

Class XI Session 2025-26
Subject - Geography
Sample Question Paper - 1

Time Allowed: 3 hoursMaximum Marks: 70

General Instructions:

Read the following instructions carefully and follow them:

- 1. This question paper contains 30 questions. All questions are compulsory.
- 2. Question paper is divided into five sections A, B, C, D and E.
- 3. Section A Questions no. 1 to 17 are Multiple Choice type questions. Each question carries 1 mark.
- 4. Section B Questions no. 18 and 19 are Source-based questions. Each question carries 3 marks.
- 5. Section C Questions no. 20 to 23 are Short Answer type questions. Each question carries 3 marks. Answer to these questions shall be written in 80 to 100 words.
- 6. Section D Questions no. 24 to 28 are Long Answer type questions. Each question carries 5 marks. Answer to these questions shall be written in 120 to 150 words.
- 7. Section E Questions no. 29 and 30 are Map-based questions. Each question carries 5 marks.
- 8. There is no overall choice given in the question paper. However, an internal choice has been provided in a few questions in all sections other than Section A.

Section A

1. **Assertion (A):** In a systematic approach, a phenomenon has studied the world over as a whole, and then the identification of typologies or spatial patterns is done. [1]

Reason (R): It describes the human culture, population, dynamic socio-economic and political aspects.

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

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

d) A is false but R is true.

2. Which of the following pairs is matched correctly? [1]

Name of Biosphere Reserve	Fauna found
(a) Nilgiri	(i) Sea cow
(b) Gulf of Mannar	(ii) Golden eagle
(c) Nanda Devi	(iii) Sambar
(d) Sunderban	(iv) Royal Bengal tigers

- a) (a) - (i)

c) (c) - (iii)
- b) (b) - (ii)

d) (d) - (iv)

3. What is the diameter of the milky way? [1]
 a) Between 80 thousand to 1,50,000 light-years b) Between 1 lakh to 2 lakh light-years
 c) Between 2,50,000 to 3,00,000 light-years d) Between 2 lakh to 3 lakh light-years
4. Consider the following statements and choose the correct option from the given options [1]
 I. It has been noticed that states like Rajasthan, Gujarat, Haryana and Punjab are also getting inundated in recent decades due to flash floods.
 II. This is partly because of the pattern of the monsoon and partly because of blocking of most of the streams and river channels by human activities.
 a) Only Statement II is correct b) Both the statements I and II are incorrect
 c) Both the statements are true and statement II correctly present the reason for statement I d) Only statement I is correct
5. The geographical phenomenon is [1]
 a) static b) dynamic
 c) both dynamic and static d) Fixed
6. The air that contains moisture to its full capacity: [1]
 a) Saturated air b) Relative humidity
 c) Absolute humidity d) Specific humidity
7. **Assertion (A):** The Jhelum is an important tributary of the Indus. [1]
Reason (R): It joins the Chenab near Jhang in China.
 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. Which of the following causes inversion of temperature in mountainous regions? [1]
 a) Due to water vapours b) Due to gravitation
 c) Due to dust particles d) Due to air drainage
9. Kanyakumari is [1]
 a) Near the pole b) Away from the equator
 c) Away from the pole d) Near the equator
10. Monsoon or Tropical Deciduous forests are found in areas with rainfall between [1]
 a) 100 and 200 cm b) 50 and 100 cm
 c) 200 and 250 cm d) 70 and 200 cm
11. Arrange the following in correct sequence: [1]
 i. These winds climb the slopes of the Western Ghats from 900-1200 m.
 ii. One branch of Arabian sea is obstructed by the Western Ghats.
 iii. After crossing the Western Ghats, these winds descend and get heated up. This reduces humidity in the winds. As a result, these winds cause little rainfall east of the Western Ghats.



iv. Soon, they become cool, and as a result, the windward side of the Sahyadris and Western Coastal Plain receive very heavy rainfall ranging between 250 cm and 400 cm.

