakshadweep islands group of India.

Ans. Lakshadweep Islands are located in the Arabian Sea which is to the West of Kerala. These islands were formed by combining 36 smaller islands. In Lakshadweep, very few islands are inhabited. Some islands are very small in size and have no population. Only ten islands have some population. These islands are one of the Union Territories of India. Most of the islands in Lakshadweep have back-waters or lagoons. People and tourists move here in boats. Minicoy is the biggest of these islands. Farming and fishing are the main occupation of this area.

12. Why are the island groups are of great strategic importance for the country?

Ans. Andaman and Nicobar Island and Lakshadweep Islands are considered as the extended arms of India. Both these island groups serve as the gateways for entry into the resource rich region of the Indian Ocean. The lagoons around Lakshadweep Islands have significant fishery and mineral resources. Another rapidly flourishing and economically viable industry is of tourism and hospitality.

Andaman and Nicobar lies in the Bay of Bengal. It acts like the gatekeeper to keep a watch over the Bay of Bengal. More than 60,000 commercial vessels travel in the areas close to the islands.

13. Why are the Himalayas called 'young mountains'?

Ans. The Himalayas are called young mountains because:

(i) They were formed only about 50 million years ago.

(ii) They have a youthful topography, characterised by high peaks, deep valleys and fast-flowing rivers, indicating that the landscape is still evolving.

14. 'The Western Ghats are higher than the Eastern Ghats'. How does the interaction between the relief features and the drainage systems of the Deccan Plateau prove the given statement?

Ans. The Western Ghats are higher than the Eastern Ghats. Their average elevation is 900–1600 metres as against 600 metres of the Eastern Ghats. The Eastern Ghats stretch from the Mahanadi Valley to the Nilgiris in the south. The Eastern Ghats are discontinuous and irregular and dissected by rivers draining into the Bay of Bengal. The Western Ghats cause orographic rain by facing the rain bearing moist winds to rise along the western slopes of the Ghats.

15. Why is the Indian Desert so arid and sandy?

Ans. The Indian Desert is so arid and sandy because:

(i) It gets very little rainfall, less than 150 mm per year.

(ii) The dry climate and lack of water lead to scarce vegetation and temporary rivers that vanish quickly.

Long Answer Type Questions

16. Describe briefly the three ranges of the Himalayas.

Ans. The Himalayas consist of three parallel ranges. These three ranges are:

(a) Himadri (b) Himachal (c) Shiwalik

(a) **Himadri**

(i) Himadri is also known as the Inner Himalayas or the greater Himalayas. This mountain range also has a Vedic name, *Bahirgiri*.

(ii) It is the most continuous range in the world with an average height of 6000 m.

(iii) The core of these mountains is mainly made up of granite rocks. Along with the granite rock some elements of sedimentary and metamorphic rocks can also be found in these mountains.

(iv) Some of the world's highest mountain peaks are located in this range.

(v) These mountains are covered with snow through the year.

(b) **Himachal**

(i) This is the second most important mountain range and is also known as middle Himalayas or the lesser Himalayas.

(ii) They are located southwards of Himadri.

(iii) Lesser Himalayan range is 60–80 km wide and is 3700–4500 m high.

(iv) Some peaks which are more than 5,050 m above sea level are covered with snow throughout the year.

(v) Hills stations such as Dalhousie, Manali, Shimla, Nanital, etc., are located in this range.

(vi) The most important mountain range of Himachal is the *Pir Panjal*. The *Dhaula Dhar* and the *Mahabharat* ranges are also prominent ones.

(vii) The range consists of some well-known valleys of Kashmir, the Kangra and Kullu valley.

(c) **Shivalik**

(i) Shivalik range also known as the Outer Himalayas is the youngest and the lowest range of Himalayas.

(ii) These are located between the Great Plains and the Lesser Himalayas.

(iii) Its height varies between 900 and 1,100 metres.

(iv) Fault scraps, anticlinal crests, and synclinal hills are some features of Shivaliks.

(v) The rivers rising in the Himadri and Himachal ranges brought gravel, sand and mud along with them, which was deposited in the rapidly shrinking Tethys Sea.

(vi) There are some broad valleys between the Himalayas and the Shivalik range which is known as the Duns. The best example is the Dehradun Valley.

17. Explain how the northern plains are agriculturally a very productive part of India.

Ans. The three major river systems of India, the Indus, Ganga, and Brahmaputra have formed the northern plains of India. These plains are formed by the deposition of alluvial soil. The northern plains are agriculturally very productive as these lands are formed by the alluvial deposits. The major reasons in making the northern plains of India more productive agriculturally are as follows:

(a) **Soil:** This plain has alluvial soil. This soil has been deposited and replenished over the millions of years. Alluvial soil is considered to be the most fertile soil. The rivers coming from the northern mountain carry a huge load of eroded soil and debris. As a river flows down towards the plains, due to the gentler slopes, its velocity decreases, and the material carried by it gets deposited on the way creating riverine islands. This causes the soil to become fertile and agriculturally productive.

(b) **Availability of Water:** The northern plains receive water from three major rivers and their tributaries. The Indus, Ganga and the Brahmaputra are all perennial in nature. Hence, the water is available for agriculture all through the year.

(c) **Climate:** Agriculture can only be fruitful if the climate is favourable. The climatic conditions in the northern plains plays a pivotal role in growing of a number of crops. These regions have a moderate temperature because of which plants can grow and sustain life.

18. How is the Northern Plain divided into three sections?

Ans. The Northern Plain is divided into three sections: the Punjab Plains, the Ganga Plain, and the Brahmaputra Plain.

- The Punjab Plains, formed by the Indus and its tributaries, lie mostly in Pakistan.
- The Ganga Plain, stretching from the Ghaggar to the Teesta rivers, covers parts of North India, including Haryana, Delhi, UP, Bihar, Jharkhand, and West Bengal.
- The Brahmaputra Plain is located in the east, mainly in Assam.

These three distinct sections, each with its own unique features and river systems, justify the statement that the Northern Plain is broadly divided into three sections.

19. 'Different physiographic regions of India complement each other.' Justify the statement.

Ans. India's diverse physiographic regions complement each other, making the country rich in natural resources.

The mountains provide water and forest wealth, while the Northern Plains are the granaries of the country.

The plateau is a storehouse of minerals, driving industrialisation.

The coastal regions and island groups offer sites for fishing and port activities.

Each region's unique features contribute to the country's overall development, demonstrating how they complement each other.

This diversity provides immense possibilities for future growth and development, justifying the statement that different physiographic regions of India complement each other.

Self-Assessment

Multiple-Choice Questions

1. The plain along the Bay of Bengal in the northern part is referred to as

(a) Malabar Coast. (b) Kannad Plain.

(c) the Northern Circars. (d) the Coromandel Coast.

Ans. (c) the Northern Circars.

2. The newer alluvium is known as

(a) *kankar*. (b) *bhabar.*

(c) *khadar*. (d) *bhangar*.

Ans. (c) *khadar*.

3. The Chotanagpur plateau is drained by river
   (a) Ghaggar. (b) Damodar.
   (c) Teesta. (d) Chenab.

Ans. (b) Damodar.

4. Read the given statements and choose the correct option with regard to Indian Desert from the following.
   I. The Indian desert lies towards the western margins of the Aravali Hills.
   II. It is an undulating sandy plain covered with sand dunes.
   III. This region receives winter rainfall, below 50 mm.
   IV. It has an arid climate with low vegetation cover.

   Options:
   (a) I, II and III (b) I, II and IV
   (c) I, III and IV (d) II, III and IV

Ans. (b) I, II and IV

5. Choose the correctly matched pair from the following.
   (a) Northern part of the western coast – Konkan
   (b) Central stretch the western coast – Malabar Coast
   (c) Southern stretch the western coast – Kannad Plain
   (d) Chilika Lake – West Bengal

Ans. (a) Northern part of the western coast – Konkan

6. Read the given statements and choose the correct option with regard to eastern coastal plains from the following.
   I. The plains along the Bay of Bengal are wide and level.
   II. In the northern part, it is referred to as the Northern Circar, while the southern part is known as the Coromandel Coast.
   III. Large rivers, such as the Ganga, Yamuna and the Indus have formed extensive delta on this coast.
   IV. Lake Chilka is an important feature along the eastern coast.

   Options:
   (a) I, II and III (b) I, II and IV
   (c) I, III and IV (d) II, III and IV

Ans. (b) I, II and IV

7. Identify the Himalayan range with the help of the following information and choose the correct option.
   - The ranges are mainly composed of highly compressed and altered rocks.
   - The altitude varies between 3700 and 4500 m.
   - Pir Panjal range forms the longest and most important range.
   - This region is well-known for its hill stations.

   Options:
   (a) Himachal (b) Himadri
   (c) Shivalik (d) Kullu Valley

Ans. (a) Himachal

8. Identify the land found in India with the help of following information and choose the correct option.
   - This region has been formed by the interplay of the three major river systems.
   - This is formed of alluvial soil.
   - It spreads over an area of 7 lakh sq. km.
   - It is a densely populated physiographic division.

   Options:
   (a) The Himalayan Mountain
   (b) The Northern Plains
   (c) The Peninsular Plateau
   (d) The Coastal Plains

Ans. (b) The Northern Plains

Assertion-Reason Type Questions

For question numbers 9 to 16, two statements are given as Assertion (A) and Reason (R). Read the statements and choose the correct option.

Options:
(a) Both A and R are true and R is the correct explanation of A.
(b) Both A and R are true but R is not the correct explanation of A.
(c) A is true but R is false.
(d) A is false but R is true.

9. **Assertion (A):** The Indian Desert lies towards the western margins of the Satpura Range.

   Reason (R): This region receives very low rainfall below 150 mm per year.

Ans. (d) A is false but R is true.

10. **Assertion (A):** The northern-most range is known as the Great or Inner Himalayas or the Himadri.

    Reason (R): It is the most continuous range consisting of the loftiest peaks with an average height of 6,000 metres.

Ans. (a) Both A and R are true and R is the correct explanation of A.

11. **Assertion (A):** The part of the Himalayas lying between Ganga and Kali rivers is known as Kumaon Himalayas.

    Reason (R): The Kali and Teesta rivers demarcate the Nepal Himalayas and the part lying between Teesta and Dihang rivers is known as Assam Himalayas.

Ans. (d) A is false but R is true.

12. Assertion (A): 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.

Reason (R): The Central Highlands are wider in the east but narrower in the west.

Ans. (c) A is true but R is false.

13. Assertion (A): The Northern Plain is a densely populated region.

Reason (R): The Northern Plain is formed of alluvial soil and has a rich soil cover combined with adequate water supply and favourable climate.

Ans. (a) Both A and R are true and R is the correct explanation of A.

14. Assertion (A): The plains along the Bay of Bengal have prominent delta formations.

Reason (R): Large rivers like Mahanadi, Godavari, Krishna, and Kaveri have drained into the coast, forming extensive deltas.

Ans. (a) Both A and R are true and R is the correct explanation of A.

15. Assertion (A): The Andaman and Nicobar Islands are believed to be an elevated portion of submarine mountains.

Reason (R): These islands experience an equatorial climate and have a thick forest cover.

Ans. (b) Both A and R are true but R is not the correct explanation of A.

16. Assertion (A): The diverse physical features of India have immense future possibilities for development.

Reason (R): Each region of India complements the other, making the country richer in its natural resources.

Ans. (a) Both A and R are true and R is the correct explanation of A.

Match the Following

17. Match the following items given in Column A with those in Column B. Choose the correct answer from the options given below:

Column A (Peaks)	Column B (Height in metres)
A. Mt. Everest	1. 8848
B. Makalu	2. 8481
C. Nanga Parbat	3. 8126
D. Namcha Barwa	4. 7756

Codes:

	A	B	C	D
(a)	1	2	3	4
(b)	2	4	1	3
(c)	4	1	3	2
(d)	1	3	2	4

Ans. (a) 1 2 3 4

Find the Incorrect Option

18. (a) The longitudinal valley lying between lesser Himalayas and the Shiwaliks are known as Duns.

(b) The Ganga River marks the eastern-most boundary of the Himalayas.

(c) The Purvachal comprises the Patkai hills, the Naga hills, the Manipur hills and the Mizo hills.

(d) The Ganga plain extends between Ghaggar and Teesta rivers.

Ans. (b) The Ganga River marks the eastern-most boundary of the Himalayas.

Arrange the Following

19. Arrange the following ranges in a sequence from north to south.

(a) Vindhya Range, Satpura Range, Aravali Range, Shiwalik Range.

(b) Satpura Range, Aravali Range, Shiwalik Range, Vindhya Range.

(c) Shiwalik Range, Aravali Range, Vindhya Range, Satpura Range.

(d) Aravali Range, Shiwalik Range, Vindhya Range, Satpura Range.

Ans. (c) Shiwalik Range, Aravali Range, Vindhya Range, Satpura Range.

Fill in the Blanks

20. The western part of the northern plains is referred to as **Punjab Plains**.

21. The Peninsular plateau consists of two broad division namely **Central Highlands** and **the Deccan Plateau**.

Very Short Answer Type Questions

22. 'The land of India displays great physical variation.' Justify the given statement and provide two examples.

Ans. Geologically, the Peninsular Plateau constitutes one of the ancient landmasses on the earth's surface. It was supposed to be one of the most stable land blocks. The Himalayas and the Northern Plains are the most recent landforms. From the view point of geology, Himalayan mountains form an unstable zone.

23. Why are the Northern Plains an agriculturally productive part of India? Is it the soil or the water found here?

Ans. The northern plain has been formed by the interplay of the Indus, the Ganga and the Brahmaputra along with their tributaries. This plain is formed of alluvial soil. With a rich soil cover combined with adequate water supply and favourable climate it is agriculturally a productive part of India.

24. Name India's only active volcano and mention where it is located.

Ans. India's only active volcano is found on Barren Island and is located in the territory of Andaman and Nicobar Islands.

25. Name the rivers which have formed deltas in the eastern coast of India. What is the estern delta known as?

Ans. The rivers forming deltas on the eastern coast of India are Mahanadi, Godavari, Krishna, and Kaveri. The eastern delta in India is known as the Bengal Delta.

Short Answer Type Questions

26. Write a short note on the Punjab Plains.

Ans. The Northern Plains in the western part of the country is known as the Punjab Plains. The states of Haryana and Punjab form a part of Punjab Plains. A major portion of this plain lies in Pakistan. These plains are formed by Indus and its five tributaries — the Jhelum, the Chenab, the Ravi, the Beas and the Satluj. This section of the plain is dominated by the doabs.

27. What do you understand by the Terai region? Why is this region full of wildlife?

Ans. The Terai region is a wet, swampy and marshy tract in the south of *Bhabar* belt. A number of streams re-emerge south of this belt. The Terai region is more prominent in the eastern part of India than in the west. This is because the eastern parts of India receive higher amount of rainfall as compared to the western areas. Terai region, especially in Punjab, UP, and Uttrakhand has been reclaimed and turned into agricultural land.

The Terai region, because of water and adequate temperature is a heaven for wildlife. The region has got hot climate. Here the soil is also fertile. The tropical forests and grasses provide habitat for a number of wildlife animals such as elephant, tiger, leopard, rhino, deer, swamp, etc.

28. Write a short note on Coral reefs.

Ans. In the shallow coastal areas, corals are found. Corals are marine organisms. Coral reefs are a very unique biological system. They are held together by calcium carbonate structures which are secreted by corals. They form a part of the underwater ecosystem. These reefs are useful for photosynthetic algae that thrive on the reefs after forming a symbiotic relationship with them. The Gulf of Mannar, Palk Bay, Gulf of Kutch, Andaman and Nicobar Islands and the Lakshadweep Islands are the areas in India where we can find major reef formations. Lakshadweep Island is formed of corals. These are atolls in nature. An atoll is a ring-shaped coral reef, island, or series of islets. An atoll surrounds a body of water called a lagoon. Sometimes, atolls and lagoons protect a central island.

29. 'The plateau is a storehouse of minerals'. Justify the statement.

Ans. It is true to say that, 'The plateau is a storehouse of minerals' because plateaus have played a crucial role in the industrialisation of the country. The peninsular plateau is a table land composed of various types of old crystalline igneous and metamorphic rocks. The central highland and Chottanagpur plateau are the regions composed of minerals like mica, bauxite, copper, limestone etc. Damodar Valley is rich in coal reserves. It is also known as the oldest landmass of the country.

30. Write any three features of the Shiwalik range.

Ans. Three features of the Shiwalik range are as follows:

(i) The Shiwalik range is the outermost range of the Himalayas.

(ii) The average altitude of the Shiwalik range varies from 900 m to 1100 m.

(iii) The Shiwalik range is composed of unconsolidated sediments brought down by rivers from the main Himalayan ranges.

31. How is the Western Coastal Plain different from Eastern Coastal Plain?

Ans. The western coast, lying between the Western Ghats and the Arabian Sea, is a narrow plain. It consists of three sections – The Konkan (Mumbai – Goa), the central Kannad Plain and the southern Malabar coast. The Eastern Coastal Plain, lying along the Bay of Bengal, is wide and level. In the northern part, it is referred to as the Northern Circar, while the southern part is known as the Coromandel Coast.

32. How are coral reefs formed?

Ans. Coral polyps secrete a hard, rock-like substance that accumulates to form coral deposits, eventually creating coral reefs. The secretion and skeletons of coral polyps combine to form three types of coral reefs – barrier reefs, fringing reefs, and atolls. Examples of these coral reefs include the Great Barrier Reef (barrier reef)

and atolls (circular or horse shoe-shaped coral reefs), demonstrating the formation of coral reefs through coral polyp activity.

33. Describe the Himalayan ranges.

Ans. The Himalayas consist of three parallel ranges – the Great Himalayas (Himadri), Lesser Himalayas (Himachal), and Shiwalik.

The Great Himalayas have the loftiest peaks, perennial snow cover and glaciers.

The Lesser Himalayas are rugged, with compressed rocks. They have famous valleys and hill stations. The Shiwalik range is the outermost and lowest range, with narrower width.

34. How were the Northern Plains formed? Explain.

Ans. The northern plains were formed by the alluvial deposits of three major river systems — Indus, Ganga, and Brahmaputra — and their tributaries.

The deposition of alluvium in a vast basin at the Himalayan foothills over millions of years led to the formation of an alluvial plain spread over 7 lakh sq km. Today it is a fertile region with dense population. It has rich soil, adequate water and a suitable climate.

Paragraph Based Questions

35. Read the sources given below and answer the questions that follow:

Source A – The Himalayan Mountains

While the Pir Panjal range forms the longest and the most important range, the Dhaula Dhar and the Mahabharat ranges are also prominent ones. 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.

(a) Which is the longest and most important range?

Source B – The Indian Desert

The Indian desert lies towards the western margins of the Aravali Hills. It is an undulating sandy plain covered with sand dunes. This region receives very low rainfall below 150 mm per year.

(b) What type of climate is found in the desert region of India?

Source C – The Coastal Plains

Large rivers, such as the Mahanadi, the Godavari, the Krishna and the Kaveri have formed extensive delta on this coast.

(c) Why do these rivers are called east flowing rivers?

Ans. (a) The Pir Panjal range forms the longest and the most important range, this range comprises valley of Kashmir, Kangra and Kullu in Himachal Pradesh. The other important ranges of lesser Himalayas are the Dhaula Dhar and the Mahabharat ranges.

(b) Arid climate with low vegetation cover is found in Indian desert.

(c) The Mahanadi, the Godavari, the Krishna and the Kaveri are called east flowing rivers because they drain into the Bay of Bengal.

Case Based Questions

36. The Northern Plain is broadly divided into three parts. The Western part of the Northern Plain is called as the Punjab Plains. Formed by the Indus and its tributaries, the larger part of this plain is located in Pakistan. The Indus and its tributaries — the Jhelum, the Chenab, the Ravi, the Beas and the Satluj originate in the Himalayan range. This part of the plain is dominated by the doabs. The Ganga plain lies between Ghaggar and Teesta rivers. It is spread over Haryana, Delhi, U.P., Bihar, partly Jharkhand and West Bengal to its east, particularly in Assam lies the Brahmaputra plain. The Northern Plains are generally described as flat land with little change in its relief. It is not correct. These vast plains also have varied relief features. Depending on the variations in relief features, the Northern plains can be divided into four regions. The rivers, after coming down 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 belt. South of this belt, the streams and rivers re-emerge and form a wet, swampy and marshy region known as terai. This was a thickly forested region teeming with wildlife. The forests have been cleared to create agricultural land and to settle migrants from Pakistan after the country's partition.

