

Geography (Static portion)

2015-2019 Questions

Q1. Which one of the following regions of India has a combination of mangrove forest, evergreen forest and deciduous forest?

- (a) North Coastal Andhra Pradesh
- (b) South-West Bengal
- (c) Southern Saurashtra
- (d) Andaman and Nicobar Islands

Answer –D

Explanation:

Andaman and Nicobar Islands experience Hot and Humid climate along with abundant rainfall supporting a rich vegetation.

Vegetation of these islands has been classified into following twelve forest types.

However, these **forest types are not distinctly demarcated and they imperceptibly merge into one another and form an intimate mixture.**

Thus, this region is known for combination of various types of forests like:

(i) The Andaman Tropical Evergreen Forests:

It is similar to the giant evergreen forests but not so luxuriant and occur mostly on hilltops.

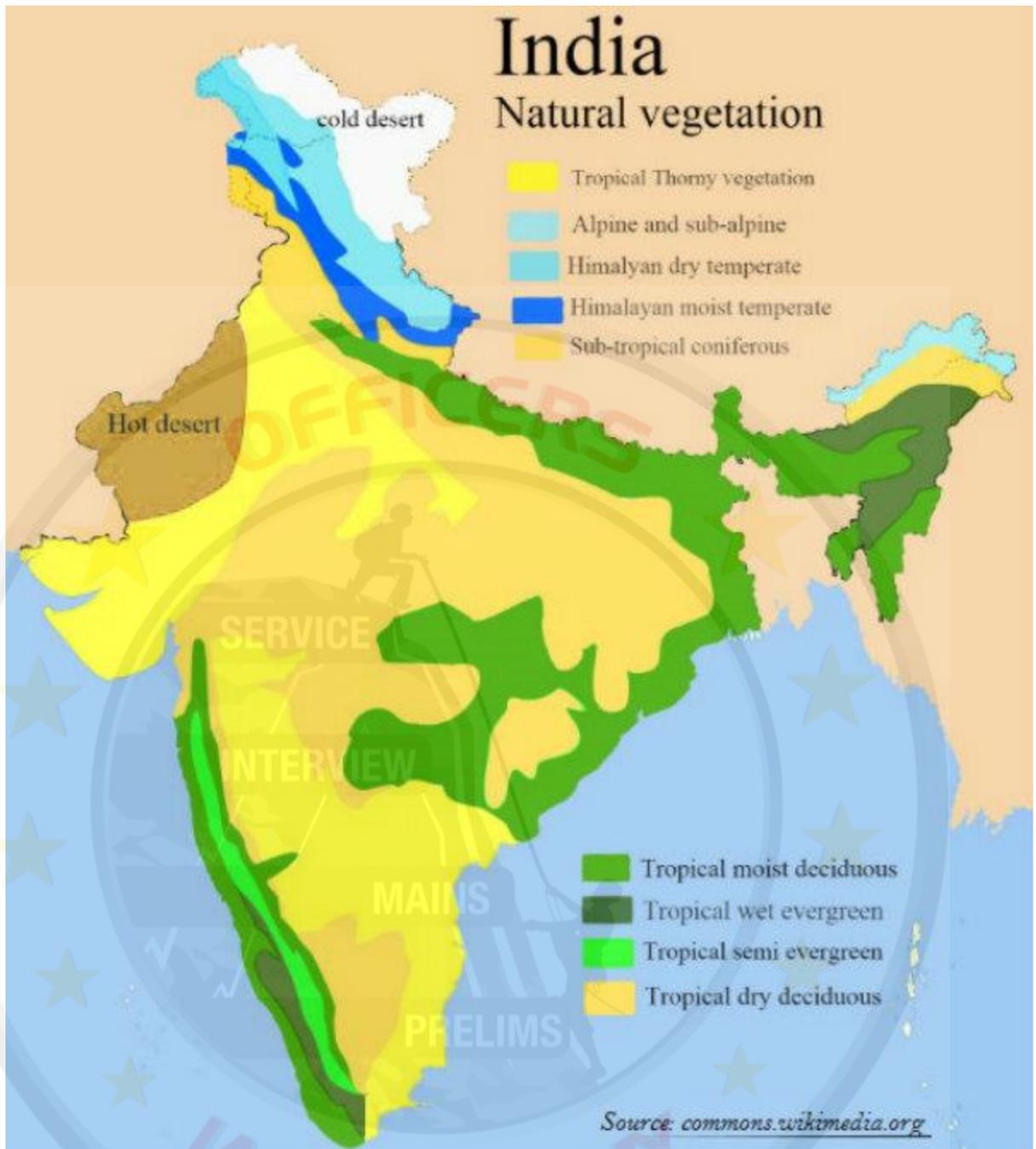
(ii) The Andaman moist deciduous Forests:

These are distributed extensively in Andamans but not that much in Nicobar group of Islands.

(iii) The Mangrove (Tidal swamp) Forests:

It occupies shores, mouth of creeks and inland channels of these islands. These are salt tolerant species and occupy 966 sq.km. area of these islands.

Hence option D is correct.



Option A is Incorrect:

As seen from the above map, the state of Andhra Pradesh is rich with its forest resource which comprises of five main types of forest:

- Southern Tropical Forest
- Southern Tropical Dry Deciduous Forest
- Southern Tropical Moist Deciduous Forest
- Tidal Swamp Mangrove Forest
- Littoral Forest

Hence, Evergreen forest are not present in Andhra Pradesh.

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Option B is Incorrect:

The West Bengal comprises of 4 main types of forest:

- (i) Tropical Evergreen forest
- (ii) Tropical Dry Deciduous
- (iii) Tropical Moist Deciduous
- (iv) Mangrove Forest

The South-West Bengal is occupied by Tropical Moist Deciduous forest and it does not have Mangrove forest whereas South East Bengal is occupied by Mangrove forest.

Option C is Incorrect:

The State of Gujarat has vast grasslands and scrub forests in Kachchh, Central Gujarat and Saurashtra regions while **coastal ecosystems such as mangroves, coral reefs and sea grasses are located in western parts of the state.**

Further, saline deserts are located in the north while **moist deciduous tropical forests are found in southern areas.** The hilly forests are found in eastern parts and Saurashtra regions.

The Gujarat comprises of 4 main types of forest:

- Tropical Moist Deciduous Forests
- Littoral and Swamp Forests
- Tropical Dry Deciduous Forests
- Northern Tropical Thorn Forests

Hence, Gujarat does not have Evergreen Forest.

Q2. Consider the following rivers:

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1. Vamsadhara
2. Indravati
3. Pranahita
4. Pennar

Which of the above are tributaries of Godavari?

- (a) 1, 2 and 3
- (b) 2, 3 and 4
- (c) 1, 2 and 4
- (d) 2 and 3 only

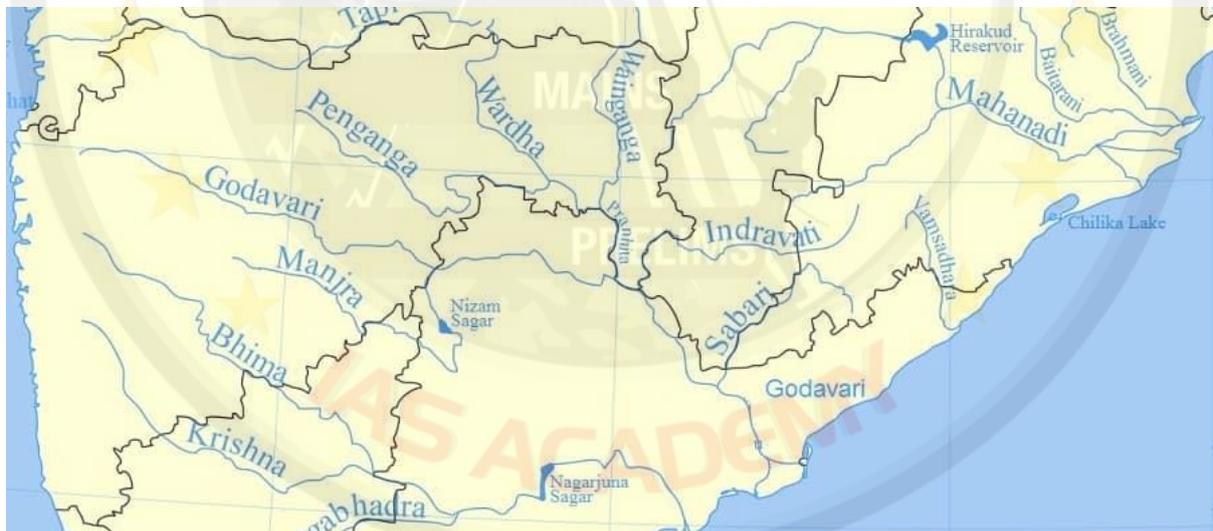
Answer-D

Explanation:

The Godavari River is an important River in India and it flows from western to southern India. The river is also named as Southern Ganges or Dakshin Ganga.

The catchment area of the river is regarded as one of the biggest in the country.

The river is an important stream in central India, rising in the Western Ghats Mountain Range. The name of the origin is Trimbakeshwar and it is situated in the Nashik District of Maharashtra.



River Vamsadhara: The Vamsadhara River is the biggest of the river systems flowing from Eastern Ghats into the Bay of Bengal. It is 250-kms long.

It rises at Jayapur hills and enters Andhra Pradesh at Patapatnam, and merges into the sea at Kalingapatnam.

River Pennar: The river Pennar known also as "Uttara Pinakini" has its origin in the Nandidurg hills of Mysore.

The important tributaries of Pennar are the Jayamangali, the Chitravati, the Kunderu, the Papagni, the Sagileru, the Cheyyeru, the Boggeru and the Biraperu.

Hence Vamsadhara and Pennar are not the tributaries of Godavari.

Q3. What explains the eastward flow of the equatorial counter-current?

- (a) The Earth's rotation on its axis
- (b) Convergence of the two equatorial currents
- (c) Difference in salinity of water
- (d) Occurrence of the belt of calm near the equator

Answer-B

Explanation:

The equatorial counter currents are driven by a distinct surface wind pattern in the tropics. Strong westward trade winds result in westward surface flow in most of the tropical Atlantic and Pacific Oceans. However, several hundred mi. (km.) north of the equator the winds are much weaker, in comparison.

The stronger winds to the south pile up water where the winds are weak. As a result, the surface of the ocean can be up to 6 in. (15 cm.) higher and the thermocline (region of strongest decrease of temperature with increasing depth) as much as 328 ft. (100 m.) deeper than it is directly to the north. The excess water flows eastward under the influence of the Earth's rotation, giving rise to the equatorial counter currents.

Option C is Incorrect:

Salinity is the saltiness or dissolved salt content of a body of water. The term salinity describes the level of different salts e.g. sodium chloride, magnesium and calcium sulphates etc dissolved in water.

Salinity affects seawater density, which in turn governs ocean circulation and climate.

The wind drives upper ocean currents; however, ocean current can also flow deep below the surface. These deep-ocean currents are driven by differences in the sea water density.

Hence Equatorial current is surface current driven mainly by winds.

Option D is Incorrect:

Doldrums, also called **equatorial calms**, equatorial regions of light ocean currents and winds within the intertropical convergence zone (ITCZ), **a belt of converging winds and rising air encircling Earth near the Equator.**

The northeast and southeast trade winds meet there; this meeting causes air uplift and often produces clusters of convective thunderstorms.

Q4. "Each day is more or less the same, the morning is clear and bright with a sea breeze; as the Sun climbs high in the sky, heat mounts up, dark clouds form, then rain comes with thunder and lightning. But rain is soon over." Which of the following regions is described in the above passage?

- (a) Savannah
- (b) Equatorial
- (c) Monsoon
- (d) Mediterranean

Answer-B

Explanation:

Wet equatorial climate, major climate type of the Koppen classification is characterized by consistently high temperatures (around 30 °C), with plentiful precipitation (150–1,000 cm), heavy cloud cover, and high humidity, with very little annual temperature variation.

The precipitation happens throughout the year and it is well distributed because equator does not experience season cycle.

Wet equatorial regions lie within the influence of the intertropical convergence zone (ITCZ) in all months leading to ascending air spawns (raising convection) resulting in the rainfall occurring in late afternoon or early evening when the atmosphere is most susceptible to thunderstorms.