- a) (i) - (iv) - (iii) - (ii)

b) (iv) - (ii) - (i) - (iii)
- c) (ii) - (i) - (iv) - (iii)

d) (iii) - (ii) - (iv) - (i)

12. The Nanda Devi Biosphere Reserve is situated in

a) West Bengal

b) Himachal Pradesh

c) Kerala

d) Uttarakhand

13. Which one of the following country is separated from India by the Gulf of Mannar and Palk Strait?

a) Bangladesh

b) Bhutan

c) Myanmar

d) Sri Lanka

14. Which of the following pairs is matched correctly?

River	Place of Origin
(a) Godavari	(i) Nasik
(b) Mahanadi	(ii) Sihawa
(c) Krishna	(iii) Multai
(d) Narmada	(iv) Mahabaleshwar

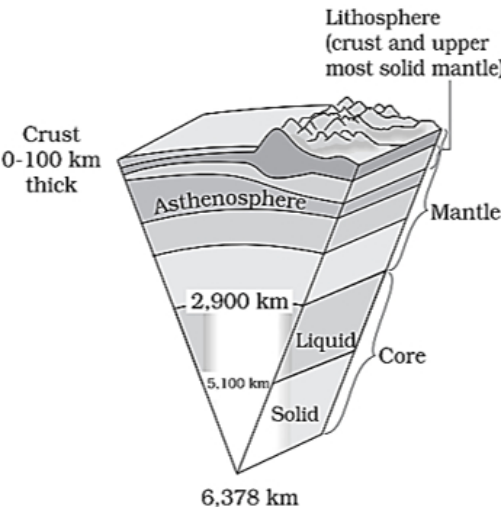
- a) (a) - (i)

b) (d) - (iv)
- c) (b) - (ii)

d) (c) - (iii)

Question No. 15 to 17 are based on the given text. Read the text carefully and answer the questions: [3]

Read the following diagram and answer



15. What is the term used to describe the combination of the crust and the uppermost part of the mantle?

a) Lithosphere

b) Core

c) Asthenosphere

d) Mantle
16. The core-mantle boundary is located at the depth of _____ km.

a) 2900

b) 6378

c) 5100

d) 100

17. Which layer of the Earth is considered as the outermost solid part?

- a) Mantle
- b) Lithosphere
- c) Core
- d) Crust

Section B

18. Read the following text carefully and answer the questions that follow:

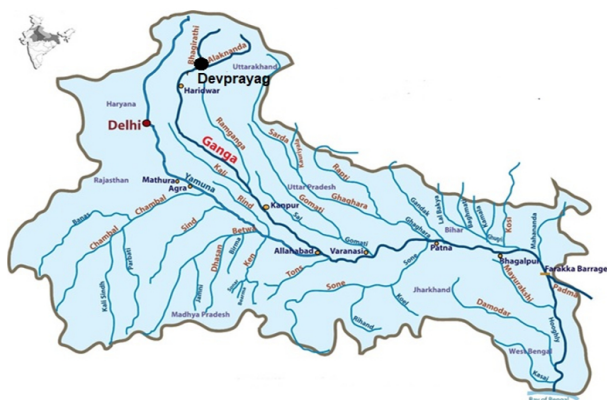
[3]

The western coastal plains are an example of submerged coastal plain. It is believed that the city of Dwaraka which was once a part of the Indian mainland situated along the west coast is submerged under water. Because of this submergence it is a narrow belt and provides natural conditions for the development of ports and harbours. Kandla, Mazagaon, JLN port Navha Sheva, Marmagao, Mangalore, Cochin, etc. are some of the important natural ports located along the west coast. Extending from the Gujarat coast in the north to the Kerala coast in the south, the western coast may be divided into following divisions – the Kachchh and Kathiawar coast in Gujarat, Konkan coast in Maharashtra, Goan coast and Malabar coast in Karnataka and Kerala respectively. The western coastal plains are narrow in the middle and get broader towards north and south. The rivers flowing through this coastal plain do not form any delta. The Malabar coast has got certain distinguishing features in the form of ‘Kayals’ (backwaters), which are used for fishing, inland navigation and also due to its special attraction for tourists. Every year the famous Nehru Trophy Vallamkali (boat race) is held in Punnamada Kayal in Kerala. As compared to the western coastal plain, the eastern coastal plain is broader and is an example of an emergent coast. There are well developed deltas here, formed by the rivers flowing eastward in to the Bay of Bengal. These include the deltas of the Mahanadi, the Godavari, the Krishna and the Kaveri. Because of its emergent nature, it has less number of ports and harbours. The continental shelf extends up to 500 km into the sea, which makes it difficult for the development of good ports and harbours