36.1 Where does the larger part of the northern plain majorly formed by Indus and its tributaries lie?

Ans. The larger part of the northern plain majorly formed by Indus and its tributaries is located in Pakistan.

36.2 Which of the following statements can be used to classify northern plains?

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

36.3 What lies to the south of the bhabar belt?

Ans. To the South of bhabar belt, the streams and rivers re-emerge and form a wet, swampy and marshy region known as terai.

37. The Peninsular Plateau is an ancient tableland made of old crystalline, igneous, and metamorphic

rocks. It formed from the breaking and drifting of Gondwana land, making it one of the oldest landmasses. The plateau features broad, shallow valleys and rounded hills and is divided into the Central Highlands and the Deccan Plateau. The Central Highlands, located north of the Narmada River and covering much of the Malwa Plateau, are wider in the west and narrower in the east. The eastward extensions are known locally as Bundelkhand and Baghelkhand.

The Deccan Plateau, a triangular landmass, lies south of the Narmada River. It is bordered by the Satpura Range in the north, with the Mahadev, Kaimur Hills, and Maikal Range forming its eastern extensions. The Deccan Plateau is higher in the west and gently slopes eastward.

37.1 A mining company is planning to extract iron ore from the Peninsular plateau. What type of rocks can they expect to find in the region?

Ans. They can expect to find old crystalline, igneous, and metamorphic rocks.

37.2 A geologist is studying the formation of the Peninsular plateau. Which ancient landmass should they focus on to understand the plateau's origins?

Ans. They should focus on the Gondwana land.

37.3 What are the key features and divisions of the Peninsular plateau?

Ans. The Peninsular plateau has broad and shallow valleys, rounded hills, and is divided into the Central Highlands and Deccan Plateau, with the Narmada river demarcating the two regions.

38. The Himalayas, geologically young and structurally fold mountains lie across the northern borders of India. These mountain ranges stretch in a west-east direction from the Indus to the Brahmaputra. The Himalayas are the loftiest and one of the most rugged mountain barriers of the world. They form an arc, which is about 2,400 km. Their width changes from 400 km in Kashmir to 150 km in Arunachal Pradesh. The variations are greater in the eastern half than those in the western half. The Himalaya have three parallel ranges in its longitudinal extent. Many valleys lie between these ranges. The northern-most range is called the Great or Inner Himalayas or the Himadri. It is the most continuous range consisting of the loftiest peaks with an average height of 6,000 metres. It has all the major Himalayan peaks. The folds of the Great Himalayas are asymmetrical. The core of this part of Himalayas is made up of granite. These mountains are snow-covered throughout the year, and a number of glaciers descend from this range.

38.1 The Himalayan range extends from which two mountains/peaks?

Ans. These mountain ranges stretch in a west-east direction from the Indus to the Brahmaputra.

38.2 Mention any two important features of the Himalayan mountains.

Ans. The Himalayas are the loftiest and one of the most rugged mountain barriers of the world. Their width changes from 400 km in Kashmir to 150 km in Arunachal Pradesh.

38.3 'The Himalayas are very important for India.' Justify this statement.

Ans. The Himalayas serve as a barrier to monsoon winds, inhibiting their passage into northern regions and resulting in significant rainfall in northern India. Several rivers originate in the Himalayas providing water to the Indian subcontinent. The Himalayas shield India from the frigid, arid winds originating in Central Asia.

39. 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. 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. 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. With a rich soil cover combined with adequate water supply and favourable climate it is agriculturally a productive part of India.

The rivers coming from northern mountains are involved in depositional work. In the lower course, due to gentle slope, the velocity of the river decreases, which results in the formation of riverine islands. The rivers in their lower course split into numerous channels due to the deposition of silt. These channels are known as distributaries.

39.1 What do you understand by the term 'Distributaries'?

Ans. 'Distributaries' are defined as the branches of the river which flow away from the main stream due to the deposition of silt. For example, delta.

39.2 Why are the Northern Plains called the most fertile plains?

Ans. The Northern Plains are the most fertile plains because these are formed of alluvial soil. The alluvial soil is the most fertile as the deposition of alluvium is lying at the foothills of the Himalayas over millions of years formed this fertile soil. The

Northern Plains support bulk of India's population due to fertile land, adequate water supply and suitable weather conditions.

39.3 Describe the area covered by the Northern Plains.

Ans. The Northern Plain has been formed by the three major river systems, namely – the Indus, the Ganga and the Brahmaputra along with their tributaries. These plains extend from the Punjab in the west to West Bengal in the east. The Northern Plains spread over an area of 7 lakh sq km. These plains are about 2400 km long and 240 to 320 km broad.

Long Answer Type Questions

40. Write the points of contrast with regard to the relief of the Himalayan region with that of the Peninsular plateau.

Ans. The points of difference are given below:

	Himalayan Region	Peninsular Plateau
1.	The origin of these mountains is in the recent past.	It was a part of the Gondwana land.
2.	It is made up of young fold mountains.	It is the oldest landmass of Indian subcontinent.
3.	These regions were formed due to the folding process which led to the collision of the Indo Australia plate with the Eurasian plate.	Peninsular Plateau was formed due to the breaking and drifting of Gondwana land.
4.	This region consists of loftiest mountains and deep valleys.	Peninsular Plateau consists of broad and shallow valleys and rounded hills.
5.	Himalayas are made up of sedimentary rocks.	Peninsular Plateau consist of metamorphic and igneous rocks in their constitution.
6.	This is an unstable zone.	This is a stable zone.
7.	Climate in this region varies from tropical at the base to permanent snow at the elevated points.	Peninsular region also has varied climate from tropical monsoon to semi-arid climate.
8.	Pine, fir, and spruce can be found in this region.	Tropical deciduous, dry forest, and deccan thorn scrub forest are found in this region.
9.	Himalayas give birth to perennial rivers such as Indus, Ganga, and Brahmaputra.	Rivers such as Narmada, Tapti, Krishna, Kaveri, etc., are peninsular rivers.

41. Give a detailed account of how the different physiographic units of India contribute towards the economy of the country.

Ans. Geography of a place plays a pivotal role in the development of a country's economy. It is a universally proven theory. Development of India is also due to its geographical features. India is naturally fenced by young fold mountain ranges of Himalayas. These mountain ranges spread in the north-west, north and north east. They are washed by the waters of the Indian Ocean. It has two extended arms, the Arabian Sea and the Bay of Bengal. These water bodies have always remained a distinct part of geopolitical unit since ancient times. These water bodies are characterized by a remarkable variety of traits and attributes. The Himalayas give birth to a number of perennial rivers. It is an area which is a vast reservoir of minerals, wildlife and vegetation. It is one of the major source of development in India's economy. The Great Plains of India face the loftiest mountains. India's maximum population stays in this region. The plains are fertile due to the deposition of alluvial soil. As a result, this region is agriculturally most developed as compared to a number of other plain regions of the world. India has a long coastline. This coastline lies in the west and the east India. This region has 12 major ports and a number of minor ports. It helps India in carrying out international trade and commerce by promoting exports and imports. Since India is not landlocked, it is able to have access to other countries enabling India to trade with them. Many poor countries are landlocked and don't have rivers that enable the transportation of products and people. The Deccan Plateau of India is rich in mineral deposits. This resource has made India self-sufficient in mineral wealth. There also are several important rivers in India. These are the Indus, Ganges, and Brahmaputra Rivers. These rivers are an important source of transportation in India. These rivers also can aid with farming.

The peninsular rivers have been suitable for hydropower projects and currently generating much of India's energy needs. India also has vast coal reserves. These reserves help in generating huge thermal power. A large number of small scale industries run on this thermal power.

42. 'The northern plains have diverse relief features.' Substantiate this statement.

Ans. The Northern Plains can be divided into four regions based on relief features. Rivers descending from the mountains deposit pebbles in a narrow belt, 8 to 16 km wide, parallel to the Shiwaliks' slopes, known as bhabar. All streams disappear in this belt. South of bhabar, streams and rivers re-emerge, creating a wet, swampy region called

terai, once thickly forested and full of wildlife. These forests have been cleared for agriculture and to settle migrants from Pakistan after partition. Dudhwa National Park is located here.

The largest part of the Northern Plain is formed of older alluvium, lying above the river floodplains and creating a terrace-like feature called bhangar. The soil here contains calcareous deposits known as kankar.

43. The Himalayas have been divided on the basis of regions from west to east. Explain.

Ans. The Himalayas are divided into regions from west to east, based on river valleys.

For example, the range between the Indus and Satluj rivers is called Punjab Himalaya, also known as Kashmir and Himachal Himalaya in different regions.

Similarly, the section between Satluj and Kali rivers is Kumaon Himalayas.

Nepal Himalayas lie between Kali and Teesta rivers.

Finally, the part between Teesta and Dihang rivers is Assam Himalayas.

These divisions show that the Himalayas are split into distinct regions, each with its own unique identity, stretching from west to east, making the statement justified.

Let's Compete

Multiple-Choice Questions

1. The sedimentary rocks which were accumulated in the geosynclines are known as

(a) duns. (b) doabs.
(c) tethys. (d) barkhans.

Ans. (c) tethys.

2. The greater or the inner Himalayas are called

(a) Purvachal. (b) Himachal.
(c) Himadri. (d) Shiwaliks.

Ans. (c) Himadri.

3. The length of the Northern Plains is

(a) 1600 km.
(b) 2400 km.
(c) 600 km.
(d) 1500 km.

Ans. (b) 2400 km.

4. South of the river Narmada lies to the

(a) Malwa Plateau.
(b) Baghelkhand Plateau.
(c) Chotanagpur Plateau.
(d) Deccan Plateau.

Ans. (d) Deccan Plateau.

5. The north western margins of the Peninsular plateau are occupied by the

(a) Aravalis. (b) Western Ghats.
(c) Purvachal. (d) Jaintia hills.

Ans. (a) Aravalis.

6. Circular horseshoe shaped coral reefs are called

(a) ghats. (b) islands.
(c) atolls. (d) duns.

Ans. (c) atolls.

7. Crescent-shaped sand dunes are called

(a) barchans. (b) reefs.
(c) longitudinal dunes. (d) doabs.

Ans. (a) barchans.

8. The fertile flood plain which is renewed every year is called

(a) *bhabar*. (b) *khadar.*
(c) *terai*. (d) *bhangar*.

Ans. (b) *khadar.*

9. Which soil formed the Northern Plains?

(a) Black (b) Alluvial
(c) Laterite (d) Red

Ans. (b) Alluvial

10. The Thar desert lies towards the Western Margin of the

(a) Jaintia hills. (b) Khasi hills.
(c) Shivalik hills. (d) Aravali hills.

Ans. (d) Aravali hills.

Life Skills

1. The Peninsular plateau of India is a storehouse of minerals. Explain how excessive mining activities and our utilisation of the mineral resources have had a negative impact. Suggest some measures to control the adverse effects.

Ans. There are several negative impacts of mining for the environment.

(i) To make mining possible, several forests are cleared and this leads to deforestation.

(ii) The vegetation is cleared in order to build the mining facility and laying roads.

(iii) Several organisms and animals live in these forests. With the deforestation, these organisms and animals lose their natural habitat. So, they start looking for a new habitat in order to survive. However, most organisms and animals do not respond very well this change and end up dying.

(iv) The biodiversity is lost in this process.

(v) Mining also causes a lot of pollution as a lot of chemical waste is incurred due to the various

processed involved. This waste is released into water bodies, rivers and sea.

(vi) The chemical composition of the soil also changes in the mining area. It becomes a desert-like environment where nothing grows.

Some measures to control the adverse effects are as follows:

(i) Afforestation to reclaim barren lands.

(ii) Pollution-controlling devices to be installed.

2. The Terai region, south of the bhabar plain is a thickly forested area, full of wildlife. Explain how clearing of the forests for agricultural activity has affected this area adversely.

Ans. The Terai region is a very fertile land. The population has adversely affected this region in the following ways:

(i) The area of Terai is heavily populated. This population has to depend on the nearby forested areas for agriculture and forest material.

(ii) They destroy the forests to cultivate the land and to settle in the area.

(iii) Agriculturally the land of Terai region is very fertile. The farmers use chemical fertilisers to make the land more fertile and get a better production.

(iv) The forests and the fertile lands are depleting as the people who live in these areas take their pasture for grazing. The livestock farming has also started to take place in this area.

(v) The construction work is rapidly increasing in this area. This construction work has disturbed the natural environment of the Terai region.

(vi) The ecosystem of this area is disturbed and the animals living in this region have now become less.

3

Drainage

Check Your Progress

Multiple-Choice Questions

1. A drainage basin is drained by

(a) a lake. (b) a single river.
(c) an ocean. (d) a sea.

Ans. (b) a single river.

2. When highland separates two drainage basins it is called

(a) a cliff. (b) a waterfall.
(c) a water divide. (d) a conical hill.

Ans. (c) a water divide.

3. A river having water throughout the year is called a

(a) perennial river. (b) seasonal river.
(c) meandering river. (d) swift river.

Ans. (a) perennial river.

4. Choose the correctly matched pair from the following.

(a) Freshwater – 2.5 per cent
(b) Saltwater – 97 per cent
(c) Freshwater lake – Chilika lake
(d) Kaveri Basin's length – 670 km

Ans. (b) Saltwater – 97 per cent

5. Read the given statements and choose the correct option with regard to the Brahmaputra River System from the following.

I. The Brahmaputra rises in Tibet east of Mansarowar 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. It flows westwards parallel to the Himalayas.
IV. On reaching the Namcha Barwa (7757 m), it takes a 'U' turn and enters India in Arunachal Pradesh through a gorge.

Options:

(a) I, II and III (b) I, II and IV
(c) I, III and IV (d) II, III and IV

Ans. (b) I, II and IV

6. Read the given statements and choose the correct option with regard to perennial rivers from the following.

I. They water throughout the year.
II. These rivers receive water from rain as well as from melted snow from the lofty mountains.
III. The two major Himalayan rivers, the Krishna and the Kaveri, originate from the north of the mountain ranges.
IV. They have cut through the mountains making gorges.

Options:

(a) I, II and IV
(b) I, II and III
(c) I, III and IV
(d) II, III and IV

Ans. (a) I, II and IV

7. Choose the correctly matched pair from the following.

(a) Indus – rises in Pakistan
(b) Ganga – rises in Tibet
(c) Narmada – rises in Amarkantak hills
(d) Brahmaputra – rises in Bangladesh

Ans. (c) Narmada – rises in Amarkantak hills

Very Short Answer Type Questions

8. Where does the river Yamuna rise from? What is its relationship with the river, Ganga?

Ans. The river Yamuna rises from the Yamunotri Glacier in the Himalayas. It flows parallel to the Ganga and as a right bank tributary meets the Ganga at Prayagraj (Allahabad).

9. What are Sundarbans? What kind of a riverine drainage system is formed there?

Ans. Sundarban represents the largest macro tidal mangrove delta globally, created at the junction of the Ganga-Brahmaputra-Meghna (GBM) river system. The Sundarbans features a deltaic river system characterised by numerous rivers, canals, and tidal creeks.

10. What is the Brahmaputra known as in Tibet and Bangladesh? What does one gauge from it?

Ans. The Brahmaputra River is referred to as the Tsangpo in Tibet and as the Jamuna in Bangladesh. The Brahmaputra is marked by huge deposits of silt on its bed causing the riverbed to rise.

11. Name the states which are drained by river Mahanadi. In which direction does it flow?

Ans. The Mahanadi rises in the highlands of Chhattisgarh. It flows through Odisha 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 Odisha.

12. Name a man-made lake formed by damming of rivers. What is the purpose of such lakes?

Ans. Apart from natural lakes, the damming of the rivers for the generation of hydel power has also led to the formation of lakes, such as Guru Gobind Sagar (Bhakra-Nangal Project).

13. The Brahmaputra River is prone to frequent flooding and channel shifting. Why?

Ans.
- The river carries a large volume of water and considerable amount of silt in India, leading to overflow and flooding.
- The river's bed is marked by huge deposits of silt, causing the riverbed to rise and the channel to shift frequently.

14. Peninsular India's drainage basins are relatively small. Give any two reasons.

Ans. Peninsular India's drainage basins are relatively small because of the following reasons:
- The Western Ghats create a barrier, dividing the land into smaller drainage basins.
- A few rivers, like Narmada and Tapi, flow west, resulting in smaller drainage basins.

Short Answer Type Questions

15. Why do the Himalayan rivers perform intense erosional and depositional activity?

Ans. The Himalayan rivers originate from the north of the mountain ranges. They have cut through the mountains making gorges. Therefore, these rivers and many of their tributaries perform intense erosional activity up the streams and carry huge load of sand and silt. In the plains, they form large meanders, and a variety of depositional features like flood plains, river cliffs and levees.

16. Why does the river Brahmaputra deposit less silt and have less volume of water in Tibet?

Ans. The Brahmaputra river carries a smaller volume of water and less silt in Tibet as it is a cold and a dry area.

17. Name the main rivers of Peninsular India. Which river form deltas and which rivers form estuaries?

Ans. The main rivers of Peninsular India are

(i) the Mahanadi, (ii) the Godavari,
(iii) the Krishna, (iv) the Kaveri,
(v) the Narmada, and (vi) the Tapi.

Major peninsular rivers such as the Mahanadi, the Godavari, the Krishna and the Cauvery flow eastwards. These rivers drain into the Bay of Bengal and make deltas at their mouths.

Rivers such as Narmada and Tapi are west flowing rivers. They originate from the Western Ghats and fall into the Arabian Sea. They form estuaries in place of deltas.

18. What are the Ganga Action Plan (GAP) and National River Conservation Plan (NRCP)? What do they entail?

Ans. The river cleaning programme in the country was initiated with the launching of the Ganga Action Plan (GAP) in 1985. Ganga Action Plan was first initiated by the late Prime Minister Rajiv Gandhi in 1986. The fast shrinking glaciers, dams, barrages, canals and alarmingly high volume of pollution pose an ever-increasing threat to the health and life of the river. The Ganga Action Plan was expanded to cover other rivers under the National River Conservation Plan (NRCP) in the year 1995. The objective of the NRCP is to improve the water quality of the rivers, which are major water sources in the country, through the implementation of pollution abatement work.

It entails the following aspects:

(i) Rehabilitation of soft shelled turtles which may be used for the purpose of pollution abatement of the river.
(ii) Control of pollution such as waste from agricultural, human defecation, throwing of unburnt and half burnt bodies into the river.
(iii) Treatment of the domestic sewage, industrial sewage, industrial waste, toxic chemicals, and pollutants discharge into the river.
(iv) To improve the water quality of river Ganga.
(v) Millions of people bathe in river Ganga because of its holy aspect which may leads to its pollution.

19. Highlight a few characteristics of the Ganga–Brahmaputra delta.

Ans. The Ganga-Brahmaputra delta is a river delta in the South Asia region of Bangladesh and in West Bengal, India. It is the world's largest delta.

This region is also known as the Brahmaputra Delta or the Sunderbans Delta. Since this region is also one of the most fertile regions in the world, it is called the Green Delta. This region is the floodplain of three rivers: the Ganga, the Brahmaputra, and the Meghna river.

This delta is formed due to the confluence and meeting of two rivers namely Ganga and Brahmaputra.

This area is famous for mangrove forests. Also, this place is home to the famous Royal Bengal Tiger. With more than 130 million inhabitants, this belongs to the most densely populated areas in the world (1300 inhabitants/sq km).

Long Answer Type Questions

20. Discuss briefly about the three different Himalayan river systems. Name three tributaries of each river system.

Ans. The Himalayas consist of three major rivers:

(i) The Indus
(ii) The Ganga
(iii) The Brahmaputra

These three rivers form the complex river system of India.

(i) The Indus river system:

- The river Indus originates in Tibet near the Mansarowar Lake.
- It flows from the west and enters India through the Union Territory of Ladakh.
- Several tributaries such as the Zaskar, the Nubra, the Shyok and the Hunza, join it in the Ladakh region.
- The Indus flows through Baltistan and Gilgit and emerges from the mountains at Attock.
- The Satluj, the Beas, the Ravi, the Chenab and the Jhelum join together to enter the Indus near Mithankot in Pakistan.
- After this, the Indus flows southwards eventually reaching the Arabian Sea, east of Karachi.
- Indus with a length of 2,900 km is considered as one of the longest rivers of the world.
- This river forms spectacular gorges in the upper reach and pierces the Kailash range several times.