Hence the **equatorial type of climate generally experiences Convective Precipitation which is caused due to Raising Airmass.**

Hence option B is correct.

Option A is Incorrect:

The Tropical Savanna climate is also called the tropical wet and dry climate. These places are located near the equator, and they lie between the Southern and the Northern Tropics.

It shares some similar characteristics with the tropical monsoon climate, but it receives less annual rainfall as compared to the tropical monsoon climate.

Savanna regions have two seasons, summer and winter. Rain falls mainly in summer. The rains fall from May to September in the northern hemisphere and from October to March in the southern hemisphere.

The prevailing winds in tropical grasslands are the Trade Winds.

On an average, the precipitation in Savannah is around 100 CMS. Thus, it is characterised as semi-arid type of climate and the precipitation is concentrated in summers.

Option C is Incorrect:

- Unlike equatorial wet climate, monsoon climate is characterized by **distinct wet and dry seasons** associated with **seasonal reversal of winds**.
- **Floods** in wet season and **droughts** in dry season are common.
- It occurs within **10° to 30° N and S** of the equator.
- On-shore [sea to land] tropical monsoons occur in the summer and off-shore [land to sea] dry monsoons in the winter.
- They are best developed in the **Indian sub-continent, Burma, Thailand, Laos, Cambodia, parts of Vietnam and south China and northern Australia.**

Option D is Incorrect:

Mediterranean climate is characterized by **hot, dry summers and cool, wet winters** and located between about 30° and 45° latitude north and south of the Equator and on the western sides of the continents.

Q5. In India, in which one of the following types of forests is teak a dominant tree species?

- (a) Tropical moist deciduous forest
- (b) Tropical rain forest
- (c) Tropical thorn scrub forest
- (d) Temperate forest with grasslands

Answer-A

Explanation:

Tropical deciduous forests are found in the regions, which receive rainfall between 70 and 200 cm. Tropical deciduous forests are further categorized as the **Moist deciduous forests** and **Dry deciduous forest**.

(I) Moist deciduous forests:

- The moist deciduous forests are found in the regions, which record rainfall between 100 and 200 cm.
- The moist deciduous forests are found along the foothills of the Himalayas, eastern slopes of the Western Ghats, and Odisha.
- ***Teak, sal, shisham, hurra, mahua, amla, semul, kusum, and sandalwood etc. are the main species of the moist deciduous forests.***

(II) Dry deciduous forests:

- Dry deciduous forests are found in the regions that receive precipitation between 70 and 100 cm.
- As the dry season begins, the trees of deciduous forests shed their leaves completely.
- ***Tendu, palas, amaltas, bel, khair, axlewood, etc. are the major trees of dry deciduous forests.***

Hence option A is correct.

Option B is Incorrect:

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Tropical Rain Forest (Tropical Evergreen forest):

Tropical evergreen forests are found in the regions that receive annual precipitation of over 200 cm.

Tropical evergreen forests are found in the western slope of the Western Ghats, hills of the north-eastern region, and the Andaman and Nicobar Islands.

In tropical evergreen forests, trees reach great heights, i.e., up to 60 m or even above. And, largely these trees do not have fixed time to shed their leaves.

Major examples of evergreen forests are *rosewood, mahogany, aini, ebony*, etc.

Option C is Incorrect:

Tropical Thorn Scrub Forest:

1. These forests are found mainly in North Western part of India, in regions of less than 70 cm of rainfall.
2. Leaves of trees in the north forests are tiny in order to have minimum evaporation.
3. The vegetation consist of low and open forests with short thorny trees and thorny bushes, scrubs and grasses in between.
4. These types of forests possess long, penetrating roots that reach deep into the soil.
5. Cacti, Acacias, palms and euphorbia are some of the main plants of these regions.

Option D is Incorrect:

Temperate forest with grasslands:

These regions are devoid of trees, except for riparian or gallery forests associated with streams and rivers.

Biodiversity in these habitats includes a number of large grazing mammals and associated predators in addition to burrowing mammals, numerous bird species, and of course, a diversity of insects.