- i. On the basis of the location and active geomorphological processes, the Indian Coastal Plains can be broadly divided how many parts? Name them. (1)
- ii. How are the Western Coastal Plains divided? (1)
- iii. Distinguish between Western Coastal Plain and Eastern Coastal Plain. (1)

19. Observe the given map and answer the following questions:

[3]



- i. Name the river system represented in above map. (1)
- ii. What is the significance of the meeting point at Devprayag? (1)
- iii. Name the important left bank tributaries of the given river system. (1)

20. Why is there a time variation of 2 hours between the easternmost and westernmost part of the country?

[3]

OR

Why the physical divisions of India give it a unique geographical unity?

21. Differentiate between the National Park and Sanctuary.

[3]

22. What do you mean by Diastrophism? Which processes are included in it? [3]

OR

Physical weathering depends on some applied forces. What are these?

23. How do weathering help in formation of landforms? [3]

Section C

24. Describe the usability of rivers of India. [5]

25. What do you mean by Plate Tectonics? [5]

OR

Bring about the basic difference between the drift theory and Plate tectonics.

26. Explain any three factors that influence the temperature distribution of the oceans. [5]

OR

Explain about horizontal distribution of salinity.

27. What factors affect direction and velocity of winds? [5]

OR

What are trade winds and Westerlies? How are these caused? Describe their extent, direction and effects.

28. Explain the spatial variation in the rainfall throughout the country. [5]

OR

Give reasons for the following:

i. Temperature range of Delhi is more than Mumbai.

ii. Temperature falls in winter season in north India.

Section D

29. On the outline map of India, locate and label the following: [5]

i. Biosphere Reserve located in the swampy delta of the river Ganga in West Bengal

ii. Ladakh Range

iii. Area having variability of rain above 60%

iv. Regions having Forest Soils

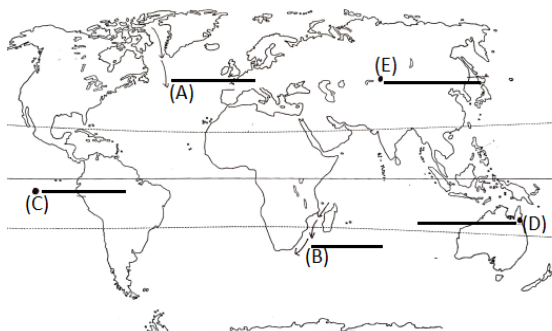
v. Jaintia Hills





30. With the help of the following key, identify the areas marked as A, B, C, D and E on the given outline map of the World. Write the correct name of the place in the blank space given on the map. [5]

- A. A cold ocean current
- B. A warm ocean current
- C. A Volcanic Hot spot
- D. An ecological hotspot
- E. The largest continent



Solution

Section A

1. **(b)** Both A and R are true but R is not the correct explanation of A.
Explanation:
In this approach, a particular phenomenon is considered for detailed understanding. The study of specific natural or human phenomenon that gives rise to certain spatial patterns and structures on the earth surface is called systematic study.
2. **(d)** (d) - (iv)
Explanation: Sunderban - Royal Bengal tigers
3. **(a)** Between 80 thousand to 1,50,000 light-years
Explanation:
Between 80 thousand to 1,50,000 light-years
4. **(c)** Both the statements are true and statement II correctly present the reason for statement I
Explanation:
Both the statements are true and statement II correctly present the reason for statement I
5. **(b)** dynamic
Explanation:
The geographical phenomena, both physical and human, are not static but highly **dynamic**. They change over time as a result of the interactive processes between ever-changing earth and untiring and ever-active human beings.
6. **(a)** Saturated air
Explanation:
Saturated air
7. **(c)** A is true but R is false.
Explanation:
It rises from a spring at Verinag situated at the foot of the Pir Panjal in the south-eastern part of the valley of Kashmir. It flows through Srinagar and the Wular lake before entering Pakistan through a deep narrow gorge.
8. **(d)** Due to air drainage
Explanation:
Due to air drainage
9. **(d)** Near the equator
Explanation:
Kanyakumari is located **closer to the equator** i.e. 8 degrees away from the equator. It receives maximum sunlight and experiences a minimum gap between day and night.
10. **(d)** 70 and 200 cm

Explanation:

Monsoon or Tropical Deciduous forests are spread over regions that receive rainfall **between 70-200 cm.**

11.