The three tributaries are the Zaskar, the Nubra, and the Shyok.

(ii) The Ganga river system:

- Ganga river basin is one of the largest basins in the country.
- It originates from the Gangotri glacier in the Himalayas.
- The Ganga starts off as the Bhagirathi, and is joined by the Alaknanda at Devaprayag.
- 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.
- The river Yamuna rises from the Yamunotri Glacier in the Himalayas. It flows parallel to the Ganga and as a right bank tributary meets the Ganga at Prayagraj.
- The Ganga river has a length of over 2,500 km.

The three tributaries of Ganga are the Yamuna, the Ghaghara and the Gandak.

(iii) The Brahmaputra river system

- The Brahmaputra rises in Tibet east of Mansarowar lake very close to the sources of the Indus and the Satluj.
- It is slightly longer than the Indus, and most of its course lies outside India.
- In Tibet it is known as Tsangpo and runs parallel to the Himalayas.
- It has a long mountain stage and therefore, carries a lot of sediment. When it enters the plains, it slows down suddenly, depositing its load causing it to split into 2 to 3 channels forming island in its course. Such a river is called a Braided River. The Brahmaputra's tributaries are Tista, Subansiri, Barali, Manas, Dhansiri, Buri and Dihang.
- Most of the right bank tributaries of Brahmaputra are snow as well rain feed and are perennial.
- The Tista, and Manas on the right bank and Burri Dihang, Disang, Kapila and Dhansiri on left bank.

21. Describe in detail any three features of the Narmada basin.

Ans. Narmada is a very unique river. It is the largest west flowing river in peninsular India. Some of the features of Narmada Basin are given below:

(i) It is the only river in India which flows through a rift valley between Vindhya range in north and Satpura range in south.
(ii) The Narmada creates many picturesque locations. For example, the 'Marble rocks' near Jabalpur and Dhuadhar falls.

22. Bring out the differences between freshwater lakes and lagoons. Give examples of lagoons and freshwater lakes in India.

Ans.

	Freshwater Lake	Lagoon
(i)	A lake is a still water body that can be either natural freshwater or man made with an inlet and outlet.	Lagoon is a spot which is separated from the river or sea with the help of a small land and is not going to be as deep.
(ii)	Do not have any river or sea near them.	Do not have any land near them.
(iii)	Freshwater lakes depend on a stream of water.	Lakes depend on sea or river for their water supply.
(iv)	The size of a lake is small but these are deep waters.	The lagoons are big in size but they are not deep.
(v)	Most of the freshwater lake in India are around Himalayan region.	Spits and bars form lagoons in the coastal areas.
(vi)	Lakes are • Tectonic Lake • Landside Lake • Salt Lake • Carter Lake • Glacial Lakes • Oxbow Lakes	There are two types of lagoons • Coastal Lagoons • Atoll Lagoons

Freshwater lakes in India:

- Wular Lake – Jammu and Kashmir
- Loktak Lake – Manipur
- Damdama Lake – Haryana
- Dal Lake – Srinagar
- Barapani Lake - Meghalaya

Lagoons of India

- Chilka Lake – Odisha
- Pulicat Lake – Andhra Pradesh
- Kolleru Lake – Andhra Pradesh

23. Enumerate how rivers play a vital role in a nation's economy.

Ans. Rivers are of fundamental importance. They have both cultural and economic importance for a country. Many old civilizations flourished next to rivers. It is true for India also. The first Harappan civilizations were located next to the river Indus.

Rivers form an important part of Indian economy due to following reasons:

(i) It is a source of fresh water. Major civilizations in ancient India typically flourished alongside rivers. This was mainly because of the availability of fresh water. This freshwater was used for daily activities. Near the freshwater was the availability of fertile land for agriculture.

(ii) India is a country with a huge population. This population needs large water resources to help them sustain their day to day agricultural activities. A huge output of water is necessary to support such a huge population.

(iii) Many hydropower projects are made on the rivers. This increases the energy production, besides flood control and canalization of rivers. This in turn becomes important to drive other industries.

(iv) Rivers are a huge source of investment and profit for the tourism industry in India. After every four years Kumbh is organized. In this way the government and general people earn money. The river Ganga for example is a huge source of religious tourism. In the mountain stretches, rivers serve as means for adventure sports.

(v) Rivers serve as mode of transport for carrying both people and goods. This advantage has not been perhaps effectively utilised in India compared to other countries.

Self-Assessment

Multiple-Choice Questions

1. The river Tapi rises from

(a) Highlands of Chhattisgarh.
(b) Satpura range.
(c) Amarkantak hills.
(d) Western Ghats.

Ans. (b) Satpura range.

2. Dakshin Ganga is the name given to river

(a) Mahanadi. (b) Kaveri.
(c) Godavari. (d) Krishna.

Ans. (c) Godavari.

3. The largest freshwater lake in India is

(a) Chilika lake. (b) Dal lake.
(c) Wular lake. (d) Kolleru lake.

Ans. (c) Wular lake.

4. Identify the river with the help of following information and choose the correct option.

- It 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.

Options:

(a) The Narmada
(b) The Tapi
(c) The Godavari
(d) The Mahanadi

Ans. (b) The Tapi

5. Identify the River system with the help of the following information and choose the correct option.
   - The Ghaghara, the Gandak and the Kosi, tributaries of this river, rise in the Nepal Himalaya.
   - These rivers flood parts of the northern plains every year causing widespread damage to life and property.
   - The main tributaries of this river, which come from the peninsular uplands, are the Chambal, the Betwa and the Son.

   Options:

   (a) The Indus River System
   (b) The Ganga River System
   (c) The Brahmaputra River System
   (d) The Peninsular River System

Ans. (b) The Ganga River System

6. Read the given statements and choose the correct option with regard to the Krishna River from the following.

   I. Rises from a spring near Kerala.
   II. It flows for about 1400 km and reaches the Bay of Bengal.
   III. The Tungabhadra, the Koyana, the Ghatprabha, the Musi and the Bhima are some of its tributaries.
   IV. Its drainage basin is shared by Maharasthra, Karnataka and Andhra Pradesh.

   Options:

   (a) I, II and III (b) I, II and IV
   (c) I, III and IV (d) II, III and IV

Ans. (d) II, III and IV

Assertion-Reason Type Questions

For question numbers 7 to 15, two statements are given as Assertion (A) and Reason (R). Read the statements and choose the correct option.

Options:

(a) Both A and R are true and R is the correct explanation of A.
(b) Both A and R are true but R is not the correct explanation of A.
(c) A is true but R is false.
(d) A is false but R is true.

7. **Assertion (A):** Most of the Himalayan rivers are perennial.

   Reason (R): It means that they have water throughout the year.

Ans. (a) Both A and R are true and R is the correct explanation of A.

8. **Assertion (A):** The Brahmaputra rises in Tibet east of Mansarowar Lake very close to the sources of the Indus and the Satluj.

   Reason (R): Most of its course lies within India.

Ans. (c) A is true but R is false.

9. **Assertion (A):** Most of the major rivers of the Peninsula, such as the Mahanadi, the Godavari, the Krishna and the Kaveri flow westwards.

   Reason (R): The main water divide in Peninsular India is formed by the Western Ghats.

Ans. (d) A is false but R is true.

10. **Assertion (A):** The river cleaning programme in the country was initiated with the launching of the Ganga Action Plan (GAP) in 1985.

    Reason (R): The Ganga Action Plan was expanded to cover other rivers under the National River Conservation Plan (NRCP) in the year 2005.

Ans. (c) A is true but R is false.

11. **Assertion (A):** Most of the freshwater lakes are in the Himalayan region.

    Reason (R): They are of glacial origin.

Ans. (a) Both A and R are true and R is the correct explanation of A.

12. **Assertion (A):** The pollution level of many rivers has been rising.

    Reason (R): The increasing urbanisation and industrialisation have led to a heavy load of untreated sewage and industrial effluents being emptied into the rivers.

Ans. (a) Both A and R are true and R is the correct explanation of A.

13. **Assertion (A):** The formation of lakes through damming is beneficial for hydel power generation.

    Reason (R): Guru Gobind Sagar was created by the Bhakra Nangal Project to facilitate hydel power generation.

Ans. (b) Both A and R are true but R is not the correct explanation of A.

14. **Assertion (A):** Rivers have been a crucial part of human civilization since ancient times.

    Reason (R): Riverbanks have always been uninhabited due to the lack of resources.

Ans. (d) A is false but R is true.

15. **Assertion (A):** Lakes are of great value to human beings.

    Reason (R): Lakes help regulate river flow, prevent flooding during heavy rains, and maintain an even flow during dry seasons.

Ans. (a) Both A and R are true and R is the correct explanation of A.

Match the Following

16. Match the following items given in Column A with those in Column B. Choose the correct answer from the given options:

Column A	Column B
A. Tapi	1. It is the largest peninsular river.
B. Ganga	2. The river rises in the highlands of Chhattisgarh.
C. Mahanadi	3. This river drains into the Arabian Sea.
D. Godavari	4. The length of this river is about 2500 km.

Codes:

	A	B	C	D
(a)	3	4	2	1
(b)	2	4	1	3
(c)	4	1	3	2
(d)	1	3	2	4

Ans. (a) 3 4 2 1

Find the Correct Sequence

17. Arrange the stages of river formation in correct sequence.

(a) Ox-bow lakes, meanders, source of the river, delta.

(b) Meanders, source of the river, delta, ox-bow lakes.

(c) Source of the river, meanders, ox-bow lakes, delta.

(d) Delta, meanders, source of the river, ox-bow lakes.

Ans. (c) Source of the river, meanders, ox-bow lakes, delta.

Find the Incorrect Option

18. (a) The Ganga water is able to dilute and assimilate pollution loads within 50 km of large cities.

(b) Rising from a spring near Mahabaleshwar, the Krishna flows for about 1400 km and reaches the Bay of Bengal.

(c) The total length of the Kaveri river is about 760 km.

(d) The Godavari is the largest Peninsular river. It rises from the slopes of the Western Ghats in the Nasik district of Maharashtra.

Ans. (a) The Ganga water is able to dilute and assimilate pollution loads within 50 km of large cities.

Fill in the Blanks

19. The Ganga emerges from the mountains on to the plains at **Haridwar.**

20. The Brahmaputra river rises from **Mansarowar Lake in Tibet**.

21. The **Narmada** and **Tapi** are the only long rivers which make estuaries in India.

Very Short Answer Type Questions

22. What is a river system? What is a tributary?

Ans. A river along with its tributaries may be called a river system. A tributary is a freshwater stream that contributes its flow to a larger stream, river, or other water body. The larger river, often referred to as the mainstem, serves as the primary channel.

23. What is the total length of river Indus? How many rivers feed into it?

Ans. With a total length of 2900 km, the Indus is one of the longest rivers of the world. Several tributaries, the Zaskar, the Nubra, the Shyok and the Hunza, join it in the Kashmir region.

24. Name the gorge through which the Brahmaputra enters India. What is this rivers known as in Bangladesh?

Ans. The Brahmaputra River flows into India via the Tsangpo Gorge. Upon reaching Namcha Barwa the river makes a U-turn and subsequently enters Arunachal Pradesh through the gorge. River Brahmaputra is known as Jamuna in Bangladesh.

25. In what ways are the Himalayan and the peninsular rivers different from each other? Provide adequate examples.

Ans. Himalayan rivers receive water from rain and snow melt, while peninsular rivers rely solely on rainfall. The drainage basins of Himalayan rivers are extensive, while peninsular rivers have narrow drainage patterns. Himalayan rivers are perennial, while peninsular rivers are seasonal or non-perennial. Some of the Himalayan rivers are Ganga, Indus, and Brahmaputra and peninsular rivers are Godavari, Krishna, Kaveri, and Mahanadi.

26. Lakes are of great value to human beings. Give any two reasons.

Ans.
- Lakes regulate river flow, preventing flooding during heavy rains and maintaining a steady water supply during dry seasons.
- Lakes provide opportunities for hydel power generation and tourism development, enhancing economic and recreational benefits.

27. 'Rivers have been of fundamental importance throughout human history.' Justify this statement with any two points.

Ans. Rivers have been crucial throughout history:
- River water is essential for human activities like drinking, irrigation, and industry.
- River banks have attracted settlers since ancient times, leading to the development of

cities and civilizations, like ancient Egypt, China, and India.

Short Answer Type Questions

28. Explain briefly about the Mahanadi Basin.

Ans. The Mahanadi rises in the highlands of Chhattisgarh. This river gets formed by numerous mountain streams. The farthest stream is located in hills of the Dhamtari district of Chhattisgarh. These hills are extensions of the Eastern Ghats and are a source of many other streams which then go on to join the Mahanadi. The river then flows through Odisha 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 Odisha. Mahanadi river basin is best known for its fertile soil and flourishing agriculture. Before the Hirakud dam was built, the river carried a huge amount of silt.

29. Write a short note on the lakes found in India.

Ans. There are a number of lakes that can be found in India. Each lake is different from the other lake which might lie in faraway corners of India. These lakes can either be permanent, or 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. These lakes have been described below:

(i) **Salt water lakes:** The Chilika lake, Pulicat lake and the Kolleru lake are salt water lakes. These lakes can be found in the coastal regions of India. In these areas spit and bars form lagoons or better called as salt water lakes. At times, salt water lake can also be formed with island drainage. Example of such a lake is Sambhar lake in Rajasthan. Its water is used for producing salt.

(ii) **Freshwater lakes:** Most of the freshwater lakes are in the Himalayan region. They originate from the glaciers based in the mountains. They are formed when glaciers dug out a basin, which was later filled with snow melt. The Wular lake in Jammu and Kashmir is 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 drain excessive water of the river during floods and adding water to the rivers during the dry season. Some examples of such lakes are the Guru Gobind Sagar (Bhakra Nangal Project), Nizam Sagar, Nagarjuna Sagar, Rana Pratap Sagar, etc.

30. How have the rivers been of fundamental importance throughout the human history?

Ans. Rivers have been considered as the lifeline of human civilization. They have marked a major role in the settling of the human history. The river water is a natural resource for the humans. This water is essential for various human activities. The river banks have attracted the settlers and traders from ancient times. Indus valley civilization started because of the river banks. Nomads started settling due to the availability of water. These settlements eventually turned into big cities when people settled and started their respective occupations.

31. Describe the freshwater lakes of India.

Ans. Most freshwater lakes are of glacial origin, meaning they were formed when glaciers carved out basins that later filled with snowmelt. In contrast, the Wular Lake in Jammu and Kashmir was formed due to tectonic activity and is the largest freshwater lake in India. Other notable freshwater lakes include Dal Lake, Bhimtal, Nainital, Loktak, and Barapani.

32. 'The Sundarban Delta is the world's largest and fastest growing delta.' Support this statement with three relevant points.

Ans. The delta is constantly growing due to the deposition of silt and sand by these rivers.

The Sundarban Delta is the largest delta in the world, covering an area of approximately 40,000 square kilometers. The delta is formed by the mighty rivers Ganga and Brahmaputra, which bring vast amounts of water and sediment.

33. Godavari is also known as the Dakshin Ganga. Explain.

Ans. Godavari is the largest peninsular river, stretching 1500 km in length.

Its drainage basin is the largest among peninsular rivers, covering parts of four states – Maharashtra, Madhya Pradesh, Odisha and Andhra Pradesh.

Godavari's extensive network of tributaries, including large ones, such as the Pranhita, Manjra and Penganga, contributes to its reputation as the southern equivalent of the sacred Ganges River.

34. Describe three main features of the Narmada basin.

Ans. The Narmada basin has three main features:

- It is located in a rift valley formed due to faulting, creating a unique landscape.
- The river flows through picturesque locations, such as the "Marble rocks" and "Dhuadhar falls", showcasing its scenic beauty.

- The basin has short tributaries that join the main stream at right angles, covering parts of Madhya Pradesh and Gujarat.

35. Describe the Indus River, one of the longest rivers of the world.

Ans.
- The Indus River has a total length of 2900 km.
- It originates in Tibet and flows through India and Pakistan, covering a vast distance.
- The river flows southwards eventually reaching the Arabian Sea, east of Karachi, making it a significant and long river in the world.

36. India has various types of lakes formed by different processes. Explain.

Ans.
- Glaciers and ice sheets formed some lakes, while others were created by wind, river action, and human activities.
- Meandering rivers formed ox-bow lakes, and spits and bars formed lagoons in coastal areas such as the Chilika and Pulicat lakes.
- Lakes in inland drainage regions, such as the Sambhar Lake in Rajasthan, are seasonal and used for salt production, showcasing the diversity of lake formations in India.

Paragraph Based Questions

37. Read the sources given below and answer the questions that follow:

Source A – The Godavari Basin

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.

(a) Why is Godavari known as the Dakshin Ganga?

Source B – Lakes

The Wular lake in Jammu and Kashmir, in contrast, is the result of tectonic activity. It is the largest freshwater lake in India.

(b) Why is Wular lake in Jammu and Kashmir called a freshwater lake?

Source C – River Pollution

The growing domestic, municipal, industrial and agricultural demand for water from rivers naturally affects the quality of water. As a result, more and more water is being drained out of the rivers reducing their volume.

(c) Give two reasons for rivers being reduced of their volume.

Ans. (a) The Godavari is known as the Dakshin Ganga because it is the largest peninsular river. Its length is about 1500 km. Its drainage basin is also the largest among the peninsular rivers. It is the perennial river of south India which caters to the needs of irrigation.

(b) We know that most of the freshwater lakes are in Himalayan region. These lakes are of glacial origin that is why Wular lake in Jammu and Kashmir is called a freshwater lake.

(c) Rivers are reducing their volume because of the following reasons:

(i) Increase in the consumption of water due to increase in population.

(ii) Draining of the industrial effluents into the rivers.

Case Based Questions

38. India has many lakes. These differ from each other in size and other characteristics. Most lakes are permanent, while some contain water only during the rainy season, like the lakes in the basins of inland drainage of semi-arid regions. There are some lakes which are the result of the action of glaciers and ice sheets, while others have been formed by wind, river action and human activities. A meandering river across a floodplain forms cut-offs that later develops into ox-bow lakes. Spits and bars form lagoons in the coastal areas, e.g. the Chilika lake, the Pulicat lake and the Kolleru lake. Lakes in the region of inland drainage are sometimes seasonal; for example, the Sambhar lake in Rajasthan, which is a salt water lake. Its water is used for producing salt. Most of the freshwater lakes are in the Himalayan region. They are of glacial origin. In other words, they formed when glaciers dug out a basin, which was later filled with snowmelt. The Wular lake in Jammu and Kashmir, in contrast, is the result of tectonic activity. It is the largest freshwater lake in India. The Dal lake, Bhimtal, Nainital, Loktak and Barapani are some other important freshwater lakes. Apart from natural lakes, the damming of the rivers for the generation of hydel power has also led to the formation of lakes, such as Guru Gobind Sagar (Bhakra Nangal Project). Lakes are of great value to human beings. A lake helps to regulate the flow of a river. During heavy rains, it prevents flooding and during the dry season, it helps to maintain an even flow of water. Lakes can also be used for developing hydel power. They moderate the climate of the surroundings; maintain the aquatic ecosystem, enhance natural beauty, help develop tourism and provide recreation.

38.1 How are lakes formed?

Ans. Some lakes have been created through the processes of glaciers and ice sheets, whereas

others have emerged due to the influence of wind, river action, and human interventions.

38.2 Mention two functions performed by lakes.

Ans. A lake plays an important role in managing the flow of a river. During heavy rains, it prevents flooding and during the dry season, it ensures a consistent water flow. Lakes can also be used for developing hydel power.

38.3 What is an ox-bow lake? How is it formed?

Ans. Oxbow lakes are the remains of the bend in the river. Oxbow lakes are still water lakes. An oxbow lake forms when a meandering river erodes through the neck of one of its meanders.

39. The headwaters of the Ganga, called the 'Bhagirathi' is fed by the Gangotri Glacier and joined by the Alaknanda at Devaprayag in Uttarakhand. At Haridwar, the Ganga emerges from the mountains on to the plains. 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. The river Yamuna rises from the Yamunotri Glacier in the Himalayas. It flows parallel to the Ganga and as a right bank tributary meets the Ganga at Allahabad. The Ghaghara, the Gandak and the Kosi rise in the Nepal Himalaya. They are the rivers, which flood parts of the northern plains every year, causing widespread damage to life and property, whereas, they enrich the soil for agricultural use. 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. 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. 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. 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. The delta formed by these rivers is known as the Sundarban Delta. The length of the Ganga is over 2500 km.