Q6. Consider the following States

1. Arunachal Pradesh
2. Himachal Pradesh
3. Mizoram

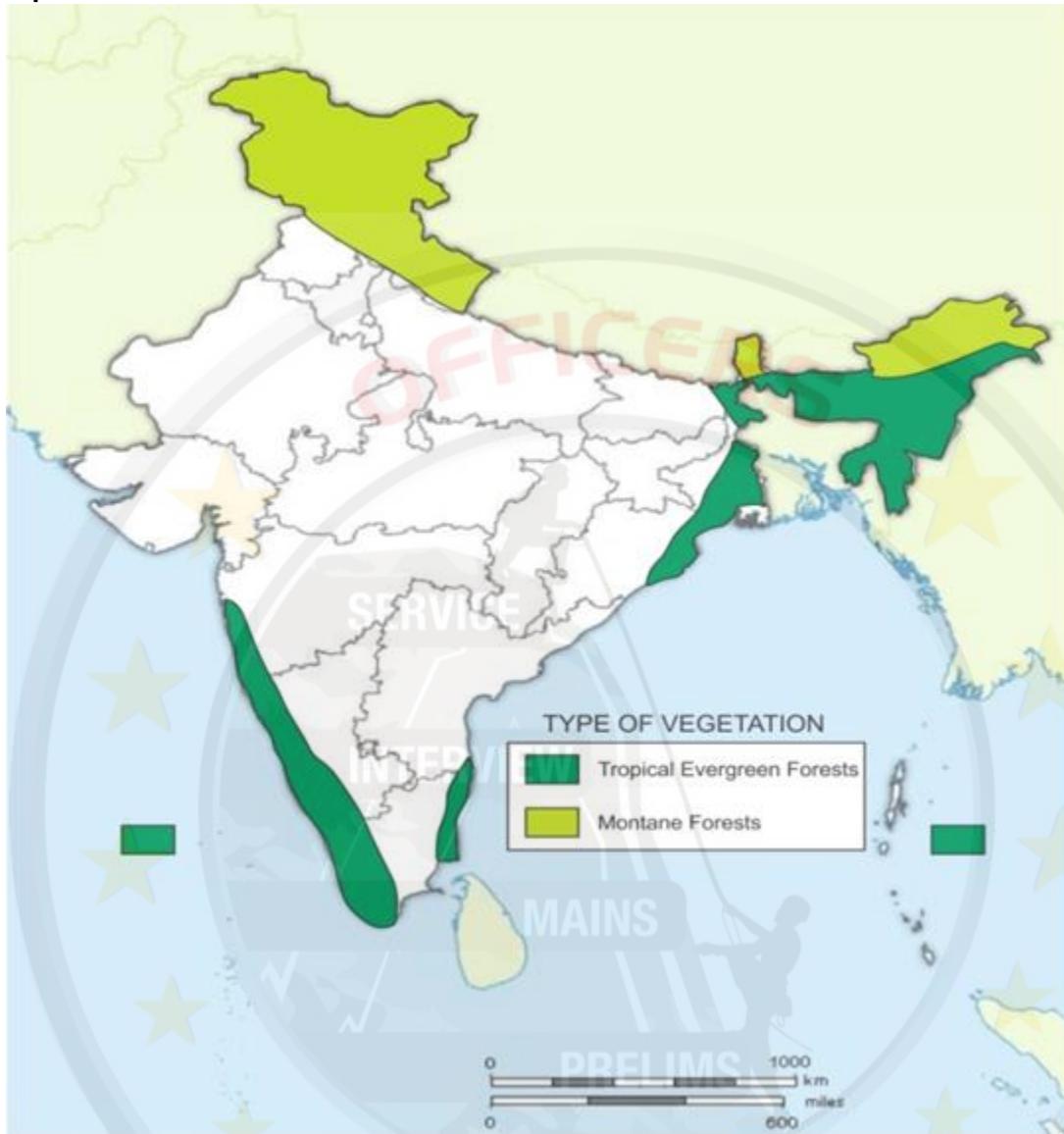
In which of the above States do 'Tropical Wet Evergreen Forests' occur?

- (a) 1 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

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Answer. C

Explanation:



The Tropical evergreen forest is mostly present in India along 3 locations

- (i) Western side of Western Ghats
- (ii) North-Eastern states
- (iii) Andaman and Nicobar Islands

It is also present in other locations in small patches.

The Himachal Pradesh comprises mostly of Alpine Vegetation.