(c) (ii) - (i) - (iv) - (iii)

Explanation:

(ii) - (i) - (iv) - (iii)

12.

(d) Uttarakhand

Explanation:

The Nanda Devi Biosphere Reserve is situated in the northern state of **Uttarakhand.**

13.

(d) Sri Lanka

Explanation:

Sri Lanka

14.

(c) (b) - (ii)

Explanation: Mahanadi - Sihawa

15.

(a) Lithosphere

Explanation:

Lithosphere

16.

(a) 2900

Explanation:

2900

17.

(d) Crust

Explanation:

Crust

Section B

18. i. On the basis of the location and active geomorphological processes, the Indian Coastal Plains can be broadly divided two parts.

- a. the western coastal plains;
- b. the eastern coastal plains.

ii. Extending from the Gujarat coast in the north to the Kerala coast in the south, the western coast may be divided into following divisions – the Kachchh and Kathiawar coast in Gujarat, Konkan coast in Maharashtra, Goan coast and Malabar coast in Karnataka and Kerala respectively.

iii. Any one relevant point of both plains

Western Coastal Plains:

- a. They stretch from Kachchh in the north to Kanniya-kumari in the south.
- b. They lie between the Western Ghats and the Arabian Sea.
- c. They are narrower than the Eastern Coastal Plains.
- d. They do not have deltas, only estuaries and lagoons.
- e. They lie in the states of Gujarat, Maharashtra, Goa, Karnataka, and Kerala.
- f. Their important ports are Kandla, Mumbai, Marmagao, Mangalore, and Kochi.

Eastern Coastal Plains:

- a. They stretch from the mouth of the river Ganga in the north to Kanniyakumari in the south.
- b. They lie between the Eastern Ghats and the Bay of Bengal.
- c. They are wider than the Western Coastal Plains.
- d. They are composed of the deltas of all the major rivers of the Deccan.



- e. They lie in the states of Odisha, Andhra Pradesh, and Tamil Nadu.
- f. Their important ports are Vishakhapatnam, Paradip, Chennai, and Tuticorin.

19. i. The Ganga River System.
- ii. The Bhagirathi and Alaknanda rivers converge at Devprayag, where they form the Ganga River.
- iii. The important left bank tributaries are the Ramganga, the Gomati, the Ghaghara, the Gandak, the Kosi and the Mahananda.
20. Arunachal Pradesh is the easternmost state and Gujarat is the westernmost state. Naturally, they experience such variation in the local time because of the longitudinal distance of 30° longitudes. This longitudinal distance of 30° longitudes makes a difference of 2 hours between the Arunachal Pradesh and the Gujarat. (1 degree = 4 minutes,30 degree = 4 × 30 = 120 minutes i.e 2 hours). Hence, when it is 6 a.m. in Arunachal Pradesh, the local time at Gujarat is supposed to be behind by 2 hours as compared to the Arunachal Pradesh,it is 4 a.m. Therefore, it is correct to say that when the sun has already risen in the Arunachal Pradesh, it is still night in the Gujarat.

OR

India is marked by a diversity of physical features such as mountains, plateaus, plains, coasts, and islands. Standing as sentinels in the north are the lofty snowcapped Himalayas. Himalaya means the abode of snow.

In the western part of India lies the Great Indian desert. To the south of northern plains lies the Peninsular plateau. In East lies the Bay of Bengal and the Delta of Sunderbans.

21.

Basis	National Park	Sanctuary
Meaning	A national park is an area which is strictly reserved for the protection of the wildlife and where activities such as forestry, grazing or cultivation are not allowed.	A sanctuary is an area that is reserved for the conservation of animals only and operations such as harvesting of timber, collection of minor forest products are allowed so long as they do not affect the animals adversely.
Number	There are 105 national parks in India.	There are 514 wildlife sanctuaries in India.
Example	Actual forest cover ranges from 9.56% and in Jammu and Kashmir to 84.01% in Andaman and Nicobar Island.	Lakshadweep has zero percent forest area; Andaman and Nicobar Island have 86.93% etc.