39.1 What is a glacier? Give an example.

Ans. A glacier is a large, perennial accumulation of crystalline ice, snow, rock, sediment, and often liquid water that originates on land and moves down slope under the influence of its own weight and gravity. For example, Gangotri and Yamunotri Glaciers.

39.2 What is a tributary? Give an example of a right bank tributary of the Ganga.

Ans. A tributary is a freshwater stream that contributes its flow to a larger stream, river, or other water body. River Yamuna is a as a right bank tributary of Ganga.

39.3 Explain the formation of the Ganga–Brahmaputra Delta.

Ans. Enlarged with the waters from its right and left bank tributaries, the Ganga flows eastwards till Farakka in West Bengal. The river bifurcates here; the Bhagirathi-Hooghly flows southwards through the deltaic plains to the Bay of Bengal. The mainstream, flows southwards into Bangladesh and is joined by the Brahmaputra. 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. The delta formed by these rivers is known as the Sundarban Delta.

40. The river Indus rises in Tibet, near Lake Mansarowar. Flowing west, it enters India in the union territory of Ladakh. It forms a picturesque gorge in this part. Several tributaries, the Zaskar, the Nubra, the Shyok and the Hunza, join it in the Ladakh region. The Indus flows through Baltistan and Gilgit and emerges from the mountains at Attock. The Satluj, 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. The Indus plain has a very gentle slope. 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 union territories of Ladakh and Jammu and Kashmir, states of Himachal Pradesh and Punjab and the rest is in Pakistan.

According to the regulations of the Indus Water Treaty (1960), India can use only 20 per cent of the total water carried by the Indus river system. This water is used for irrigation in Punjab, Haryana and the southern and the western parts of Rajasthan.

40.1 From where does the river Indus originates? Name its tributaries.

Ans. The River Indus rises in Tibet, near Lake Mansarowar. Flowing west, it enters India in the Union territory of Ladakh. The important tributaries of River Indus are the Zaskar, the Nubra, the Shyok and the Hunza.

40.2 Write a brief note on Indus Water Treaty.

Ans. This treaty was signed between India and Pakistan in the year 1960. According to its provisions,

India is entitled to use only 20 per cent of the total water carried by the Indus river system. This water is used for irrigation in Punjab, Haryana, the southern and the western parts of Rajasthan.

40.3 Write a short note on Indus River system.

Ans. The River Indus rises in Tibet and flows through Baltistan and Gilgit and emerges from the mountains at Attock. It's total length is 2900 km and is one of the longest rivers of the world. The Satluj, the Beas, the Ravi, the Chenab and the Jhelum join together to enter the Indus near Mithankot in Pakistan. The River Indus drains into Arabian Sea and covers Ladakh, Jammu and Kashmir, Himachal Pradesh and Punjab in India.

Long Answer Type Questions

41. Concern over rising pollution of our rivers led to the launching of various action plans to clean the rivers. Substantiate the statement with examples.

Ans. The concern over rising pollution in rivers led to the launch of action plans like the Ganga Action Plan (GAP) and the National River Conservation Plan (NRCP) to clean and restore rivers.

- These plans aim to improve water quality, prevent pollution, and promote sustainable use of river resources.
- For example, the GAP has led to the establishment of sewage treatment plants and industrial effluent treatment plants along the Ganga River, reducing pollution loads and improving water quality.
- Similarly, the NRCP has helped to protect and restore riverine ecosystems, benefiting both human health and the environment.

42. Describe the Brahmaputra River System.

Ans.

- The Brahmaputra River System is a major river system of India. The river originates in Tibet, east of Mansarowar lake, and flows eastwards parallel to the Himalayas.
- It takes a 'U' turn at Namcha Barwa and enters India in Arunachal Pradesh, where it is joined by tributaries to form the Brahmaputra in Assam.
- In Tibet, the river carries less water and silt, while in India, it carries a large volume of water and considerable amount of silt due to high rainfall.
- The Brahmaputra has a braided channel in Assam, forming many riverine islands, including the world's largest riverine island, Majuli.
- The river is prone to frequent flooding and channel shifting, causing devastation in Assam and Bangladesh.

43. 'A heavy load of untreated sewage and industrial effluents is emptied into the rivers.' What has been initiated to counteract this? How can this be prevented?

Ans. Measures to counteract river pollution:

- Wastewater treatment facilities play a crucial role in eliminating contaminants from water prior to its discharge into natural waterways.
- Mitigating plastic waste is essential, as plastic is non-biodegradable and can persist in aquatic environments, rendering water toxic.
- Water is a scarce resource, so limiting the amount of water use daily will contribute to reducing water pollution.
- Planting trees is beneficial, as they help to prevent erosion that can lead to the introduction of pollutants into water bodies.
- It is important to decrease the application of pesticides, insecticides, fungicides, and fertilisers.
- Water containing sewage should be treated at sewage treatment plants before it is utilised for irrigation purposes.

Water purification initiatives should be carried out thoroughly to destroy the pollutants and harmful elements from water to a substantial extent.

Let's Compete

Multiple-Choice Questions

1. Which one of the following rivers rises from Nepal Himalayas?

(a) Chambal (b) Kosi
(c) Alaknanda (d) Tapi

Ans. (b) Kosi

2. Meandering rivers form

(a) freshwater lakes. (b) lagoons.
(c) ox-bow lakes. (d) man-made lakes.

Ans. (c) ox-bow lakes.

3. Sundarbans is a

(a) water divide. (b) estuary.
(c) delta. (d) glacier.

Ans. (c) delta.

4. The Dhuandhar falls is formed by the

(a) Ganga. (b) Narmada.
(c) Tapi. (d) Brahmaputra.

Ans. (b) Narmada.

5. The Zaskar, Nubra, Shyok and Hunza are the tributaries of the river

(a) Indus. (b) Brahmaputra.
(c) Godavari. (d) Ganga.

Ans. (a) Indus.

6. Name the river that flows in west direction and make estuaries.

(a) Tapi (b) Kaveri

(c) Satluj (d) Narmada

Ans. (d) Narmada

7. The length of the Ganga is

(a) 1800 km. (b) 2500 km.

(c) 2900 km. (d) 860 km.

Ans. (b) 2500 km.

8. The Brahmaputra in Tibet is called

(a) Jamuna. (b) Tsangpo.

(c) Lohit. (d) Dihang.

Ans. (b) Tsangpo.

9. The Musi and Bhima are the tributaries of river

(a) Tapi. (b) Godavari.

(c) Narmada. (d) Krishna.

Ans. (d) Krishna.

10. Sambhar lake is a salt water lake located in

(a) Tamil Nadu. (b) Rajasthan.

(c) Maharashtra. (d) Odisha.

Ans. (b) Rajasthan.

Life Skills

1. Why do the rivers in India are considered holy and worshipped yet every year pollutants are being dumped into them? Give two reasons.

Ans. India is a country which has rich resources of water. This is because of the number of rivers and their respective tributaries which are present throughout the country. India is often referred as the Land of Rivers. People all over the country worship various rivers as gods and goddesses. But what is ironical is that in spite of our profound respect and reverence for our rivers, we have not been able to maintain their purity, cleanliness and the physical well-being. Given below are the main causes of pollution of our rivers.

(i) High population density around the river banks and the reckless dumping of non-biodegradable waste, especially plastics, is a major cause of pollution of the rivers. Despite warning and strict fines imposed by the government on those found dumping garbage into rivers and their estuaries, this uncivilised practice continues unabated.

(ii) A lot of significance is attached to afterlife. In most of the cities around the country, cremation grounds are situated next to a river bank. For example, Kashi or Varanasi is one such place with cremation grounds located right on banks of river Ganga. Ganga is the longest Indian river. Unfortunately, lots of Indians families that cannot afford cremation consign mortal remains of loved ones to rivers. These human cadavers cause severe water pollution.

(iii) Industries along the river belt are also a major cause of polluting the water with chemicals and other industrial effluents. While large corporations adopt advanced techniques to treat effluents and chemicals to negate or reduce their toxicity, smaller firms often have no such considerations and violate environment safety standards.

2. The river Ganga floods parts of the Northern Plains every year causing a lot of damage to life and property. Explain how the floods can be controlled and the rich soil used to bring more land under cultivation.

Ans. There are a number of factors which can cause floods in an area. Some of these factors may be heavy rainfall over a short period, moderate rainfall over a long period, melting snow, hurricane storm surge, ice or debris jams on rivers, and dam failures. Floods can cause great harm to people and property. They are the deadliest form of natural disaster.

These floods need to be controlled in the following ways:

(i) These methods include planting vegetation to retain extra water.

(ii) Hillsides can also be terraced to slow the flow downhill.

(iii) Other techniques include the construction of dams, reservoirs or retention ponds to hold extra water during times of flooding.

(iv) Coastal areas built coastal defences, such as sea walls, beach nourishment, and barrier islands.

(v) Floods can also be controlled with the help of flood gates. Flood gates are systems that have adjustable gates to control the flow rate of a river. The water can either be stored or routed depending on the situation. Also, flood gates can also lower the water levels from canal channels or the main river channel. This allows more water to flow into a storage area if a flood is being predicted.

4

Climate

Check Your Progress

Multiple-Choice Questions

1. The climate of India is described as

(a) equatorial. (b) temperate.

(c) monsoon. (d) arctic.

Ans. (c) monsoon.

2. The latitudinal line passing through the centre of India is the

(a) Antarctic Circle. (b) Tropic of Cancer.

(c) Equator. (d) Tropic of Capricorn.

Ans. (b) Tropic of Cancer.

3. Read the given statements and choose the correct option with regard to distribution of rainfall from the following.

I. Parts of western coast and northeastern India receive over about 400 cm of rainfall annually.

II. However, it is less than 60 cm in western Rajasthan and adjoining parts of Gujarat, Haryana and Punjab.

III. Rainfall is equally low in the interior of the Deccan Plateau, and east of the Sahyadris.

IV. A third area of low precipitation is around Ranchi in Jharkhand. The rest of the country receives moderate rainfall.

Options:

(a) I, II and III

(b) I, II and IV

(c) I, III and IV

(d) II, III and IV

Ans. (a) I, II and III

4. Which of the following is the reason for the breaks in monsoon rainfall in an area? Choose the correct option accordingly.

I. The monsoon trough moves northward or southward.

II. The monsoon winds blow at a constant velocity.

III. The rainfall is uniform throughout the season.

IV. The monsoon rains occur only during the day.

Options:

(a) I (b) I and II

(c) III (d) IV

Ans. (a) I

5. Read the given statements and choose the correct option with regard to the hot weather season from the following.

I. The summer months experience rising temperature and rising air pressure in the northern part of the country.

II. Towards the end of May, an elongated low-pressure area develops in the region.

III. Extending from the Thar Desert in the northwest to Patna and Chotanagpur Plateau in the east and southeast.

Options:

(a) I, II and III (b) II and III

(c) I and III (d) Only III

Ans. (b) II and III

6. Read the given statements and choose the correct option with regard to climatic controls from the following.

I. Due to the curvature of the earth, the amount of solar energy received are same everywhere.

II. Air temperature generally decreases from the equator towards the poles.

III. As one goes from the surface of the earth to higher altitudes, the atmosphere becomes less dense and temperature decreases.

IV. The hills are therefore cooler during summers.

Options:

(a) I, II and IV (b) I, II and III

(c) I, III and IV (d) II, III and IV

Ans. (d) II, III and IV

Very Short Answer Type Questions

7. Name the two branches of the south-west monsoons. Which states/areas do they impact?

Ans. The two branches of the south-west monsoon in India are the Arabian Sea branch and the Bay of Bengal branch. Arabian Sea branch hits the western coast of India, including the states of Kerala, Karnataka, and Maharashtra. Bay of Bengal branch moves towards northeastern India and the Gangetic plains, and brings rainfall in West Bengal, Bihar, and Uttar Pradesh.

8. Name the four seasons of India and their respective months of presence.

Ans. Four main seasons in India are winters, summers, the advancing monsoon and the retreating monsoon. Winters begins from mid-November in northern India and stays till February. From March to May, it is summer season. Advancing monsoon is from June to September and retreating monsoon season is from October to November.

9. Give reason why India experiences Tropical Monsoon type of climate.

Ans. India experiences a tropical monsoon climate, largely attributed to the presence of the Himalayas. These mountains obstruct the cold winds from Asia, preventing them from reaching the temperate northern regions of India, while simultaneously trapping the monsoon winds that deliver rainfall across the entire country.

10. Why does Tamil Nadu get rainfall in winter? Is it because of climate controls?

Ans. Tamil Nadu receives rainfall in the winter due to the northeast trade winds and the retreating monsoons. During winters, the northeast trade winds blow from the sea to the land, picking up moisture and causing rainfall. Concurrently, the southwest monsoons recede from the northern plains causing a shift in the direction of the monsoon winds from the northeast to the southwest. These winds contribute to the rainfall along the Tamil Nadu coast.

11. Houses in Assam are built on stilts. Give any two reasons.

Ans. (i) To stay safe from floods: The stilts keep the house high and dry when the water rises.

(ii) To prevent termite damage: Termites cannot climb up to eat away the wood, keeping the house strong.

Short Answer Type Questions

12. Differentiate between weather and climate.

Ans.

	Weather	Climate
(i)	It refers to the state of the atmosphere over an area at any point of time.	It refers to the sum total of weather conditions and variations over a large area for a long period of time.
(ii)	Weather conditions change frequently.	Climatic conditions do not change frequently.

13. Highlight two characteristics of *loo* and *kaal baisakhi*.

Ans. Two characteristics of loo and Kaal Baisakhi are given below:

Loo:

(i) 'Loo' are strong, gusty, hot, dry winds blowing during the day over the north and northwestern India.

(ii) Loo causes the temperature to rise upto 45 to 50 °C which causes tremendous loss to life due to extreme heat.

Kaal Baisakhi

(i) The localised thunderstorms, in West Bengal, which are associated with violent winds, torrential downpours, are known as the 'Kaal Baisakhi'.

(ii) These thunderstorms are extremely helpful for the pre-Kharif crops such as jute, paddy and a large number of vegetables and fruits. These thunderstorms give relief after mid-day heat and pours well on the thirsty soil for development of crops.

14. How do the Himalayas affect the climate of India?

Ans. Himalayas play a very important role in managing the climate of India. India is situated towards the south of the Himalayas. It is because of the height, altitude and length of Himalayas that the summer monsoons coming from the Bay of Bengal and Arabian Sea cause precipitation in the form of rain or snow. The Himalayas also prevent cold air which runs from Central Asia to enter India. The height of the Himalayan Mountains concentrates most of the monsoonal rainfall on the Indian Subcontinent. This same mountain range blocks cold winds from Siberia from penetrating the region. This is why most of India has a warm, tropical climate with high precipitation. Had there been no Himalayas, the whole of India would have been a desert in the absence of precipitation and its winters would have been very severe under the influence of cold air masses coming from Central Asia.

15. How are the monsoons affected by the change in the pressure conditions over the southern oceans?

Ans. It has been noticed that changes in the pressure conditions over the southern oceans can also affect the monsoons. Normally when the tropical eastern south Pacific Ocean experiences high pressure, the tropical eastern Indian Ocean experiences low pressure. Through the course of time, there is a reversal in the pressure conditions and the eastern Pacific has lower pressure in comparison to the eastern Indian Ocean. This periodic change in pressure conditions is called Southern Oscillation or SO. The intensity of the monsoons is predicted by computing the difference in pressure over Tahiti and Darwin. If the pressure differences were negative, it means below average and late monsoons.

Long Answer Type Questions

16. Highlight the western conditions and the characteristics of the hot weather season.

Ans. India experiences the hot weather season from the month of March to May. During this season, there is an apparent northward movement of the sun. The hot weather season has the following characteristics:

(i) The influence of the shifting of the heat belt can be seen clearly from temperature recordings taken during March-May at different latitudes.

(ii) In March, the highest temperature is about 38° Celsius, recorded on the Deccan plateau.

(iii) In April, temperatures in Gujarat and Madhya Pradesh are around 42° Celsius.

(iv) In May, temperature of 45° Celsius is common in the northwestern parts of the country.

(v) In peninsular India, temperatures remain lower due to the moderating influence of the oceans.

(vi) An elongated low-pressure area develops from Thar Desert (in North-West) to Patna and Chotanagpur plateau (in East and South-East) towards the end of May. From this low-pressure belt, the circulation of air begins.

(vii) In the Northern and North-Western parts of India, there is an occurrence of 'Loo'- strong, hot, dry wind.

(viii) In the Northern India, there is common occurrence of dust storm in May.

(ix) There is also an occurrence of localised thunderstorms associated with violent winds, torrential downpours, often accompanied by hailstorm at some places (e.g., West Bengal).

17. Bring out the differences between southwest monsoons and retreating monsoons by explaining five distinctive features of each.

Ans.

	Southwest Monsoon	Retreating Monsoon
(i)	These winds blow from June to September.	These winds blow during October and November.
(ii)	The direction of these winds is from the West to the North East.	Here the apparent movement is towards the South.
(iii)	A low pressure is developed over the Central India.	A low pressure is developed over Bay of Bengal which causes the southwest monsoon to retreat and blows from North–East.
(iv)	During these months, Southwest Monsoons cover the whole of India and give heavy rainfall.	The coastal areas of Tamil Nadu receive maximum rainfall from these retreating winds.
(v)	These winds blow over the warm oceans, gather moisture and bring widespread rainfall over the mainland of India.	The retreat of the monsoon is marked by clear skies and rise in temperature.
(vi)	These rains at times bring abundant rainfall, sometimes even floods, to regions such as Indochinese Peninsula.	Retreating monsoons develop tropical cyclones which are often very destructive.
(vii)	It strikes at Western Ghats and gives rainfall to the western most regions while Western Ghats shield the inner region so that Deccan plateau becomes a dry land.	Direction of winds is from North west to south east and Winds blow from surface to sea there by carrying no moisture.

Self-Assessment

Multiple-Choice Questions

1. *Loo* is a

(a) Periodic wind. (b) Local wind.
(c) Planetary wind. (d) Cyclonic wind.

Ans. (b) Local wind.

2. During which months is the hot weather season in India?

(a) January to March
(b) March to May
(c) May to July
(d) July to September

Ans. (b) March to May

3. What is a significant feature of the hot weather season in north and northwestern India?

(a) Cyclones (b) Floods
(c) *Loo* winds (d) Snowfall

Ans. (c) *Loo* winds

4. Which region records the highest temperatures in May in India?
   (a) Deccan Plateau
   (b) Northwestern parts of the country
   (c) Gujarat and Madhya Pradesh
   (d) Peninsular India

Ans. (b) Northwestern parts of the country

5. What is the phenomenon known as 'Kaal Baisakhi'?
   (a) Pre-monsoon showers in Kerala and Karnataka
   (b) Localized thunderstorms in West Bengal
   (c) Dust storms in northern India
   (d) South-west monsoon winds

Ans. (b) Localized thunderstorms in West Bengal

6. Choose the correctly matched pair from the following.
   (a) Winter rainfall – *mahawat*
   (b) West Bengal – mango showers
   (c) Kerala – *Kaal Baisakhi*
   (d) Western Ghats – 150 cm rainfall

Ans. (d) Western Ghats – 150 cm rainfall

7. Identify the season with the help of following information and choose the correct option.
   - Day temperatures are high, nights are cool and pleasant.
   - The land is still moist. Owing to the conditions of high temperature and humidity.
   - The weather becomes rather oppressive during the day. This is commonly known as 'October heat'.

   Options:
   (a) The Cold Weather Season
   (b) The Hot Weather Season
   (c) Advancing Monsoon
   (d) Retreating/Post Monsoons

Ans. (d) Retreating/Post Monsoons

Assertion-Reason Type Questions

For question numbers 8 to 13, two statements are given as Assertion (A) and Reason (R). Read the statements and choose the correct option.

Options:
(a) Both A and R are true and R is the correct explanation of A.
(b) Both A and R are true but R is not the correct explanation of A.
(c) A is true but R is false.
(d) A is false but R is true.

8. **Assertion (A):** There are six major controls of the climate of any place.
   Reason (R): They are latitude, altitude, pressure and wind system, distance from the sea, ocean currents and relief features.

Ans. (a) Both A and R are true and R is the correct explanation of A.