Q7. Tides occur in the oceans and seas due to which among the following?

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1. Gravitational force of the Sun
2. Gravitational force of the Moon
3. Centrifugal force of the Earth

Select the correct answer using the code given below.

- (a) 1 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer-D

Explanation:

Tides are the rise and fall of sea levels caused by the combined effects of the gravitational forces exerted by the Moon and the Sun and the rotation of the Earth which induces centrifugal force. Water in sea experience this force due to rotation of the earth.

Each day, there are two high tides and two low tides.

The ocean is constantly moving from high tide to low tide, and then back to high tide. There is about 12 hours and 26 minutes between the two high tides and about 6 hours and 13 between two low tides.

Q8. Consider the following statements

1. The winds which blow between 30° N and 60° S latitudes throughout the year are known as westerlies.
2. The moist air masses that cause winter rains in North-Western region of India are part of westerlies.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer. B

Explanation:

The westerly winds, also known as the westerlies, occur at two regions on Earth: between 30 and 60 degrees latitude in the northern hemisphere and between 30 and 60 degrees latitude in the southern hemisphere.

The westerlies run west to east while other winds run east to west.

The winds which blow between 30° N and 60° N latitudes throughout the year are known as Westerlies of Northern hemisphere. The flow direction is South-western in nature

The winds which blow between 30° S and 60° S latitudes throughout the year are known as Westerlies of Southern Hemisphere. The flow direction is North-western in nature. **Hence statement 1 is Incorrect.**

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The moist air masses that cause winter rains in North-Western region of India are part of westerlies and popularly it is known as Western Disturbances.

It is a non-monsoonal precipitation pattern driven by the westerlies.

A **Western Disturbance** is an extratropical storm originating in the Mediterranean region that brings sudden winter rain to the north-western parts of the **Indian** subcontinent.

Hence statement 2 is correct.

Q9. In which of the following regions of India are shale gas resources found?

1. Cambay Basin
2. Cauvery Basin
3. Krishna-Godavari Basin

Select the correct answer using the code given below.

- (a) 1 and 2 only
- (b) 3 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

Answer-D

Explanation:

As per the US EIA 2015 report, India has got technically recoverable shale gas of 96 trillion cubic feet. The recoverable reserves are identified in Cambay, Krishna – **Godavari**, Cauvery, Damodar Valley, Upper Assam, Pranahita – **Godavari**, Rajasthan and Vindhya Basins.

China has largest reserves of shale gas all around the world.

Traditionally, the following sources of gas have been categorized as un-conventional ones:

- Coal bed methane (CBM)
- Coal mine methane (CMM)
- Shale gas
- Tight gas

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Throughout the world, different types of sedimentary rocks contain natural gas deposits, for example sandstones, limestones and shales. Sandstone rocks often have high permeability, which means that the tiny pores within the rock are well connected and gas can flow easily through the rock.

In contrast, shale rocks where gas is trapped as a continuous accumulation throughout a large area usually have very low permeability, making gas production more complex and costly.

The shale gas boom in recent years has been due to modern advancement in technology in hydraulic fracturing (fracking) to create extensive artificial fractures around well bores.

Q10. Which of the following is/are tributary tributaries of Brahmaputra?