22. **Diastrophism:** All processes that move, elevate or build up portions of the earth’s crust come under diastrophism. **They include:**
- i. orogenic processes involving mountain building through severe folding and affecting long and narrow belts of the earth’s crust.
 - ii. Epeirogenic processes involving the uplift or warping of large parts of the earth’s crust.
 - iii. earthquakes involving local, relatively minor movements.
 - iv. plate tectonics, involving horizontal movements of the crustal plates. In the process of orogeny, the crust is severely deformed into folds. Due to epeirogeny, there may be simple deformation.

Orogeny is a mountain building process whereas epeirogeny is a continental building process. Through the processes of orogeny, epeirogeny, earthquakes, and plate tectonics, there can be faulting and fracturing of the crust. All these processes cause pressure, volume, and temperature (PVT) changes which in turn induce the metamorphism of rocks.

OR

Physical or mechanical weathering processes depend on some applied forces. The applied forces could be:

- (i) gravitational forces such as overburden pressure, load and shearing stress;
- (ii) expansion forces due to temperature changes, crystal growth or animal activity;
- (iii) water pressures controlled by wetting and drying cycles.

Many of these forces are applied both at the surface and within different earth materials leading to rock fracture. Most of the physical weathering processes are caused by thermal expansion and pressure release.

23. Most landforms to some extent show the effects of weathering. On the bedrock surface of these landscapes are the accumulations of the products of weathering. Within these accumulations are materials displaying various degrees of physical, chemical, and biological alteration. For example, among the most interesting and most beautiful landforms of weathering are those which develop in regions of limestone bedrock. These landscapes are commonly called karst. In karst landscapes weathering is concentrated along joints and bedding planes of the limestone producing a number of different sculptured features from the effects of solution. Depressions of all sizes and shapes pit the landscape surface and are the most obvious features associated with karst.

Beneath the surface, solution results in the formation of caves, springs, underground water channels, and deposits from evaporation.

Section C

24. The great rivers comprise the large water wealth of the country. The volume of annual precipitation in the country is estimated at about 37,00,400 million cubic metres. A large part of it seeps into the ground and some part is lost by evaporation and transpiration. The rivers carry about 16,77,532 million cubic metres of water per year. For uneven topography and flow characteristics, all of this not usable. About 5,55,166 million cubic metres of river water - 33 per cent of the annual flow, are usable for irrigation.

Large rivers have great water power potential. The Himalayas in the north, the Vindhyas, the Satpura and the Aravalli in the west, the Maikala and Chhotanagpur in the east, the Meghalaya plateau and Purvanchal in the north-east, and the Western and the Eastern Ghats of the Deccan plateaus offer possibilities of large scale water power development. Sixty per cent of the total river flow is concentrated in the Himalayan rivers, 16 per cent in the Central Indian rivers (the Narmada, the Tapi, the Mahanadi, etc.), and the rest in the rivers of the Deccan plateaus. Dependable power generation from the peninsular rivers requires the impounding of water during the monsoon months. The Himalayan rivers do not have such problems as their flow is appreciable even during the critical winter months. They, however, have other kinds of problems, namely, difficulty in the construction of large storage on account of narrow valleys, high seismicity of the region and vast alluvial plain with no variation in relief. The country has an exploitable power potential of about 41 million kW at 60 per cent load factor from these rivers.

The Ganga and the Brahmaputra in the north and northeastern part of the country, the Mahanadi in Odisha, the Godavari and the Krishna in Andhra, the Narmada and the Tapi in Gujarat, and the lakes and tidal creeks in coastal states possess some of the important and useful waterways of the country. In the past, they were of great importance, which suffered from the advent of rail and roads. Withdrawal of large quantities of water for irrigation resulted in the dwindling flow of many rivers. The country has navigable waterways of about 10,600 km-2480 km of navigable rivers by steamers and large country boats, 3920 km of navigable rivers by medium-sized country boats, and 4200 km of canals and backwaters navigable by country boats. The most important navigable rivers are the Ganga, the Brahmaputra and the Mahanadi. The Godavari, the Krishna, the Narmada, and the Tapi are navigable near their mouths only.

The rivers also supply water to cities, villages, and big industrial installations.

25. Since the advent of the concept of seafloor spreading the interest of scholars was revived in the problem of distributions of Oceans and Continents. It was in 1967, McKenzie and Parker and also Morgan independently collected the available ideas and came out with another concept as plate tectonics.