9. **Assertion (A):** The cold weather season begins from mid-November in northern India and stays till February.
   Reason (R): The average temperature of Chennai, on the eastern coast, is between 35° – 40° Celsius.

Ans. (c) A is true but R is false.

10. **Assertion (A):** India's eastern coast is susceptible to heavy rainfall and strong winds.
    Reason (R): Cyclonic depressions and tropical cyclones from the Bay of Bengal bring heavy rainfall and strong winds.

Ans. (a) Both A and R are true and R is the correct explanation of A.

11. **Assertion (A):** Cyclones in India can have devastating effects.
    Reason (R): The bulk of the rainfall of the Coromandel Coast is derived from depressions and cyclones.

Ans. (b) Both A and R are true but R is not the correct explanation of A.

12. **Assertion (A):** Hills are cooler during summers.
    Reason (R): Snowfall brings the temperature down in summers.

Ans. (c) A is true but R is false.

13. **Assertion (A):** Coastal areas experience a moderating influence of the sea.
    Reason (R): Warm or cold currents and onshore winds affect the temperature of coastal areas.

Ans. (a) Both A and R are true and R is the correct explanation of A.

Match the Following

14. Match the following items given in Column A with those in Column B. Choose the correct answer from the options given below:

Column A	Column B
A. Mawsynram	1. Winter rainfall
B. Mahawat	2. Wettest place on the Earth
C. Monsoon	3. Seasonal reversal of wind
D. Coriolis force	4. Caused by the Earth's rotation

Codes:

	A	B	C	D
(a)	3	4	2	1
(b)	2	1	3	4
(c)	4	1	3	2
(d)	1	3	2	4

Ans. (b) 2 1 3 4

Find the Incorrect Option

15. (a) The climate of India is strongly influenced by monsoon winds.

(b) The western cyclonic disturbances are weather phenomena of the summer months brought in by the westerly flow from the Mediterranean region.

(c) The Tropic of Cancer passes through the middle of the country from the Rann of Kuchchh in the west to Mizoram in the east.

(d) The pressure and wind system of any area depend on the latitude and altitude of the place.

Ans. (b) The western cyclonic disturbances are weather phenomena of the summer months brought in by the westerly flow from the Mediterranean region.

16. (a) In the Thar Desert the day temperature may rise to 50 °C, and drop down to near 15 °C the same night.

(b) The annual precipitation varies from over 400 cm in Meghalaya to less than 10 cm in Ladakh and western Rajasthan.

(c) India has mountains to the north, which have an average height of about 8,000 metres.

(d) The total amount of winter rainfall locally known as *mahawat*.

Ans. (c) India has mountains to the north, which have an average height of about 8,000 metres.

Fill in the Blanks

17. The term **monsoon** refers to the seasonal reversal in the wind direction during a year.

18. The wind blowing during the summer in the Northern Plains is known as **loo**.

19. **El Nino** is the name given to the periodic development of a warm ocean current along the coast of Peru.

Very Short Answer Type Questions

20. Name the state affected by *Kaal Baisakhi*. What is the impact of *Kaal Baisakhi* on harvests?

Ans. *Kaal Baisakhi* affects the state of West Bengal. It is a violent thunderstorm that occurs from March to May. *Kaal Baisakhi* has the potential to inflict significant harm to both life and property. Nevertheless, it can also prove advantageous for *pre-Kharif* crops such as jute, paddy, as well as various vegetables and fruits.

21. Name the winds which bring rainfall along the Malabar Coast.

Ans. The southwest monsoon winds are responsible for bringing rainfall along the Malabar Coast.

22. Why do parts of Rajasthan, Gujarat and leeward side of Western Ghats get less rainfall? What kind of climate control factor is this?

Ans. The parts of Rajasthan, Gujarat, and the leeward slopes of the Western Ghats are susceptible to drought due to insufficient rainfall from the Arabian Sea branch, which primarily affects the leeward areas. The leeward side of the Western Ghats is in the rain shadow of the southwest monsoon. The high mountains of the Western Ghats block rainfall, causing the leeward side to receive less rain.

23. The hills are cooler during summers. Give any two reasons.

Ans. (i) Hills are cooler in summers as temperature deceases with altitude.

(ii) The atmosphere becomes less dense as we go up, which means it traps less heat.

24. Why does temperature vary greatly between desert regions like Rajasthan and hilly areas like Pahalgam?

Ans.
- Rajasthan is a desert region with scarce vegetation and low humidity, allowing the sun's radiation to heat the surface rapidly.
- In contrast, Pahalgam is a hilly area with lush vegetation, higher elevation, and cooler air masses, leading to a significantly lower temperature.

Short Answer Type Questions

25. Give reasons why the rainfall decreases from east to west in North India.

Ans. The rainfall decreases from east to west in northern India because of the following reason:

Rainfall decreases from the east to the west in Northern India because there is a decrease in the moisture of the winds. As the moisture bearing winds of the Bay of Bengal branch of the south west monsoon move further and further inland, the moisture gradually decreases and results in low rainfall when moving westwards. Thus, Mawsynram in the southern ranges of the Khasi Hills receives the highest average rainfall in the world. Rainfall in the Ganga valley decreases from the east to the west. Hence, Rajasthan and parts of Gujarat which are on the western get scanty rainfall.

26. How does monsoon create a unified bond in India?

Ans. India has various physical features which act for the unification of the country. For example, when we look at the Himalayan ranges in the North, they protect the subcontinent from extremely cold polar winds. This enables even northern India to have uniformly high temperature for their latitudes. This high temperature creates low pressure belt over the Indian regions. This helps the south-east trade winds to change direction to southwest after crossing equator and brings southwest monsoon. Even in south, the peninsular plateau, under the influence of the sea from three sides, has moderate temperatures. Despite climate contrast and variations in region to region, the monsoons provide a rhythmic cycle of seasons every year. It is around this seasonal rhythm that the Indian landscape, its animals and plant life, its entire agricultural calendar and its total life of Indian people and their festival revolve around. Though, monsoon is characterized by their most uneven distribution of rainfall in the country, yet they are responsible for bringing highly moist marine air to almost every part of the country at least for few weeks whether it brings rain or not.

27. 'The Himalayas protect the subcontinent from extremely cold winds from central Asia'. Justify the statement.

Ans. We know that the Himalayas protect the subcontinent from the extreme cold winds coming from central Asia which helps in maintaining the moderate weather conditions in northern plains and across the subcontinent. The Peninsular plateau, under the influence of the sea from three sides experiences the moderate weather conditions.

28. Regional variations in temperature and rainfall impact the lives of people in India. Explain this statement with examples.

Ans. In colder areas, people usually consume foods that keep them warm, such as hot soups, stews, and dishes rich in calories and fats. In hot regions, people prefer to eat light and cooling foods, such as fruits, salads, and yogurt, which help them stay hydrated and cool.

In areas with high rainfall, houses are typically built with sloping roofs to allow rainwater to drain off easily, preventing water from accumulating on the roof and causing damage.

29. 'The northern plains in India experience a significant drop in temperature during the cold weather season.' Substantiate this statement with three relevant points.

Ans: (i) The average temperature in the northern plains is significantly lower than that in the southern parts of India.

(ii) The temperature decreases from south to north, indicating a sharp drop in temperature as one moves towards the northern plains.

(iii) December and January are the coldest months in the northern part of India, with frost and snowfall occurring in some areas.

Paragraph Based Questions

30. Read the sources given below and answer the questions that follow:

Source A – The Cold Weather Season (Winter)

The cold weather season begins from mid-November in northern India and stays till February. December and January are the coldest months in the northern part of India. The temperature decreases from south to the north.

(a) Write a short note on the winter season in India.

Source B – The Monsoon type of Climate

The monsoon type of climate is characterized by a distinct seasonal pattern. The weather conditions greatly change from one season to the other. These changes are particularly noticeable in the interior parts of the country. The coastal areas do not experience much variation in temperature though there are variation in rainfall pattern.

(b) Why the coastal areas do not experience much variation in temperature?

Source C – Monsoon as a Unifying Bond

Year after year, people of India from north to south and from east to west, eagerly await the arrival of the monsoon. These monsoon winds bind the whole country by providing water to set the agricultural activities in motion. The river valleys which carry this water also unite as a single river valley unit.

(c) 'Year after year, people of India from north to south and from east to west, eagerly await the arrival of the monsoon'. Evaluate this statement.

Ans. (a) The winter season sets in mid-November in northern India and continues till February. The months of December and January are the coldest in the northern part of India. The higher slopes of the Himalayas experience snowfall. There is variation in temperature from south to the north. The peninsular region does not have a well defined cold season.

(b) The coastal areas do not experience much variation in temperature because they are located near large water bodies like seas or oceans. Water heats up and cools down more slowly than land, so the temperature of coastal areas remains relatively stable throughout the year. This moderating influence of the

sea keeps the temperature variations minimal compared to the interior parts of the country.

(c) In this statement, it is said that people from all over India, eagerly awaits for the arrival of the monsoon. It is because monsoon is the only season when people expect maximum amount of rainfall. This provides water to agricultural activities as well as non-perennial rivers.

Case Based Questions

31. The climate of India is described as the 'monsoon' type. In Asia, this type of climate is found mainly in the south and the southeast. Despite an overall unity in the general pattern, there are perceptible regional variations in climatic conditions within the country. Let us take two important elements – temperature and precipitation, and examine how they vary from place to place and season to season. In summer, the mercury occasionally touches 50 °C in some parts of the Rajasthan desert, whereas it may be around 20 °C in Pahalgam in Jammu and Kashmir. On a winter night, temperature at Drass in Jammu and Kashmir may be as low as minus 45 °C. Thiruvananthapuram, on the other hand, may have a temperature of 22 °C. There are variations not only in the form and types of precipitation but also in its amount and the seasonal distribution. While precipitation is mostly in the form of snowfall in the upper parts of Himalayas, it rains over the rest of the country. The annual precipitation varies from over 400 cm in Meghalaya to less than 10 cm in Ladakh and western Rajasthan. Most parts of the country receive rainfall from June to September. But some parts like the Tamil Nadu coast gets a large portion of its rain during October and November.

31.1 What typical feature does India possess which justifies its position as a south and south-east Asian country?

Ans. Monsoon type climate of India justifies its position as a south and south-east Asian country.

31.2 What are climatic conditions dependent on?

Ans. Climatic conditions are defined as the average weather over a long period of time. Climatic conditions are dependent on many factors, including altitude, latitude, ocean currents, topography, prevailing winds and human activities.

31.3 Explain how monsoonal rainfall varies across India.

Ans. Precipitation in the higher elevations of the Himalayas occurs as snowfall, whereas the remainder of the country experiences rainfall. The annual precipitation varies from exceeding 400 cm in Meghalaya and dropping below 10 cm in Ladakh and western Rajasthan. The majority of the nation receives rainfall between June and September; however, regions, such as the Tamil Nadu coast, obtain a substantial amount of rainfall during the months of October and November.

32. Due to the curvature of the earth, the amount of solar energy received varies according to latitude. As a result, air temperature generally decreases from the equator towards the poles. As one goes from the surface of the earth to higher altitudes, the atmosphere becomes less dense and temperature decreases. The hills are therefore cooler during summers. The pressure and wind system of any area depend on the latitude and altitude of the place. Thus it influences the temperature and rainfall pattern. The sea exerts a moderating influence on climate: As the distance from the sea increases, its moderating influence decreases and the people experience extreme weather conditions. This condition is known as continentality (i.e. very hot during summers and very cold during winters). Ocean currents along with onshore winds affect the climate of the coastal areas. For example, any coastal area with warm or cold currents flowing past it, will be warmed or cooled if the winds are onshore.

32.1 What is the reason for variation in the amount of solar energy received by earth?

Ans. Due to the curvature of the earth, the amount of solar energy received varies according to latitude.

32.2 Why is Shimla or any other hill station remains colder in comparison to plains during summers?

Ans. Hill stations remain colder in summers due to their altitudes. When one goes from the surface of the earth to higher altitudes, the atmosphere becomes less dense due to which the temperature decreases.

32.3 Define the concept of continentality.

Ans. The Sea has a moderate influence on the climate of any place. As the distance from the sea increases, its moderate influence decreases and the people experience extreme weather conditions. This condition is known as continentality which means very hot during summers and very cold during winters.

33. Climate is the average weather conditions and changes over a large area for a long time (more than thirty years). Weather is the condition of the atmosphere in a specific place at a specific time. Both weather and climate include factors like temperature, air pressure, wind, humidity, and rainfall. Weather can change frequently, even within a day, but there are common patterns over weeks or months, such as days being hot or cold,

windy or calm, cloudy or sunny, and wet or dry. Based on these patterns, the year is divided into seasons like winter, summer, and rainy seasons.

India's climate is known as the 'monsoon' type, common in South and Southeast Asia. Although there is a general pattern, regional variations in climate are noticeable. Let's look at temperature and precipitation to see how they change across different places and seasons.

In summer, temperatures can reach 50 °C in the Rajasthan desert, while it might be around 20 °C in Pahalgam, Jammu and Kashmir. In winter, the temperature in Drass, Jammu and Kashmir, can drop to minus 45 °C at night, whereas Thiruvananthapuram may have a temperature of 22 °C.

33.1 What are the elements of weather and climate?

Ans. Temperature, atmospheric pressure, wind, humidity, and precipitation.

33.2 What is the significance of understanding weather and climate in our daily lives?

Ans. Understanding the difference helps us prepare for short-term weather changes and long-term climate patterns, making informed decisions about activities, clothing, and resource management.

33.3 Describe the climate of India.

Ans. India's climate is called the 'monsoon' type. Despite a general pattern, there are regional variations. For instance, in summer, temperatures can reach 50 °C in the Rajasthan desert but may be around 20 °C in Pahalgam, Jammu and Kashmir. In winter, temperatures in Drass, and Jammu and Kashmir can drop to – 45 °C at night, while Thiruvananthapuram might have a mild 22 °C. This shows significant temperature differences across regions and seasons.

Long Answer Type Questions

34. Explain the distribution of rainfall in India.

Ans. India has a very uneven distribution of rainfall. Given below is how the rainfall is distributed over the entire country.

(i) Parts of western coast and northeastern India receive over about 400 cm of rainfall annually.

(ii) Western Rajasthan and adjoining parts of Gujarat, Haryana and Punjab receive less than 60 cm of rainfall.

(iii) Rainfall is equally low in the interior of the Deccan plateau, and east of the Sahyadris.

(iv) A third area of low precipitation is around Leh in Jammu and Kashmir.

(v) The rest of the country receives moderate rainfall.

(vi) Snowfall is restricted to the Himalayan region.

Also, we should keep in mind that there are certain areas in India where there is more than 200 cm rainfall. There are three such main areas in India:

(i) The western slopes of the Western Ghats

(ii) The north-east India (except Tripura and Manipur)

(iii) The Andaman and Nicobar Islands

Again, there are certain areas in the country which receive less than 50 cm average annual rainfall. There are three such areas in India:

(i) Northern Gujarat, western Rajasthan and the southern parts of Punjab-Haryana

(ii) The rain-shadow area of the Western Ghats

(iii) The desert of Ladakh

Owing to the nature of monsoons, the annual rainfall is highly variable from year to year. Variability is high in the regions of low rainfall, such as parts of Rajasthan, Gujarat and the leeward side of the Western Ghats. As such, while areas of high rainfall are liable to be affected by floods, areas of low rainfall are drought-prone.

35. 'Monsoon acts as a unifying bond.' Substantiate this statement with examples.

Ans. The monsoon acts as a unifying bond for India, transcending regional and geographical differences. Despite varying temperature conditions, the monsoon brings a rhythmic cycle of seasons, uniting the country.

The agricultural calendar, plant and animal life, and people's lives revolve around the monsoon. From north to south and east to west, people eagerly await its arrival, which sets agricultural activities in motion.

River valleys, carrying monsoon water, unite as a single river valley unit. Festivities and celebrations, like Makar Sankranti and Onam, are also linked to the monsoon.

The monsoon's unifying influence binds the country, making it a shared experience that surpasses regional diversity.

36. What are the factors affecting the climate of India?

Ans. The climate of India is influenced by several factors. Firstly, its vast latitudinal extent from the Himalayas in the north to the Indian Ocean in the south results in diverse climatic conditions. The Himalayan range acts as a barrier, preventing cold Central Asian winds from entering India. Secondly, the Thar Desert and surrounding areas contribute to the formation of low-pressure systems. Thirdly, the monsoon winds, both southwest and northeast, significantly impact rainfall patterns. Additionally, proximity to the sea moderates temperatures in coastal regions, while altitude affects climate in mountainous areas.

Lastly, Western Disturbances influence winter precipitation in northern India.

37. 'The wind patterns in India undergo a significant reversal between winter and summer.' Explain.

Ans. In winter, cold dry winds blow from the high-pressure area north of the Himalayas to the low-pressure areas over the oceans to the south.

In summer, a low-pressure area develops over interior Asia and northwestern India. It attracts the winds from the high-pressure area over the southern Indian Ocean. These winds gather moisture while blowing over the ocean and bring widespread rainfall over the Indian subcontinent.

38. Why don't the coastal areas of India register any significant change in temperature even during the winter and summer. Discuss.

Ans. The following are the reasons:

(i) The surrounding sea maintains equable temperature conditions.

(ii) Sea waters act as reservoirs of warmth, heating and cooling slowly through convection, thus remaining warmer in winter and cooler in summer, keeping coastal areas' temperatures stable.

(iii) Warm ocean currents also contribute to maintaining almost equable temperatures throughout the year in coastal regions.

39. How do mountains affect the climate? Write a detailed answer with any three relevant points.

Ans. Mountains can change the climate by blocking winds. The side of the mountain that the wind comes from gets a lot of rain, but the other side stays dry.

This creates different mini-climates around the mountain, which can support different types of plants and animals.

Mountains can also change the direction of winds, making the climate different in different areas. This means that mountains play a big role in deciding the climate of a place.

Let's Compete

Multiple-Choice Questions

1. The sum total of weather conditions and variations of a vast area for a long duration of time is known as

(a) monsoon. (b) weather.
(c) climate. (d) hot weather.

Ans. (c) climate.

2. The amount of sun's rays received depends on

(a) altitude. (b) longitude.
(c) latitude. (d) none of these.

Ans. (c) latitude.

3. A 'mango shower' is a

(a) monsoonal rainfall.
(b) winter rainfall.
(c) pre-monsoon rainfall in Karnataka and Kerala.
(d) cyclonic rainfall.

Ans. (c) pre-monsoon rainfall in Karnataka and Kerala.

4. In Northern India, the cold weather season begins from

(a) early November. (b) mid-October.
(c) mid-November. (d) early December.

Ans. (c) mid-November.

5. Which of the following places receive rainfall more than 250 cm?

(a) Uttar Pradesh
(b) Western Rajasthan
(c) Assam
(d) Western slopes of the Western Ghats

Ans. (d) Western slopes of the Western Ghats

6. Which of the following stations have equable climate?

(a) Jodhpur (b) Mumbai
(c) Delhi (d) Leh

Ans. (c) Delhi

7. The monsoon withdraws completely from India by the month of

(a) February.
(b) December.
(c) January.
(d) November.

Ans. (b) December.

8. Maximum rainfall in India is brought by

(a) Northeast trade winds.
(b) Western disturbances.
(c) Southwest monsoons.
(d) Retreating monsoons.

Ans. (c) Southwest monsoons.

9. During the summer season, the hills are comparatively cooler than the plains due to

(a) distance from the sea.
(b) latitude.
(c) relief.
(d) higher altitude.

Ans. (d) higher altitude.

10. The creation of a low pressure trough near the Tropic of Cancer affects which season in India?

(a) Winter season
(b) Summer season
(c) Rainy season
(d) Transition season

Ans. (c) Rainy season

Life Skills

1. What kind of suffering and devastation happens when floods occur? How can we help the people living in flood prone areas?

Ans. Floods have a devastating effect on humans, their environment, their living and the land on the whole. Some of the effects of floods are given below:

(i) Floods can seriously disrupt public and personal transport by cutting off roads and railway lines, as well as communication links when telephone lines are damaged.

(ii) Floods disrupt normal drainage systems in cities.

(iii) Floodwater enters the drainage system and as a result, sewage spills happen. These seepage spills represent a serious health hazard, along with standing water and wet materials in the home.

(iv) A number of bacteria, mould and viruses start developing in the areas with floodwater which cause diseases, trigger allergic reactions, and continue to damage materials long after a flood.