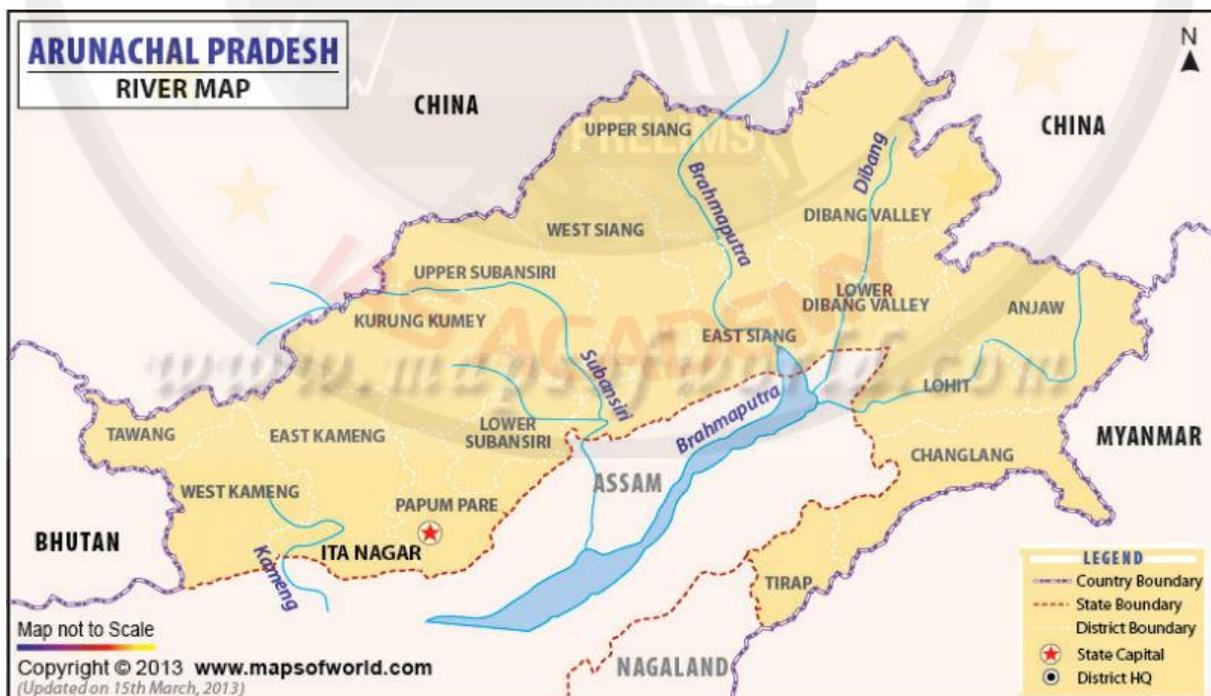
1. Dibang
2. Kameng
3. Lohit

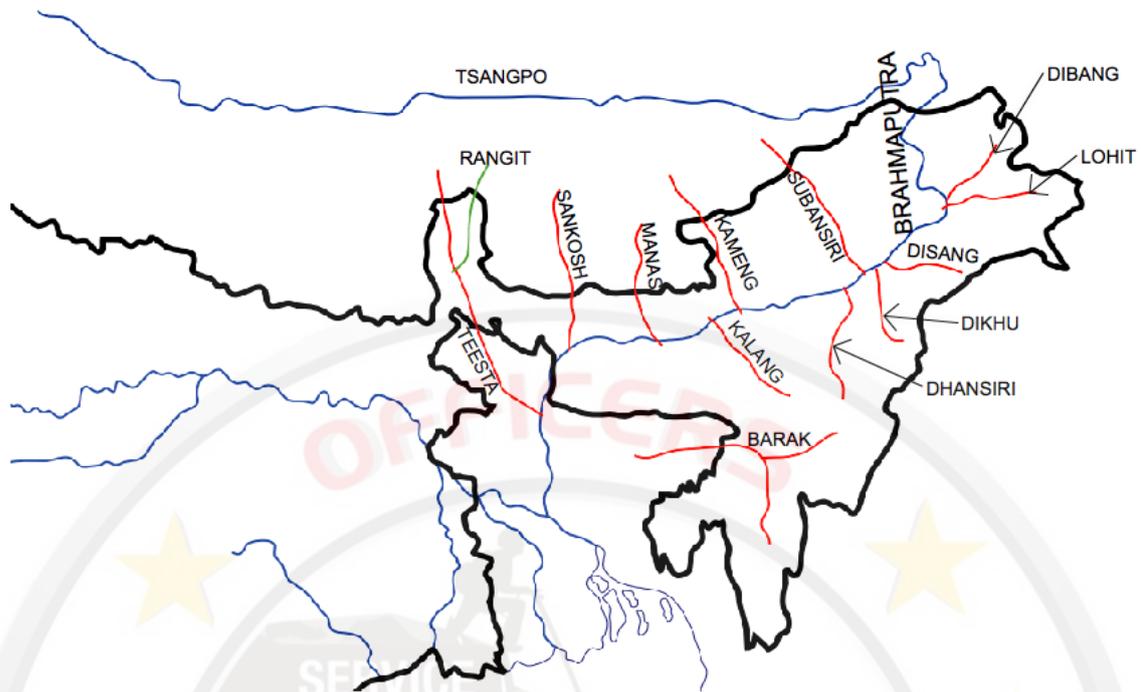
Select the correct answer using the code given below.