Plate Tectonic: A Plate is a portion of the Earth's lithosphere, which moves horizontally over the Asthenosphere as an intrinsically rigid unit. The term tectonics means the study of a structural feature of the crust and its origin. The lithosphere-Asthenosphere layering of the Earth used in plate tectonics is different from the traditional and familiar crust-mantle-core layering. The former is based on rigidity, the latter on seismicity, and the nature of constituents. The lithosphere includes the crust and top mantle with its thickness range varying between 5-100 km in oceans and about 200 km in the continents.

OR

Drift theory: Alfred Wegener, a German meteorologist put forth "the continental drift theory". According to him, all continents formed a single continental mass called Pangaea. All oceans formed a single universal ocean called PANTHALASSA. He argued that, around 200 million years ago, the super-continent, Pangaea, began to split. Pangaea first broke into two large continental masses as Laurasia and Gondwanaland forming the northern and southern components respectively. Subsequently, Laurasia and Gondwanaland continued to break into various smaller continents that exist today.

Plate Tectonics: This theory emerged in 1967, by McKenzie and Parker and also Morgan. A tectonic plate is also called a lithospheric plate. It is a massive, irregularly-shaped slab of solid rock generally composed of both continental and oceanic lithosphere. Plates move horizontally over the asthenosphere as rigid units. The lithosphere includes the crust and top mantle with its thickness range varying between 5-100 km in oceanic parts and about 200 km in the continental areas. Pacific plate is largely an oceanic plate whereas the Eurasian plate may be called a continental plate. The theory of plate tectonics proposes that the earth's lithosphere is divided into seven major and some minor plates.

26. The factors which affect the distribution of temperature of ocean water are explained below:

- Latitude:** The ocean water gets heated by the absorption of solar radiation. The sun's rays are always vertical at the equator, but because of the spherical shape of the earth, with increasing distance from the equator, the rays become more and more slants. The temperature of surface water decreases from the equator towards the poles because the amount of insolation decreases poleward. The enclosed seas in the low latitudes record relatively higher temperature than the open seas; whereas the enclosed seas in the high latitudes have a lower temperature than the open seas.



ii. **Unequal distribution of land and water:** The uneven and unequal distribution of Earth's land and oceans causes there to be moisture circulation in order to maintain balance. Their distribution determines large-scale atmospheric and oceanic circulation patterns. Their dissimilar heat capacities, with Oceans having a much greater capacity relative to land, drive continental-scale convective atmosphere transport. The oceans in the northern hemisphere receive more heat due to their contact with a larger extent of land than the oceans in the southern hemisphere.

iii. **Prevailing wind:** Temperature of the surface water of the oceans and seas is also affected by the prevailing winds. When the warm air masses from over the heated land areas in the tropical regions move over the oceans, their surface temperatures are immediately raised. The effect of such winds is especially marked on the landlocked or partially enclosed seas. The winds blowing from the land towards the oceans drive warm surface water away from the coast resulting in the upwelling of cold water from below. As a result, there is a longitudinal variation in the temperature. On the contrary, the onshore winds pile up warm water near the coast and this raises the temperature.

OR

Horizontal distribution of salinity:

(i) The salinity for normal Open Ocean ranges between 33 percent and 37 percent. In the land locked Red Sea records higher salinity due to high evaporation.

(ii) Salinity is, however, very low in Black Sea due to enormous fresh water influx by rivers.

(iii) Indian Ocean have the average salinity of 35 percent.

(iv) In the Bay of Bengal, due to the influx of river water low salinity trend is observed.

(v) The Arabian Sea shows higher salinity due to high evaporation and low influx of fresh water.

27. Air is set in motion due to the differences in atmospheric pressure. The air in motion is called wind. The wind blows from high pressure to low pressure. The wind at the surface experiences friction. Following factors affect the direction and velocity of winds.