(v) Floods can though distribute large amounts of water and suspended sediment over vast areas, restocking valuable soil nutrients to agricultural lands.

(vi) In contrast, soil can be eroded by large amounts of fast flowing water, ruining crops, destroying agricultural land / buildings and drowning farm animals.

(vii) Floods not only ruin homes / businesses and destroy personal property, but the water left behind causes further damage to property and contents.

We can help people living in flood prone areas by:

(i) Constructing levees, beams, or floodwalls to stop floodwater from entering your home.

(ii) By installing a sump pump and zero reverse flow valves in basement floor drains.

(iii) Information and announcements should be made from time to time regarding the floods.

(iv) When there is a flood, the main switches or valves should be turned off. Disconnect electrical appliances.

(v) Remove toxic substances such as pesticides and insecticides from the flood area to prevent pollution.

(vi) Construction in flood hazard areas should be discouraged. The construction should also comply with floodplain development standards.

2. Parts of Rajasthan and Gujarat are drought prone. Explain how the farmers of these states have managed to cultivate crops. What methods can the farmers adopt to increase their production?

Ans. A lot of areas in Rajasthan and Gujarat are prone to droughts. The farmers in these areas have adopted a number of policies to make sure that they utilise the water which is available to them methodically.

(i) In Rajasthan, communities participate in checking on rainwater loss and thus ensuring the enhancement of groundwater.

(ii) State Governments have started excellent initiatives for water conservation in last few years using Mahatma Gandhi NREGA funds such as the 'Mukhyamantri Jal Swalalamban Abhiyan' in Rajasthan.

(iii) Cultivation of drought resistant crops and crop varieties followed by scientific management practices would lead to drought proofing over a period of time.

(iv) The farmers can raise a community nursery for cereal crops and transplant the seedlings at the start of the rainy season.

(v) Farmers can store water for providing life-saving or protective irrigation to the crops grown in dry land areas. The water could be stored for short period or long period and it can be preserved either in soil, pond or ditches based on situation and utilized for irrigation during dry periods.

5

Natural Vegetation and Wildlife

Check Your Progress

Multiple-Choice Questions

1. The total number of flowering plants that India accounts for is

(a) 9 per cent. (b) 8 per cent.
(c) 6 per cent. (d) 2 per cent.

Ans. (c) 6 per cent.

2. Plants of a particular region or period are called

(a) biome. (b) flora.
(c) lichens. (d) fauna.

Ans. (b) flora.

3. Tropical Evergreen forests are found in

(a) Western Ghats.
(b) foothills of the Himalayas.
(c) delta of the Ganga.
(d) Rajasthan.

Ans. (a) Western Ghats.

Very Short Answer Type Questions

4. Differentiate between flora and fauna.

Ans.

	Flora	Fauna
(i)	Flora is the plant life occurring in a particular region or period.	Fauna is the animal life of any particular region or period.
(ii)	Flora represents the entire plant life.	Fauna represents the entire animal life.
(iii)	Flora prepares its own food with the help of sunlight.	Fauna doesn't prepare its own food. They depend on flora for food.
(iv)	They cannot move from one place to another.	They are mobile in their nature.
(v)	Flora include palm trees, grass, sunflowers, etc.	Fauna includes lions, tigers, bears, cows, etc.

5. Name one particular state that does not have tropical deciduous forests. What kind of vegetation does it have instead?

Ans. Tropical deciduous forests, also called monsoon forests and spread over the region receiving rainfall between 200 cm and 70 cm, are not found in the state of Rajasthan. Instead, the natural vegetation consists of thorny trees and bushes.

6. What are migratory birds? Where are they found, and when?

Ans. Migratory birds are species that undertake extensive journeys to seek optimal environments for reproduction, nourishment, and the rearing of their offspring. During winter, birds, such as Siberian Crane, come in large numbers. One such place favourable with birds is the Rann of Kachchh.

7. How many biosphere reserves have been set-up in India? What is the purpose of such reserves?

Ans. A total of eighteen biosphere reserves have been established in the country to protect flora and fauna. Among these, twelve reserves – namely, the Sundarbans, Nanda Devi, Gulf of Mannar, Nilgiri, Nokrek, Great Nicobar, Simlipal, Pachmarhi, Achanakmar-Amarkantak, Agasthyamalai, Kangchendzonga, and Panna have been recognised as part of the global network of biosphere reserves.

Short Answer Type Questions

8. 'India has a colourful bird life.' Explain.

Ans. India has a wide variety of fauna. Various life forms develop and prosper here. India has rich climatic conditions and various relief factors which help the number of animals and birds to survive here. The rich green environment and serene atmosphere has always invited thousands of birds

to India. This is a result that India has a colourful bird life. It has about 2000 species of birds, which includes peacocks, pheasants, ducks, parakeets, cranes and pigeon.

9. Explain how forests are important for human beings.

Ans. (i) The entire living organisms group depends on the forests for their survival. Directly or indirectly we depend on forests for our survival.

(ii) Right from the air we breathe to the wood we use has been provided by the forests.

(iii) Besides providing habitats for animals and livelihoods for humans, forests also offer watershed protection, prevent soil erosion and mitigate climate change.

(iv) They support a variety of industries like the rubber industry.

Long Answer Type Questions

10. Highlight the reasons why the evergreen forests are found on the western slopes of the Western Ghats.

Ans. (i) Tropical evergreen forests are found in the heavy rainfall areas of the Western Ghats.

(ii) These regions receive an annual precipitation of more than 200 cm.

(iii) They also have an annual temperature of more than 22 degree Celsius.

(iv) These areas are situated in the rainy sides of the Western Ghats with an altitude of 500 to 1500 metre.

(v) Western side of the Western Ghats is a windward side. Therefore, this region receives more rainfall as the monsoon wind coming from the Arabian Sea clashes against the mountains of the Western Ghat.

11. Describe the type of vegetation and wildlife found in the Ganga–Brahmaputra delta.

Ans. The mangrove tidal forests are found in the areas of coasts influenced by tides. Dense mangroves are the common varieties. In the Ganga-Brahmaputra delta, sundari trees are found. Palm, coconut, *keora*, *agar*, etc. also grow in some parts. Royal Bengal Tiger, turtles, crocodiles, gharials and snakes are found in these forests.

Self-Assessment

Multiple-Choice Questions

1. An example of dry deciduous tree is

(a) sal. (b) juniper.

(c) cacti. (d) cinchona.

Ans. (a) sal.

2. Acacias are found in

(a) Mangrove forests.

(b) Thorn and Scrub forests.

(c) Tropical Evergreen forests.

(d) Montane forests.

Ans. (b) Thorn and Scrub forests.

3. In what kind of vegetation does the rubber plant thrive?

(a) Tropical Evergreen (b) Tropical Deciduous

(c) Montane Forests (d) Tidal Forests

Ans. (a) Tropical Evergreen

4. Read the given statements and choose the correct option with regard to tropical evergreen forests from the following.

I. These forests are restricted to heavy rainfall areas of the Western Ghats and the island groups of Lakshadweep, Andaman and Nicobar, upper parts of Assam and Tamil Nadu coast.

II. They are at their best in areas having more than 200 cm of rainfall

III. The trees reach great heights up to 60 m or even above.

IV. The region is cold and humid throughout the year, it has a luxuriant vegetation of all kinds - trees, shrubs and creepers.

Options:

(a) I, II and IV

(b) I, II and III

(c) I, III and IV

(d) II, III and IV

Ans. (b) I, II and III

5. Choose the correctly matched pair.

(a) Tropical Evergreen Forests – Mahogany

(b) Tropical Deciduous Forests – Rosewood

(c) Thorn Forests – Sal

(d) Mangrove Forests – Junipers

Ans. (a) Tropical Evergreen Forests – Mahogany

6. Identify the forest with the help of following information and choose the correct option.

- The wet temperate type of forests are found between a height of 1000 and 2000 m.
- Evergreen broad-leaf trees, such as oaks and chestnuts, predominate.
- The common animals found in these forests are spotted dear, wild sheep and jack rabbit.

Options:

(a) Tropical Evergreen Forest

(b) Tropical Deciduous Forest

(c) Thorn Forest

(d) Montane Forest

Ans. (d) Montane Forest

7. "M" is describing the characteristics of Tropical Deciduous Forests in India. Which of the following clues provided by "M" is not correct?

Clues:

I. Trees shed their leaves for 6–8 weeks in dry summer.

II. Found in areas receiving rainfall between 200 cm and 70 cm.

III. Divided into moist and dry deciduous based on water availability.

IV. Found in areas receiving scanty rainfall.

Options:

(a) Clue I

(b) Clues I, II and III

(c) Clue II

(d) Clue IV

Ans. (d) Clue IV

8. Read the given statements and choose the correct option with regard to Mangrove Forests from the following.

I. These forests are found in the areas of coasts influenced by tides.

II. Mud and silt get accumulated on such coasts.

III. Teak is the common variety of tree found here.

IV. Royal Bengal Tiger is the famous animal in these forests.

Options:

(a) I, II and III

(b) I, II and IV

(c) I, III and IV

(d) II, III and IV

Ans. (b) I, II and IV

9. Identify the medicinal plant with the help of following information and choose the correct option.

- The juice from ripe fruit is used to prepare vinegar.
- It is carminative and diuretic and has digestive properties.
- The powder of the seed is used for controlling diabetes.

Options:

(a) Sarpagandha

(b) Jamun

(c) Arjun

(d) Babool

Ans. (b) Jamun

10. Read the given statements and choose the correct option with regard to the Thorn Forest from the following.

I. The regions with less than 70 cm of rainfall.

II. This type of vegetation is found in the south-western part of the country.

III. Trees are scattered and have long roots.

IV. In these forests, the common animals are rats, mice, rabbits, fox and wolf.

Options:

(a) I, II and III

(b) I, II and IV

(c) I, III and IV

(d) II, III and IV

Ans. (d) II, III and IV

Assertion-Reason Type Questions

For question numbers 11 to 18, two statements are given as Assertion (A) and Reason (R). Read the statements and choose the correct option.

Options:

(a) Both A and R are true and R is the correct explanation of A.

(b) Both A and R are true but R is not the correct explanation of A.

(c) A is true but R is false.

(d) A is false but R is true.

11. **Assertion (A):** The character and extent of vegetation are mainly determined by temperature along with humidity in the air, precipitation and soil.

Reason (R): The fall in the temperature affects the types of vegetation and its growth.

Ans. (a) Both A and R are true and R is the correct explanation of A.

12. **Assertion (A):** Tropical Deciduous Forests are the most widespread forests of India.

Reason (R): They are also called the monsoon forests.

Ans. (b) Both A and R are true but R is not the correct explanation of A.

13. **Assertion (A):** To protect the flora and fauna of the country, the government has taken many steps.

Reason (R): Eighteen biosphere reserves have been set-up in the country to protect flora and fauna.

Ans. (a) Both A and R are true and R is the correct explanation of A.

14. **Assertion (A):** In the Ganga-Brahmaputra delta, sundari trees are found.

Reason (R): Sundari trees provide durable hard timber.

Ans. (b) Both A and R are true but R is not the correct explanation of A.

15. **Assertion (A):** Tropical evergreen forests are dense and green throughout the year.
Reason (R): High temperature and high rainfall support vibrant vegetation.

Ans. (a) Both A and R are true and R is the correct explanation of A.

16. **Assertion (A):** Moist deciduous forests are found in areas receiving rainfall between 200 and 100 cm.
Reason (R): These forests exist in the eastern part of the country, including northeastern states, foothills of the Himalayas, and eastern slopes of the Western Ghats.

Ans. (b) Both A and R are true but R is not the correct explanation of A.

17. **Assertion (A):** In mountainous areas, the decrease in temperature with increasing altitude leads to corresponding change in natural vegetation.
Reason (R): The wet temperate type of forests is found between a height of 1000 and 2000 metres.

Ans. (b) Both A and R are true but R is not the correct explanation of A.

18. **Assertion (A):** Eighteen biosphere reserves have been set up in the country.
Reason (R): This has been done to promote tourism in the country.

Ans. (c) A is true but R is false.

Match the Following

19. Match the following items given in Column A with those in Column B. Choose the correct answer from the options given below:

Column A	Column B
A. Trees reach a height of 60 metres	1. Tundra vegetation
B. Mosses and Lichens	2. Tropical evergreen forests
C. Acacias and euphorbias species	3. Montane forests
D. Alpine vegetation	4. Thorn forests

Codes:

	A	B	C	D
(a)	3	4	2	1
(b)	2	1	4	3
(c)	4	1	3	2
(d)	1	3	2	4

Ans. (b) 2 1 4 3

Find the Incorrect Option

20. (a) There are about 90,000 species of animals in India.
(b) Wildlife Protection Act was implemented in India in the year 1972.
(c) The Gir forest is the last remaining habitat of the Asiatic Lion.
(d) Sixteen biosphere reserves have been established to protect flora and fauna.

Ans. (d) Sixteen biosphere reserves have been established to protect flora and fauna.

21. (a) Tropical evergreen forests are restricted to heavy rainfall areas of the Eastern Ghats.
(b) The trees reach great heights up to 60 metres or even above in tropical evergreen forests.
(c) In regions with less than 70 cm of rainfall, the natural vegetation consists of thorny trees and bushes.
(d) On the basis of the availability of water, Tropical Deciduous forests are further divided into moist and dry deciduous.

Ans. (a) Tropical evergreen forests are restricted to heavy rainfall areas of the Eastern Ghats.

Fill in the Blanks

22. India has **2000** species of birds.
23. The deltas of Ganga, Mahanadi, Kaveri, etc. have **mangrove** forests.
24. **Eighteen** biosphere reserves have been set-up to protect flora and fauna.

Very Short Answer Type Questions

25. Name some common animals found in tropical evergreen forests area. Are they endangered?

Ans. The common animals found in these forests includes elephants, monkeys, lemurs, and deer. One-horned rhinoceroses inhabit the jungles of Assam and West Bengal. In addition to these species, a diverse array of birds, bats, sloths, scorpions, and snails are also found.

26. At what altitude is alpine vegetation found? How is it different from montane forests?

Ans. Alpine vegetation is found at altitudes exceeding 3,600 metres above sea level, whereas montane forests are located at lower altitudes. Alpine vegetation includes trees like silver fir, junipers, pines, and birches. In contrast, montane forests are comprised of species including rhododendrons, ferns, oak, and maple.

27. 'India has a rich variety of natural vegetation.' Discuss the given statement and provide appropriate examples.

Ans. India is one of the 12 mega bio-diversity countries of the world. With about 47,000 plant species India occupies tenth place in the world and fourth in Asia in plant diversity. There are about 15,000 flowering plants in India. The country has many non-flowering plants, such as ferns, algae and fungi. India also has approximately 90,000 species of animals, as well as, a rich variety of fish in its fresh and marine waters.

28. Tropical Evergreen Forests appear green all the year round. Why?

Ans. (i) There is no definite time for trees to shed their leaves, as the region is warm and wet throughout the year, ensuring continuous growth and greenery.

(ii) The forests have trees, shrubs, and creepers, providing a constant display of green foliage, regardless of the season.

29. 'India has a rich natural heritage, evident in its wetlands that attract migratory birds.' Discuss the given statement and provide appropriate examples.

Ans. Certain wetlands in India attract numerous migratory birds, particularly during the winter months when species like the Siberian Crane arrive in significant numbers. One notable location that provides a hospitable environment for these birds is the Rann of Kachchh. Here, where the desert meets the sea, thousands of flamingos, distinguished by their striking pink feathers, gather to construct nest mounds from the saline mud and nurture their offspring.

Short Answer Type Questions

30. Name some of the factors due to which the natural vegetation of India has undergone many changes.

Ans. The natural vegetation of India has undergone many changes. The factors responsible for these changes have been discussed below:

(i) There is a growing demand for cultivated land. This is because the population of our country has increased manifold. So, in order to meet the food grain requirement, more and more forested lands are being used. This has caused the natural vegetation of that particular area to either die out or change its pattern.

(ii) Industrial development and mining have resulted in forests being cleared away to enable access to resources.

(iii) Urbanization has caused a lot of changes in the wildlife and natural vegetation of India. Due to increasing economic activities and development, the land replenishment has reduced.

(iv) The landforms, cutting down of trees, increase in temperature are some factors that may have also brought about the changes.

31. How many bio-reserves have been set-up by the government of India? Name them.

Ans. India has set-up 18 bio-reserves to protect the flora and fauna of the country. These bio-reserves are:

(i)	Sundarbans	– West Bengal
(ii)	Gulf of Mannar	– Tamil Nadu
(iii)	Nilgiri	– Tamil Nadu, Kerala, Karnataka
(iv)	Nanda Devi	– Uttarakhand
(v)	Nokrek	– Meghalaya
(vi)	Great Nicobar	– Andaman and Nicobar Islands
(vii)	Manas	– Assam
(viii)	Simlipal	– Odisha
(ix)	Dihang-Dibang	– Arunachal Pradesh
(x)	Dibru Saikhowa	– Assam
(xi)	Agasthyamalai	– Kerala, Tamil Nadu
(xii)	Kangchendzonga	– Sikkim
(xiii)	Pachmarhi	– Madhya Pradesh
(xiv)	Achanakmar-Amarkantak	– Madhya Pradesh, Chhattisgarh
(xv)	Great Rann of Kachchh	– Gujarat
(xvi)	Cold Desert	– Himachal Pradesh
(xvii)	Panna	– Madhya Pradesh
(xviii)	Seshachalam Hills	– Andhra Pradesh

32. How can wildlife be protected? Mention three measures adopted for the protection of wildlife.

Ans. Every animal species has a role to play in the ecosystem. Hence, their conservation is essential. Given below are some of the ways in which we can protect the wildlife.

(i) Killing of wild animals and birds on the large scale by man is a serious threat that wildlife is facing for its survival. This disturbs the food chain and also the ecosystem. Hence the killing of the animals should be stopped completely.

(ii) The more number of National Parks and Sanctuaries should be established for preserving the natural habitats of wild animals and birds throughout the country.

(iii) The Department of Government should conduct a periodic survey in all the forests regarding the conservation of wildlife. They should have the knowledge about the population of all the species of wild animals and birds, so that they can be helped during the time of floods and famines.

Three methods adopted by the government of India for the protection of wildlife are:

(i) Project Tiger, Project Rhino, Project Great Indian Bustard and many other eco-developmental projects have been introduced.

(ii) 103 National Parks, 535 Wildlife sanctuaries and Zoological gardens are set up to take care of natural heritage.

(iii) Eighteen biosphere reserves have been set-up in the country to protect the flora and fauna of the country.

33. 'All of us must realise the importance of natural ecosystem for our survival'. Discuss the given statement and provide appropriate examples.

Ans. Crops have been chosen from a bio-diverse ecosystem, specifically from a reserve of edible plants. Experiments have been conducted to select medicinal plants. The animals were selected from a substantial natural stock, serving as dairy animals. They also contributed to draught power, transportation, meat, and eggs. Fish serve as a valuable source of nutrition. Numerous insects play a crucial role in the pollination of crops and fruit trees, and the disruption of their populations can be detrimental. Each species fulfills a specific function within the ecosystem, underscoring the importance of conservation.

34. 'The trees in Thorn Forests and Scrubs have adapted to conserve water.' Discuss the given statement and provide appropriate examples.

Ans. Thorny trees and bushes are found in the regions with less than 70 cm of rainfall. This type of vegetation is found in the north-western part of the country. Acacias, palms, euphorbias and cacti are the main plant species. Trees are scattered and have long roots penetrating deep into the soil in order to get moisture. The stems are succulent to conserve water. Leaves are mostly thick and small to minimise evaporation.

35. 'India is rich in its fauna, with a diverse range of animal species.' Discuss the given statement and provide appropriate examples.

Ans. India's biodiversity extends beyond its flora to encompass a remarkable variety of fauna. The nation is home to approximately 90,000 animal species, including around 2,000 bird species, which represent 13% of the global total. Additionally, India boasts 2,546 species of fish, contributing nearly 12% to the world's fish population. Furthermore, the country accounts for between 5% and 8% of the world's amphibians, reptiles, and mammals.

Paragraph Based Questions

36. Read the sources given below and answer the questions that follow:

Source A – Mangrove Forests

The mangrove tidal forests are found in the areas of coasts influenced by tides. Mud and silt get accumulated on such coasts. Dense mangroves are the common varieties with roots of the plants submerged under water.

(a) How are mangrove forests different from other forests?

Source B – Tropical Evergreen Forests

These forests are restricted to heavy rainfall areas of the Western Ghats and the island groups of Lakshadweep, Andaman and Nicobar, upper parts of Assam and Tamil Nadu coast.

(b) Why tropical evergreen forests appear green throughout the year?

Source C – Wildlife

Pollution due to chemical and industrial waste, acid deposits, introduction of alien species and reckless cutting of the forests to bring land under cultivation and habitation, are also responsible for the imbalance.

(c) What are the factors responsible for ecological imbalance?

Ans. (a) Mangrove forests are different from other forests because they are found in the coastal areas and influenced by tides. These forests are associated with wetness, where mud and silt get accumulated. The roots of the mangroves are submerged under water.

(b) The tropical evergreen forests appear green throughout the year because these forests are found in the areas of heavy rainfall with a short dry season.

(c) Factors responsible for ecological imbalance are as follows:

- Introduction of new species
- Deforestation
- Pollution
- Poaching and hunting of species.

Case Based Questions

37. Tropical deciduous forests are the most widespread forests of India. They are also called the monsoon forests and spread over the region receiving rainfall between 200 cm and 70 cm. Trees of this forest type shed their leaves for about six to eight weeks in dry summer. On the basis of the availability of water, these forests are further divided into moist and dry deciduous forests. The former is found in areas receiving

rainfall between 200 and 100 cm. These forests exist, therefore, mostly in the eastern part of the country – the north-eastern states, along the foothills of the Himalayas, Jharkhand, West Odisha and Chhattisgarh, and on the eastern slopes of the Western Ghats. Teak is the most dominant species of this forest. Bamboos, sal, shisham, sandalwood, khair, kusum, arjun and mulberry are other commercially important species. The dry deciduous forests are found in areas having rainfall between 100 cm and 70 cm. These forests are found in the rainier parts of the Peninsular plateau and the plains of Bihar and Uttar Pradesh. There are open stretches, in which teak, sal, peepal and neem grow. A large part of this region has been cleared for cultivation and some parts are used for grazing. In these forests, the common animals found are lion, tiger, pig, deer and elephant. A huge variety of birds, lizards, snakes and tortoises are also found here.

37.1 What is the difference between moist and dry deciduous forests? Why are they widespread in India?

Ans. Moist deciduous forests are found in areas receiving rainfall between 200 and 100 cm. The dry deciduous forests are found in areas having rainfall between 100 cm and 70 cm.

37.2 Which tree is capable of growing in both moist and dry deciduous forests?

Ans. Teak is the most dominant species of this forest.

37.3 How long does the leaf shedding season last for deciduous forests?

Ans. Trees of this forest type shed their leaves for about six to eight weeks in dry summer, usually in the spring and early summer. Trees in these forests shed their leaves to conserve water and survive the hot, dry summer.

38. In mountainous areas, the decrease in temperature with increasing altitude leads to the corresponding change in natural vegetation. As such, there is a succession of natural vegetation belts in the same order as we see from the tropical to the tundra region. The wet temperate type of forests are found between a height of 1000 and 2000 metres. Evergreen broad-leaf trees, such as oaks and chestnuts predominate. Between 1500 and 3000 metres, temperate forests containing coniferous trees, like pine, deodar, silver fir, spruce and cedar, are found. These forests cover mostly the southern slopes of the Himalayas, places having high altitude in southern and north-east India. At higher elevations, temperate grasslands are common. At high altitudes, generally, more than 3,600 metres above the sea level, temperate forests and grasslands give way to the Alpine vegetation. Silver fir, junipers, pines and birches are the common trees of these forests. However, they get progressively stunted as they approach the snow-line. Ultimately, through shrubs and scrubs, they merge into the Alpine grasslands.

38.1 What are forests found between a height of 1000 and 2000 metres are broadly classified as?

Ans. The wet temperate type of forests is found between a height of 1000 and 2000 metres.

38.2 In which category oaks and chestnuts are classified?

Ans. Evergreen broad-leaf trees, such as oaks and chestnuts are found in Montane forests.

38.3 What sort of forests are found over 3,600 metres above the sea level?

Ans. At high altitudes, generally, more than 3,600 metres above the sea level, temperate forests and grasslands give way to the Alpine vegetation. Silver fir, junipers, pines and birches are the common trees of these forests. The rainfall in these areas is below 100 cm, mostly snow.

39. We also experimented and selected many medicinal plants. The animals were selected from large stock provided by nature as milch animal. They also provided us draught power, transportation, meat and eggs. The fish provide nutritive food. Many insects' help in pollination of crops and fruit trees and exerting biological control on such insects is harmful. Every species has a role to play in the ecosystem. Hence, conservation is essential. As has been mentioned earlier due to excessive exploitation of plant and animal resources by human beings, the ecosystem has been disturbed. About 1,300 plant species are endangered and 20 species are extinct. Quite a few animal species are also endangered and some have become extinct.

39.1 What is the importance of bio-diverse environment?

Ans. All the living beings are dependent on each other in a food cycle. Human beings are also dependent on plants and animals for their survival. Nature has provided us abundant of medicinal plants and large stock of animals to provide us the products like milk, meat, eggs, etc. Every species play an important role in the ecosystem and helps in the conservation of environment. Hence, it is the responsibility of human beings to conserve the biodiversity for sustainable development.

39.2 How human activities are affecting the ecosystem?

Ans. Due to the excessive exploitation of plant and animal resources by humans, the ecosystem has been disturbed. Activities like illegal poaching and

hunting has resulted in the extinction of many animal species. There are some plant and animal species that have become endangered whereas some have become extinct.

39.3 What is the role of insects in ecosystem?

Ans. Insects are important to ecosystems in many ways. They help in pollination of crops and fruit trees and exerting biological control on such insects is harmful. Insects, such as ants, disperse seeds for many plant species. Insects, such as termites, ants, and beetles, improve soil structure and fertility by aerating the soil and decomposing plant residue.

40. India is not only rich in its flora but also boasts a diverse range of fauna. The country is home to approximately 90,000 animal species. About 2,000 species of birds reside in India, making up 13% of the world's bird population. Additionally, India has 2,546 species of fish, which constitute nearly 12% of the global fish stock. The country also hosts between 5 and 8 per cent of the world's amphibians, reptiles, and mammals.

India has been renowned for its herbs and spices since ancient times. Ayurveda describes around 2,000 plants, with at least 500 of them in regular use. According to the World Conservation Union's Red List, 352 medicinal plants are found in India, of which 52 are critically threatened and 49 are endangered.

Elephants are among the most majestic animals found in the hot, wet forests of Assam, Karnataka, and Kerala. The one-horned rhinoceroses inhabit the swampy and marshy lands of Assam and West Bengal. The arid areas of the Rann of Kachchh and the Thar Desert are home to wild ass and camels, respectively. Other notable animals include the Indian bison, nilgai (blue bull), chousingha (four-horned antelope), gazelle, various species of deer, and several species of monkeys.

40.1 What is a medicinal plant?

Ans. A medicinal plant is a plant that possesses therapeutic properties or contains compounds to prevent, treat, or cure various diseases and ailments.

40.2 What is the significance of biodiversity in India?

Ans: Biodiversity in India is of immense significance due to its ecological, economic, cultural, and intrinsic value. Biodiversity supports vital ecosystem services maintaining the health and stability of ecosystems.

40.3 Can you explain why India has such biodiversity?

Ans: India's rich biodiversity is a result of its diverse topography and varied climates, and geographic location. The country's range of habitats – from the Himalayas and Western Ghats to deserts and coastal regions – supports a wide variety of flora and fauna. India's complex climate zones, including tropical, subtropical, and temperate regions, further contribute to this diversity.

Long Answer Type Questions

41. Describe the features of tidal forests.

Ans. (i) The tidal forests are also known as the mangrove forests.

(ii) They are found in the areas with coasts which are influenced by the tides.

(iii) These forests can also be found in the delta regions of the country.

(iv) Mud and silt get accumulated in such areas.

(v) The trees in these forests have stilt like roots which support the plants during high tides.

(vi) The deltas of the Ganga, the Mahanadi, the Krishna, the Godavari and the Kaveri are covered by such vegetation.

(vii) Two types of trees found here are sundari trees and gorjan trees.

(viii) Mangrove forests have a varied variety of the plants which are submerged underwater.

(ix) These forests help both in pollination and in seed dispersal and they are thick and dense.

(x) The trees of tidal forests also form communities that help them to stabilise banks and coastlines and also provide natural habitat to many types of animals.

(xi) Royal Bengal Tiger is the famous animal in these forests. Turtles, crocodiles, gharials and snakes are also found in these forests.

42. Differentiate between thorn forests and montane forests.

Ans.

	Thorn Forests	Montane Forests
(i)	They are found in the areas which receive less than 70 cm of rainfall.	The areas of montane forests receive 470 mm of rainfall.
(ii)	Found in the northwestern parts of India, e.g., Rajasthan, Northern parts of Gujarat, Haryana, some parts of Deccan Plateau.	These forests are found in the mountainous regions at a height of 1000 to 2000 metres.
(iii)	The trees are small and stunted in shape and size.	The trees are conical in shape.
(iv)	Camel and horses live in these forests.	Kashmir stag and Tibtan Antelope live in this area.
(v)	Acacia, palms, euphorbias, and cactus are found in this region.	Oak, pine, chestnut, deodar, etc., can be found in these forests.

43. 'Tropical Deciduous Forests are the most widespread forests of India.' Justify this statement with examples.

Ans. Tropical Deciduous Forests cover a vast area of India, ranging from the northeastern states to the eastern slopes of the Western Ghats.

They are found in regions receiving rainfall between 200 cm and 70 cm, making them the most widespread forest type in the country. For instance, teak, the dominant species, is found in many parts of the country, including Jharkhand, West Odisha, and Chhattisgarh. Also, other commercially important species like bamboos, sal, and sandalwood are also widely distributed.

This widespread distribution makes Tropical Deciduous Forests the most common forest type in India.

44. To protect the flora and fauna of the country, the government has taken many steps. Discuss the steps in detail.

Ans. The Government of India has taken several steps to protect the flora and fauna in the country:

(i) Eighteen biosphere reserves have been set up in the country to protect flora and fauna. Twelve out of these – the Sundarbans Nanda Devi, the Gulf of Mannar, the Nilgiri, Nokrek, Great Nicobar, Simlipal, Pachmarhi, Achanakmar-Amarkantak, Agasthyamalai, Kangchendzonga and Panna – have been included in the world network of biosphere reserves.

(ii) Financial and technical assistance is provided to many botanical gardens by the government since 1992.

(iii) Project Tiger, Project Rhino, Project Great Indian Bustard and many other eco-developmental projects have been introduced.

(iv) 106 National Parks, 573 Wildlife sanctuaries and Zoological gardens are set up to take care of natural heritage.

45. 'The conservation of species is essential as every species has a role to play in the ecosystem.' Explain the above statement.

Ans. In India, various species play crucial roles in the ecosystem, such as pollination by insects, draught power and milk from animals, and nutritious food from fish.

The peacock helps in seed dispersal and pest control. Similarly, medicinal plants like tulsi and neem have been selected from nature for their beneficial properties.

However, due to human exploitation, many species are endangered, and some have become extinct.

For instance, the tiger, a top predator, is threatened due to habitat loss and poaching, disrupting the ecosystem balance. Conservation efforts are necessary to protect these species and maintain ecological harmony.

Let's Compete

Multiple-Choice Questions

1. Fauna is referred to as

(a) natural vegetation found in the Himalayas.
(b) species of plants.
(c) species of animals.
(d) none of these.

Ans. (c) species of animals.

2. Different places have difference in the duration of sunlight due to

(a) different latitudes. (b) different seasons.
(c) different altitude. (d) all of these.

Ans. (d) all of these.

3. The following tree is not found in tropical deciduous forests.

(a) Peepal (b) Teak
(c) Sal (d) Mahogany

Ans. (d) Mahogany

4. The trees of the thorn and scrub forests are

(a) dense. (b) tall.
(c) scattered. (d) none of these.

Ans. (c) scattered.

5. Pine and deodar are found in

(a) tropical deciduous forests.
(b) thorn forests.
(c) montane forests.
(d) tropical evergreen forests.

Ans. (c) montane forests.

6. The state having the largest covered forest area is

(a) Rajasthan. (b) Assam.
(c) West Bengal. (d) Odisha.

Ans. (d) Odisha.

7. The two geographical factors on which the growth of forest depends are

(a) latitude and sunlight.
(b) rainfall and altitude.
(c) sunlight and humidity.
(d) temperature and latitude.

Ans. (b) rainfall and altitude.

8. Gir National Park is located in

(a) Kerala. (b) Gujarat.
(c) Assam. (d) West Bengal.

Ans. (b) Gujarat.

9. The Royal Bengal Tiger in India is found in the
(a) Thar desert.
(b) Sunderbans delta.
(c) Himalayas.
(d) Andaman and Nicobar islands.

Ans. (b) Sunderbans delta.

10. An integrated environment connecting plants, animals and man is called
(a) biome. (b) ecology.
(c) ecosystem. (d) fauna.

Ans. (c) ecosystem.

Life Skills

1. Mention two ways how human beings have brought about a lot of changes in the ecosystem. What are the consequences to be faced because of human interference in nature?

Ans. Human activity has changed the ecosystem. The following two human activities have brought about the maximum changes in the ecosystem.
(i) Population explosion has used up many natural resources of the earth. As a result, the ecosystem has suffered.
(ii) Pollution also hampers the ecosystem. This pollution is caused due to chemical and industrial waste, acid deposits, reckless cutting of the forests to bring land under cultivation and habitation.

Consequences of human interference.
(i) Air pollution has increased due to increased human activities. A lot of fossil fuel combustion has started taking place from the vehicles, industrial factories and power plants. All these objects eject large quantities of air pollutants, such as carbon monoxide, ozone and nitrous oxides, into the atmosphere.
(ii) Some air pollutants, such as lead-based compounds, can lead to serious health problems like cancer, or other types of reproductive effects and birth defects.
(iii) Human activities have led to a change in the temperature and climate of a place.
(iv) Removing trees and other plants to increase areas of cultivation causes habitat loss and threatens the survival of numerous species of animals and plants.

2. Mention the initiatives taken by the government to conserve our forests resources.

Ans. (i) The government of India introduced the Forest Conservation Act 1980 to help conserve the ever-disappearing forest cover. This act also restricts the use of forest land for commercial purposes.
(ii) The government, through the introduction of a joint management programme, has involved local communities in the management of forests.
(iii) Eighteen biosphere reserves have been set-up in the country to protect flora and fauna.
(iv) 103 national parks, 535 wildlife sanctuaries and zoological gardens have been set-up to take care of natural heritage.
(v) Financial and technical assistance is being provided to many botanical gardens by the government since 1992.
(vi) The government is now also providing training of skill levels to the forest technicians and forest managers regarding the prevention, detection and monitoring programmes.

6

Population

Check Your Progress

Multiple-Choice Questions

1. The least densely populated union territory is

(a) Chandigarh. (b) Lakshadweep.

(c) Puducherry. (d) Daman and Diu.

Ans. (b) Lakshadweep.

2. Which of the following is the most important element of society?

(a) Population (b) Resources

(c) Industries (d) Education

Ans. (a) Population

3. What does census provide us?

(a) Information regarding schools

(b) Information regarding population

(c) Information regarding migration

(d) Information regarding agriculture

Ans. (b) Information regarding population

4. Read the given statements and choose the correct option with regard to migration from the following.

I. Internal migration changes the size of the population of a country, and influences the distribution of population within it.

II. Migration plays a very significant role in changing the composition and distribution of population.

III. In India, most migrations have been from rural to urban areas because of the "push" factor in rural areas.

IV. These are adverse conditions of poverty and unemployment in the rural areas and the "pull" of the city in terms of increased employment opportunities and better living conditions.

Options:

(a) I, II and III (b) I, II and IV

(c) I, III and IV (d) II, III and IV

Ans. (d) II, III and IV

5. Read the given statements and choose the correct option with regard to the India's Population Distribution by Density from the following.

I. Population density provides a better picture of the uneven distribution.

II. Population density is calculated as the number of persons per unit area.

III. India is one of the most densely populated countries of the world.

IV. The population density of India in the year 2011 was 394 persons per sq km.

Options:

(a) I, II and III (b) I, II and IV

(c) I, III and IV (d) II, III and IV

Ans. (a) I, II and III

6. What is the death rate?

(a) The number of deaths per thousand persons in a year

(b) The number of births per thousand persons in a year

(c) The number of deaths per hundred persons in a year

(d) The number of births per hundred persons in a year

Ans. (a) The number of deaths per thousand persons in a year

Very Short Answer Type Questions

7. After how many years is the census held in India? Why is it conducted?

Ans. In India, the Census exercise is conducted every 10 years. Census collects detailed information about the population, including their age,

education, occupation, and more. It can be used to identify population trends, such as worker migration.

8. Name the state having the lowest population density. What can one infer from it?

Ans. Population density is calculated as the number of persons per unit area. Arunachal Pradesh is the state with lowest population density of just around 17 per square km. The reason behind low density is the difficult living conditions of the state because of the forests in a larger area.

9. What are the two types of migration? Why do people migrate?

Ans. Migration is the movement of people across regions and territories. Migration can be internal (within the country) or international (between the countries). People may migrate for better jobs, higher wages, or a better standard of living. People may migrate to escape natural disasters.

10. Within the nation what kind of migration leads to changes in the distribution of population? What does it lead to?

Ans. When migration is within the country, it is called internal migration. Migration serves as a significant factor influencing population dynamics. It affects not only the overall population size but also alters the demographic structure of both urban and rural areas, particularly regarding age and gender distribution. In India, the trend of rural-urban migration has led to a consistent rise in the proportion of individuals residing in cities and towns.

11. What is sex ratio? Why is it considered to be an important social indicator?

Ans. Sex ratio is defined as the number of females per thousand males in the population. Sex ratio is an important indicator to measure the extent of equality between males and females in a society at any given time. The sex ratio in the country has always remained unfavourable to females.

12. 'Several states in India have population densities below 250 persons per square km.' Give any two reasons for it.

Ans. (i) States like Arunachal Pradesh, Meghalaya, and Nagaland have rugged terrain, which is unfavourable for supporting large population.

(ii) Hilly and rocky terrain, low rainfall, and shallow soils are also responsible for less population densities in states like Manipur, Mizoram, and Sikkim.

Short Answer Type Questions

13. Discuss four main causes which are responsible for the rapid population growth.

Ans. Growth of population refers to the change in the number of inhabitants of a country/territory during a specific period of time. The main causes of rapid population growth are given below:

(i) Higher mortality rate – Due to changes in medical science and advancements in technology the mortality rate of countries have changed. This has led to rapid population growth in countries across the world.

(ii) Decline in death rate – The rapid decline in death rate results in the growth of population.

(iii) Migration - Migration is an important determinant of population change. It changes not only the population size but also the population composition of urban and rural populations in terms of age and sex composition. Migration plays a very significant role in changing the composition and distribution of population.

(iv) Illiteracy - A majority of population in underdeveloped and developing nations are illiterates. They know nothing about the birth control measures. As a result there is rapid population growth.

14. 'Though agriculture has been mechanised and cottage industry has improved yet rural migration continues to increase'. Give any two reasons for it.

Ans. Though agriculture and cottage industry has improved, yet the rural migration continues due to the following reasons:

(i) The rural areas in India still do not have proper healthcare facilities and education facilities which are being provided and are available in the urban areas. Schools, colleges and hospitals are there in villages but the quality provided by them is still not up to the mark of the urban areas.

(ii) Maximum migrations occur due to the "push" factor in rural areas. These push factors are adverse conditions of poverty and unemployment in the rural areas and the "pull" of the city in terms of increased employment opportunities and better living conditions.

Long Answer Type Questions

15. Highlight the significant improvements seen in the health status of our population.

Ans. In the last few years a number of improvements in the health status of the Indian population. A few of them have been listed below.

(i) Diseases such as smallpox, plague, and rabies have been completely eradicated. Also, malaria, polio, measles are now kept under control.

(ii) Many measures are being taken to keep dengue, filaria, HIV, tuberculosis, and leprosy under control.

(iii) Many institutes and hospitals have come up to treat cancer as a specialty.

(iv) Immunisation schedule has been made mandatory for infants, toddlers, and children. The government organizes a free pulse-polio program for children under 5 years.