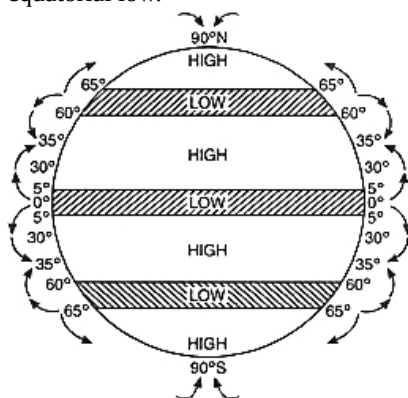
(i) **Pressure gradient force:** The differences in atmospheric pressure produces a force. The rate of change of low pressure with respect to distance is the pressure gradient. Differences in air pressure and the pressure gradient force are caused by the unequal heating of the Earth's surface when incoming solar radiation concentrates at the equator. To show wind speeds, the pressure gradient is plotted onto weather maps using isobars mapped between areas of high and low pressure.

(ii) **Frictional force:** It affects the speed of the wind. It is greatest at the surface and its influence generally extends upto an elevation of 1 - 3 km. Over the sea surface the friction is minimal. Wind speed increases with height above the surface as the frictional force of surface diminishes with height.

(iii) **Coriolis force:** The rotation of the earth about its axis affects the direction of the wind. In addition, rotation of the earth also affects the wind movement. The force exerted by the rotation of the earth is known as the Coriolis force. Because of coriolis force all the winds are deflected to the right in the northern hemisphere while they are deflected to the left in the southern hemisphere with respect to the rotating earth. This is why winds blow counter-clockwise around the centre of low pressure (to make cyclonic circulation) in the northern hemisphere while they blow clockwise in the southern hemisphere.

OR

i. **Trade Winds:** Trade winds are those steady winds which blow within tropics, from the sub-tropical high pressure towards the equatorial low.



Direction. In both the hemispheres, these winds tend to blow from East. So these are also termed as Easterlies.

Why so called? These winds are called trade winds due to the following reasons:

- These winds were helpful as backing winds to sailing ships. These were thus helpful to early traders; hence the name trade winds.
- The phrase 'to blow trade' means to blow steadily in a constant direction. As the trade winds are most regular of all the planetary winds, these are known as trade winds or track winds.

Cause of origin. Due to intense heating, air rises upwards as convection currents, resulting in equatorial low pressure. This rising air moves poleward but descends in the sub-tropics to form a high pressure belt.

Change in direction. Winds do not blow in a North-South direction. Earth's rotation and the Coriolis Force deflect the direction of winds.

Effects:

- As trade winds blow from cooler areas to warmer areas, these are generally dry winds.
- These winds gather moisture from the oceans and are on-shore on the east coast of continents giving heavy rainfall.
- Trade winds are off-shore on the west coasts. That is why hot deserts (Trade wind deserts) are found between 20° - 30° latitudes on the western margins of the continents.

ii. **Westerlies:**

Extent: The westerlies blow, within the temperate region, from the sub-tropical high pressure towards the sub-polar low pressure.

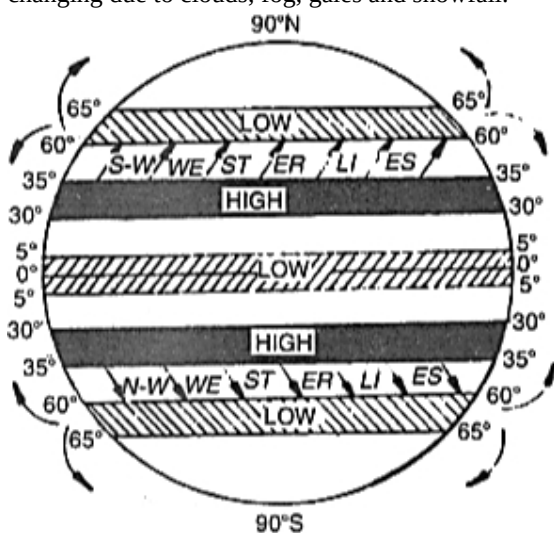
Direction: These winds tend to blow from the west and are termed as westerlies. As their direction is opposite to the trade winds, these are also called anti-trade winds.

Cause of origin: High pressure is developed along the tropics (horse latitudes) due to descending winds. Due to rotation and centrifugal force, a sub-polar low pressure is developed along Arctic and Antarctic circles.

Change in direction: Due to rotation and coriolis force, these winds are deflected away from North-South direction. According to Ferrel's law, these become South-Westerlies in the Northern hemisphere and North-Westerlies in the Southern hemisphere.

Effects:

- These winds are on-shore winds on the western coasts of continents and bring much precipitation. But the eastern parts remain comparatively dry.
- These winds are variable in strength and direction. Cyclones and anticyclones produce uncertain weather. The weather is changing due to clouds, fog, gales and snowfall.



28. There is a great variation in rainfall throughout the country.

- While Cherrapunji and Mawsynram in the Khasi Hills of Meghalaya receive rainfall over 1,080 cm in a year, Jaisalmer in Rajasthan rarely gets more than 9 cm of rainfall during the same period.
- Tura situated in the Garo Hills of Meghalaya may receive an amount of rainfall in a single day which is equal to 10 years of rainfall at Jaisalmer. While the annual precipitation is less than 10 cm in the northwest Himalayas and the western deserts, it exceeds 400 cm in Meghalaya.
- The highest rainfall occurs along the west coast, on the western Ghats as well as in the sub-Himalayan areas in the northwest and the hills of Meghalaya, rainfall exceeding 200 cm. In some parts of the Khasi and Jaintia hills, the rainfall exceeds 1,000 cm. In the Brahmaputra valley and the adjoining hills, the rainfall is less than 200 cm.
- Rainfall between 100-200 cm is received in southern parts of Gujarat, east Tamil Nadu, North-eastern Peninsular covering Orissa, Jharkhand, Bihar, eastern Madhya Pradesh, Northern Ganga Plain along with the sub-Himalayas and the Cachar valley and Manipur.
- Western Uttar Pradesh, Delhi, Haryana, Punjab, Jammu and Kashmir, eastern Rajasthan, Gujarat and Deccan Plateau receives rainfall between 50-100 cm.

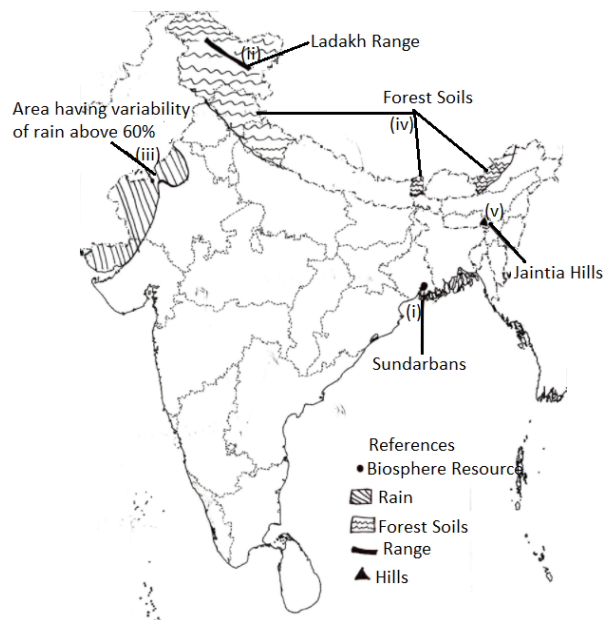
OR



- i. Range of temperature is low in areas which are near to sea and high in areas which are far off from the sea. Delhi is far off from the sea and Mumbai is near to sea. Therefore, the temperature range of Delhi is more than Mumbai.
- ii. There are three main reasons for the excessive cold in north India during this season:
 - a. States like Punjab, Haryana and Rajasthan being far away from the moderating influence of sea experience continental climate.
 - b. The snowfall in the nearby Himalayan ranges creates a cold wave situation.
 - c. Around February, the cold winds coming from the Caspian Sea and Turkmenistan bring cold wave along with frost and fog over the north-western parts of India.

Section D

29. i. **Sundarbans:** Located in the swampy delta of the river Ganga in West Bengal.
- ii. **Ladakh Range:** Located in n central Ladakh in the Indian Union territory of Ladakh.
- iii. **An area having variability of rain above 60%:** Western Rajasthan and adjoining areas of Gujarat.
- iv. **Forest soil:** Found in Himachal Pradesh, Jammu, and Kashmir, Uttaranchal, Sikkim, Arunachal Pradesh. (Forest soils are found in multiple locations in India.)
- v. **Jaintia Hills:** Located in Meghalaya.



30. A. Labrador current
- B. Agulhas current
- C. Galapagos
- D. Queensland
- E. Asia