(v) The death rates have significantly declined from 25 per thousand population in 1951 to 7.2 per 1000 in 2011. Also, the average life expectancy at birth has increased from 36.7 years as in 1951 to 67.9 years in 2012.

16. Explain what is the annual growth rate of population. Why is even low annual growth rate of population considered not good for India?

Ans. The rate or the pace of population increase in per cent per annum is referred to as the annual growth rate.

India has very large population. The low annual growth rate of population is considered not good for India because

(i) For a larger population, even a lower birth rate the annual growth keeps on increasing.

(ii) Therefore, when a low annual rate is applied to a large population, it becomes a very high absolute number. When more than a billion people increase even at a lower rate, the total numbers being added becomes very large.

17. Mention the important features of NPP 2000. What measures have been taken by NPP 2000 to protect the adolescent population?

Ans. The Government of India initiated a comprehensive Family Planning Programme in 1952. This was done to promote a responsible and planned parenthood. The National Population Policy (NDP) 2000 is a culmination of years of planned efforts.

Main features of NPP 2000 are as follows:

(i) The NPP 2000 provides a policy framework for imparting free and compulsory school education up to 14 years of age.

(ii) It works to reduce the infant mortality rate to below 30 per 1000 live births.

(iii) It also works to achieve the universal immunisation of children against all vaccine preventable diseases.

(iv) It promotes delayed marriage for girls.

(v) It is also working to make family welfare a people-centred programme.

Measures taken by the NPP to protect the adolescents are as follows:

(i) NPP 2000 identifies adolescents as one of the major section of the population.

(ii) The policy puts greater emphasis on important needs of adolescent including protection from unwanted pregnancies and sexually transmitted diseases (STDs). This is done along with their nutritional requirements.

(iii) It organizes programmes that aim towards encouraging delayed marriage and child-bearing.

(iv) It works to promote the education of adolescents about the risks of unprotected sex, making contraceptive services accessible and affordable, providing food supplements, nutritional services, and strengthening legal measures to prevent child marriage.

18. What were the main reasons for rapid increase in India's population since independence?

Ans. The main reasons for the rapid increase in India's population since independence are as follows:

(i) The birth rate has gone high in India since independence. This has resulted in the population explosion. In India birth rate has always been on a higher side, due to lack of awareness of family planning, illiteracy.

(ii) There has been a decline in the death rates due to the availability of better health facilities.

(iii) International migration has largely impacted the composition and distribution of population in India.

(iv) There has also been substantial growth in cities in terms of education and technology which has given rise to population.

(v) Increase in population in the rural areas can be attributed to lack of family planning, increase in birth rate, illiteracy, lack of awareness.

Self-Assessment

Multiple-Choice Questions

1. Adolescents are grouped in the age group of

(a) 13–19 years. (b) 15–29 years.

(c) 10–19 years. (d) +60 years.

Ans. (c) 10–19 years.

2. The number of live births per thousand persons in a year is called

(a) growth rate.

(b) death rate.

(c) birth rate.

(d) none of these.

Ans. (c) birth rate.

3. Read the given statements and choose the correct option with regard to Population Growth from the following.
   I. Growth of population refers to the change in the number of inhabitants of a country/ territory during a specific period of time, say during the last 10 years.
   II. Such a change can be expressed in two ways: in terms of absolute numbers and in terms of percentage change per year.
   III. The absolute numbers added each year or decade is the magnitude of increase.
   IV. It is obtained by simply subtracting the earlier population from the later population.

   Options:
   (a) I, II and IV
   (b) I, II and III
   (c) I, III and IV
   (d) I, II, III and IV

Ans. (d) I, II, III and IV

4. Choose the correctly matched pair from the following.

   Year – Annual Growth Rate
   (a) 1951 – 25%
   (b) 1961 – 50%
   (c) 1971 – 35%
   (d) 1981 – 55%

Ans. (a) 1951 – 25%

5. Identify the policy with the help of following information and choose the correct option.
   - The Government of India initiated a comprehensive Family Planning Programme.
   - It provides a policy framework for imparting free and compulsory school education up to 14 years of age.
   - Reducing infant mortality rate to below 30 per 1000 live births, achieving universal immunisation of children against all vaccine preventable diseases, promoting delayed marriage for girls.

   Options:
   (a) Beti Bachao Beti Padhao Yojana
   (b) National Population Policy
   (c) Pradhan Mantri Ujjwala Yojana
   (d) Pradhan Mantri Suraksha Bima Yojana

Ans: (b) National Population Policy

Assertion-Reason Type Questions

For question numbers 6 to 16, two statements are given as Assertion (A) and Reason (R). Read the statements and choose the correct option.

Options:
(a) Both A and R are true and R is the correct explanation of A.
(b) Both A and R are true but R is not the correct explanation of A.
(c) A is true but R is false.
(d) A is false but R is true.

6. **Assertion (A):** In India, the first census was held in the year 1872.
   Reason (R): The first complete census, however, was taken in the year 1881.

Ans. (b) Both A and R are true but R is not the correct explanation of A.

7. **Assertion (A):** India is one of the most densely populated countries of the world.
   Reason (R): Only Bangladesh and Japan have higher average population densities than India.

Ans. (b) Both A and R are true but R is not the correct explanation of A.

8. **Assertion (A):** The Northern plains and Kerala in the south have high to very high population densities.
   Reason (R): These regions have high population because of the flat plains with fertile soils and abundant rainfall.

Ans. (a) Both A and R are true and R is the correct explanation of A.

9. **Assertion (A):** The numbers, distribution and composition of the population are constantly changing.
   Reason (R): This is the influence of the interaction of the three processes, namely – births, deaths and migrations.

Ans. (a) Both A and R are true and R is the correct explanation of A.

10. **Assertion (A):** Uttar Pradesh is the most populous state in India, accounting for 16% of the country's population.
    Reason (R): The state has many industrial towns that attract people from all over the country, causing dense population.

Ans. (c) A is true but R is false.

11. **Assertion (A):** Rajasthan, despite being the largest state in terms of area, has a relatively small percentage of India's total population (5.5%).
    Reason (R): The state's harsh desert climate and limited water resources cause large numbers of death year after year.

Ans. (b) Both A and R are true but R is not the correct explanation of A.

12. **Assertion (A):** The adolescent population is considered the most important resource for the future in India.

Reason (R): Adolescents in India receive adequate nutrition, which is essential for their growth and development.

Ans. (c) A is true but R is false.

13. Assertion (A): The National Population Policy (NPP) 2000 aims to make family welfare a people-centred programme.

Reason (R): The NPP 2000 promotes delayed marriage for girls and universal immunisation of children.

Ans. (a) Both A and R are true and R is the correct explanation of A.

14. Assertion (A): The natural increase of population is the difference between birth rates and death rates.

Reason (R): Birth rate is the number of live births per thousand persons in a year, and it has always been higher than the death rate in India.

Ans. (a) Both A and R are true and R is the correct explanation of A.

15. Assertion (A): Migration changes the size of the population in a country.

Reason (R): Internal migration influences the distribution of population within the nation but does not change the overall population size.

Ans. (d) A is false but R is true.

16. Assertion (A): The urban population in India has significantly increased from 1951 to 2011.

Reason (R): The rural-urban migration has resulted in a steady increase in the percentage of population in cities and towns due to the "push" factor in rural areas and the "pull" factor of cities.

Ans. (a) Both A and R are true and R is the correct explanation of A.

Match the Following

17. Match the following items given in Column A with those in Column B. Choose the correct answer from the options given below:

Column A (States)	Column B (Distribution of Population)
A. Punjab	1. 2 per cent
B. Rajasthan	2. 6 per cent
C. Karnataka	3. 5 per cent
D. Odisha	4. 3 per cent

Codes:

	A	B	C	D
(a)	3	4	2	1
(b)	1	2	3	4
(c)	4	1	3	2
(d)	1	3	2	4

Ans. (b) 1 2 3 4

Find the Correct Sequence

18. Arrange the following states in ascending order of their population.

(a) West Bengal, Bihar, Uttar Pradesh, Maharashtra
(b) Bihar, Uttar Pradesh, Maharashtra, West Bengal
(c) West Bengal, Bihar, Maharashtra, Uttar Pradesh
(d) Uttar Pradesh, Bihar, West Bengal, Maharashtra

Ans. (c) West Bengal, Bihar, Maharashtra, Uttar Pradesh

Find the Incorrect Option

19. (a) The population density of India in the year 2011 was 382 persons per km.
(b) A census is an official enumeration of population held every tenth year.
(c) There has been a significant increase in the number of million plus cities from 35 to 53 in 2001 to 2011.
(d) Delhi has only 900 females per 1000 males according to Census 2011.

Ans. (d) Delhi has only 900 females per 1000 males according to Census 2011.

Fill in the Blanks

20. Movement of people across regions and territories is called **internal migration.**

21. The numbers of literates per 100 persons is called **literacy rate.**

22. The **growth of population** of population refers to the numbers of persons added each year.

Very Short Answer Type Questions

23. Which two countries are the most populated countries of the world?

Ans. China and India are the most populated countries of the world.

24. How does migration play an important role in population change?

Ans. Migration is an important factor to know the dynamics of population of a country. It not only changes the population size but also the population composition of urban and rural populations in terms of age composition and gender composition.

25. Why is population distribution uneven in India?

Ans. India, has uneven distribution of population due to the following factors:

(i) Low birth and high death rates in a number of urban areas.
(ii) Rugged terrain and unfavorable climatic conditions are primarily responsible for sparse population in states like Rajasthan and the hill states.

(iii) Hilly, dissected and rocky nature of the terrain also has low population distribution.

(iv) Areas which receive moderate to low rainfall and have shallow and less fertile soil are also responsible for lesser population.

(v) Places which have good fertile land, job opportunities, healthcare sector, and educational institutes have high population.

26. Resources are meaningful only if there are human beings. Do you agree?

Ans. Yes. People make resources useful. Without people, coal is just a rock, water is just a liquid, and land is just a physical space. It is human ingenuity and technology that converts these natural elements into resources.

27. Calamities and disasters depend on people. Do you agree? Justify your answer with any two reasons.

Ans. It is correct that, calamities and disasters depend on people, and human activities can increase their frequency and intensity. Human activities like deforestation, urbanisation, and inadequate infrastructure can increase the risk of natural disasters. Human actions and inactions can create conditions that lead to disasters.

28. 'India's population is unevenly distributed across its vast area.' Discuss the given statement in detail.

Ans. India's population is unevenly distributed across its vast area. This is evident as Uttar Pradesh has 16% of the country's population while Sikkim and Lakshadweep have a tiny population of 0.6 million and 64,429 respectively, and almost half of India's population lives in just five states.

Short Answer Type Questions

29. 'Migration is an important determinant of population change'. Support the statement with suitable examples.

Ans. Migration is the movement of people from one area to another for better life. The above given statement is true because of the following reasons:

- People living in rural areas migrate to urban areas in search of job opportunities.
- The composition of urban population has changed due to the better education and medical facilities.
- The urban population has increased from 17.29 per cent in 1951 to 31.80 per cent in 2011 due to migration.

30. 'Adolescent girls in India face significant challenges that hinder their growth and development.' Why?

Ans. This reasons are as follows:

(i) Nutrition requirements of adolescents are higher than those of a normal child or adult, but the diet available to them is inadequate in all nutrients.

(ii) A large number of adolescent girls suffer from anaemia, which can lead to weakness, fatigue, and impaired cognitive function.

(iii) Their problems have not received adequate attention in the process of development, and awareness among them can be improved through literacy and education.

Paragraph Based Questions

31. Read the sources given below and answer the questions that follow:

Source A – People are Important

People are important to develop the economy and the society. The people make and use resources and are themselves resources with varying quality. Coal is but a piece of rock, until people were able to invent technology to obtain it and make it 'resource.'

(a) How do people contribute to the development of resources?

Source B – Rate of Population Growth

Since 1981, however, the rate of population growth has started to decline gradually. During this period, birth rates declined rapidly. Still 182 million people were added to the total population in the 1990s alone (an annual addition larger than ever before).

(b) What happened to India's population growth rate after 1981?

Source C – India's Population Distribution by Density

Assam and most of the Peninsular states have moderate population densities. Hilly, dissected and rocky nature of the terrain, moderate to low rainfall, shallow and less fertile soils have influenced population densities in these areas.

(c) Do you agree that hilly regions have low density of population? Give reasons.

Ans. (a) People use technology to interact with nature and create more resources. For example, people used their knowledge and technical skills to generate power from coal, which was present on Earth as a piece of rock. People share their ideas, knowledge, inventions, and discoveries to create more resources.

(b) The rate of population growth in India has been decreasing since 1981. This reduction can be attributed to several factors,

such as government initiatives regarding family planning, rising literacy levels, and enhancements in healthcare services.

(c) Yes, we do agree that hilly regions have low density of population. This is because of the hilly terrain where life is difficult in comparison to plain area, lack of education and medical facilities, lack of job opportunities, etc. Such conditions force people to migrate to urban areas.

Case Based Questions

32. Birth rate is a major component of growth because in India, birth rates have always been higher than death rates. The main cause of the rate of growth of the Indian population has been the rapid decline in death rates. The third component of population growth is migration. Migration is the movement of people across regions and territories. Migration can be internal (within the country) or international (between the countries). Internal migration does not change the size of the population, but influences the distribution of population within the nation. Migration plays a very significant role in changing the composition and distribution of population. In India, most migrations have been from rural to urban areas because of the "push" factor in rural areas. These are adverse conditions of poverty and unemployment in the rural areas and the "pull" of the city in terms of increased employment opportunities and better living conditions. Migration is an important determinant of population change. It changes not only the population size but also the population composition of urban and rural populations in terms of age and sex composition. In India, the rural-urban migration has resulted in a steady increase in the percentage of population in cities and towns.

32.1 Mention any two problems caused by migration.

Ans. Migration can lead to a heightened demand for educational institutions, housing, and healthcare services. Additionally, it may intensify competition for employment opportunities, potentially disadvantaging the local population.

32.2 What are the two main causes of population growth in India?

Ans. The two main causes of population growth in India are a high birth rate and a low death rate.

32.3 Explain the pull factor and the push factor with regard to migration.

Ans. In India, most migrations have been from rural to urban areas because of the "push" factor in rural areas. These are adverse conditions of poverty and unemployment in the rural areas and the "pull" of the city in terms of increased employment opportunities and better living conditions.

33. The most significant feature of the Indian population is the size of its adolescent population. It constitutes one-fifth of the total population of India. Adolescents are, generally, grouped in the age group of 10 to 19 years. They are the most important resource for the future. Nutrition requirements of adolescents are higher than those of a normal child or adult. Poor nutrition can lead to deficiency and stunted growth. But in India, the diet available to adolescents is inadequate in all nutrients. A large number of adolescent girls suffer from anaemia. Their problems have so far not received adequate attention in the process of development. The adolescent girls have to be sensitised to the problems they confront. Awareness among them can be improved through the spread of literacy and education.

33.1 Is it true to say that adolescents in India suffers from malnourishment?

Ans. Yes, it is true that adolescents are mostly malnourished in India. Nutrition requirements of adolescents are higher than those of a normal child or adult. Poor nutrition can lead to deficiency and stunted growth. But in India, the diet available to adolescents is inadequate in all nutrients. A large number of adolescent girls suffer from anaemia.

33.2 Why adolescents are the most important resource for the future?

Ans. Adolescents are considered as the most important resource for the future because they are the youth of the nation. They are the youngest and most energetic, grouped in the age group of 10 to 19 years. In India, there is a significant number of adolescent, it constitute one fifth of the total population of India.

33.3 What is the size of adolescent population in India?

Ans. The adolescents population constitutes one-fifth of the total population of India.

Long Answer Type Questions

34. State the advantages a nation has because of a healthy population.

Ans. Healthy population develops a healthy nation. Ill health affects the economics and dynamics of a nation. A healthy person is a productive person.

(i) Good health systems are a marker of a fair and just society.

(ii) A healthy person is an asset to the country, is more productive and helps in the progress of the country.

(iii) A healthy person is able to earn more and improve his or her standard of living.

(iv) Even the non-productive age group needs to be healthy to reduce the burden of health care.

(v) All the people in all the age groups would be more energetic and would pay less medical bills.

(vi) Health care industry would bloom but at the same time other industries would grow also.

35. Highlight the point of differences between population growth and population change.

Ans.

	Population growth	Population change
(i)	Population growth refers to the change in the number of people of a country during a specific period of time.	Population change is due to the birth rates, death rates, and migration.
(ii)	This can be represented in terms of absolute numbers or in percentages.	If the birth rate is high and death rate is low, then there will be a change in the population. Population will increase.
(iii)	This can be determined by the difference between birth rate and death rate plus migration per year.	Population change is determined by the difference between the sizes of the population from the beginning to the end of a certain time period.
(iv)	This is an increase in population.	This can be either an increase or a decrease in population.
(v)	Population growth does not alter the population composition.	Population change can alter the population composition.

Let's Compete

Multiple-Choice Questions

1. The union territory having the highest density of population is

(a) Chandigarh. (b) Daman and Diu.

(c) Delhi. (d) Puducherry.

Ans. (c) Delhi.

2. NPP stands for

(a) National Population Programme.

(b) National Population Project.

(c) National Population Policy.

(d) National Population Production.

Ans. (c) National Population Policy.

3. What has been the main cause of the rate of growth of the Indian population?

(a) High birth rates

(b) Rapid decline in death rates

(c) Increased migration

(d) High life expectancy

Ans. (b) Rapid decline in death rates

4. The decline in death rates and increase in life expectancies at birth rate is because of

(a) literacy rates. (b) health facilities.

(c) occupational structure. (d) sex ratio.

Ans. (b) health facilities.

5. What caused the higher rates of population growth in India until 1980?

(a) High birth rates and increasing death rates

(b) Declining birth rates and high death rates

(c) High birth rates and declining death rates

(d) Low birth rates and low death rates

Ans. (c) High birth rates and declining death rates

6. Since 1981, what trend has been observed in India's population growth?

(a) Rapid increase in birth rates

(b) Gradual decline in birth rates

(c) Rapid increase in death rates

(d) No change in birth rates

Ans. (b) Gradual decline in birth rates

7. What is the proportion of the adolescent population in India?

(a) One-fourth of the total population

(b) One-fifth of the total population

(c) One-third of the total population

(d) One-half of the total population

Ans. (b) One-fifth of the total population

8. The official enumeration of population for census can be carried out in how many years?

(a) 5 years (b) 2 years

(c) 1 year (d) 10 years

Ans. (d) 10 years

9. International migration is

(a) movement of people from one village to another.

(b) movement of people within the country.

(c) movement of people from rural to urban areas.

(d) movement of people from one country to another country.

Ans. (d) movement of people from one country to another country.

10. Which of the following is not a goal of the National Population Policy (NPP) 2000?

(a) Imparting free and compulsory school education up to 14 years of age

(b) Achieving universal immunisation of children against all vaccine-preventable diseases

(c) Reducing infant mortality rate to below 30 per 1000 live births

(d) Providing financial incentives for large families

Ans. (d) Providing financial incentives for large families

Life Skills

1. Mention the values reflected by a healthy population.

Ans. Human health is an important factor in determining the growing economy of a nation. The values reflected by the healthy population are as follows:

(i) A healthy person has more stamina to do the work than an unhealthy person so he or she can work for many hours without any fatigue.

(ii) If the population of a country is healthy then by giving its more and more time in production it can increase the national income of that country.

(iii) Healthy citizens of a nation have the ability to think more efficiently, positively and intellectually. They will then have the ability and knowledge to select good and qualitative leaders for the nation who can run their country more efficiently.

(iv) Healthy citizens can raise the national income of a country thereby the standard of living of the population can be reformed.

(v) In the development or growth of an economy healthy population plays a vital role in every respect.

2. In a government's priority list, the improvement in the health status of the population holds most important position. Mention three factors responsible for it.

Ans. The improvement in the health status of the population is an important part of any government activity. The factors responsible for this decision are:

(i) People are the resources for a country. If the population is unhealthy the resources will eventually get wasted. So, to avoid the wastage of resources, the government has undertaken the initiatives to improve the health facilities of a country.

(ii) The health of a person helps him to realise his potential and the ability to fight illness. An unhealthy person becomes a liability for an organisation. Health is an indispensable basis for realising one's well-being. Henceforth, improvement in the health status of the population has been the priority of the country.

(iii) The national policy of our country is also aimed at improving the accessibility of health care, family welfare and nutritional service with special focus on underprivileged segment of population.