- (a) 1 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer.D

Explanation:





Brahmaputra river system is one of the largest rivers of the world. In Tibet region, it is known by the name of Yarlung Tsangpo. It enters by the names of Siang and Dihang in India. And after it is joined by its two main tributaries, the Dibang and the Lohit, it is known by the name of Brahmaputra. It flows in Bangladesh by the name of Jumna.

Source of origin: The Brahmaputra river rises from Chemayundung glacier of the Kailash range near the Mansarovar Lake to the north of the Himalayas in the southwest Tibet region.

Q11. Consider the following statements:

1. In India, the Himalayas are spread over five States only.
2. Western Ghats are spread over five States only.
3. Pulicat Lake is spread over two States only.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 3 only

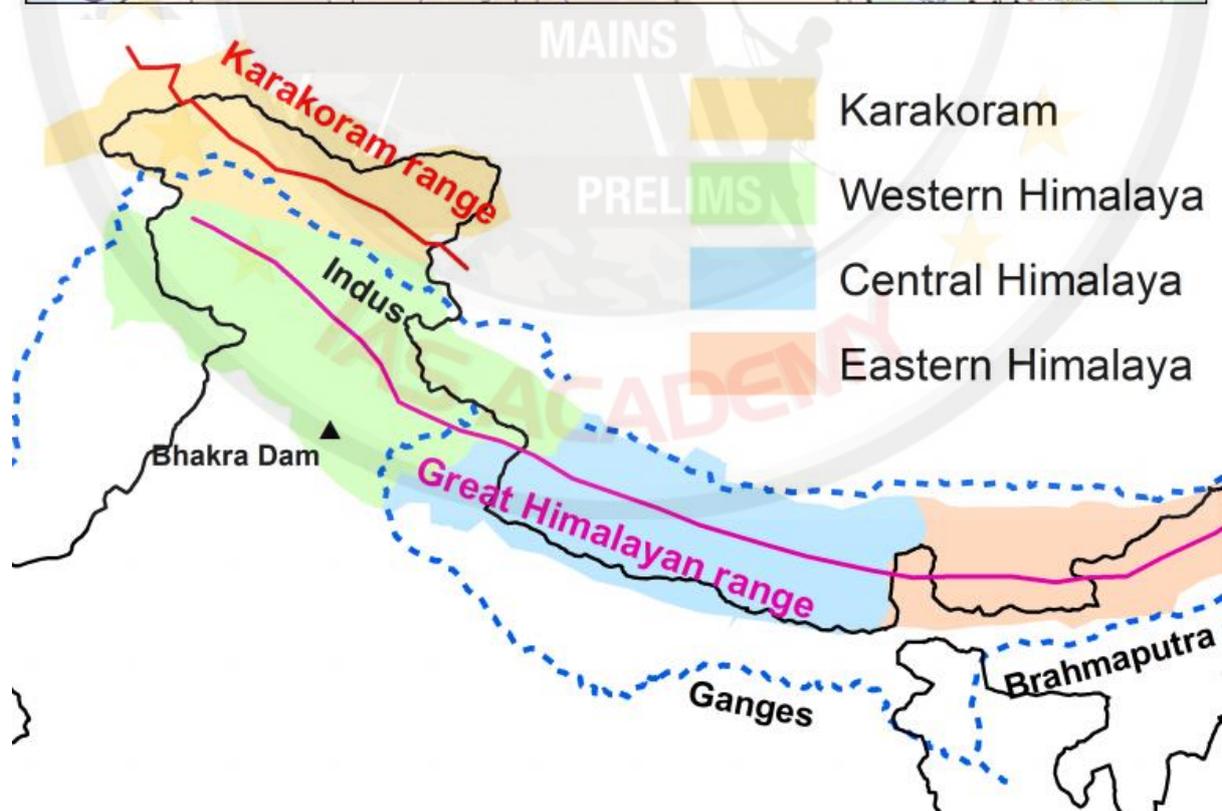
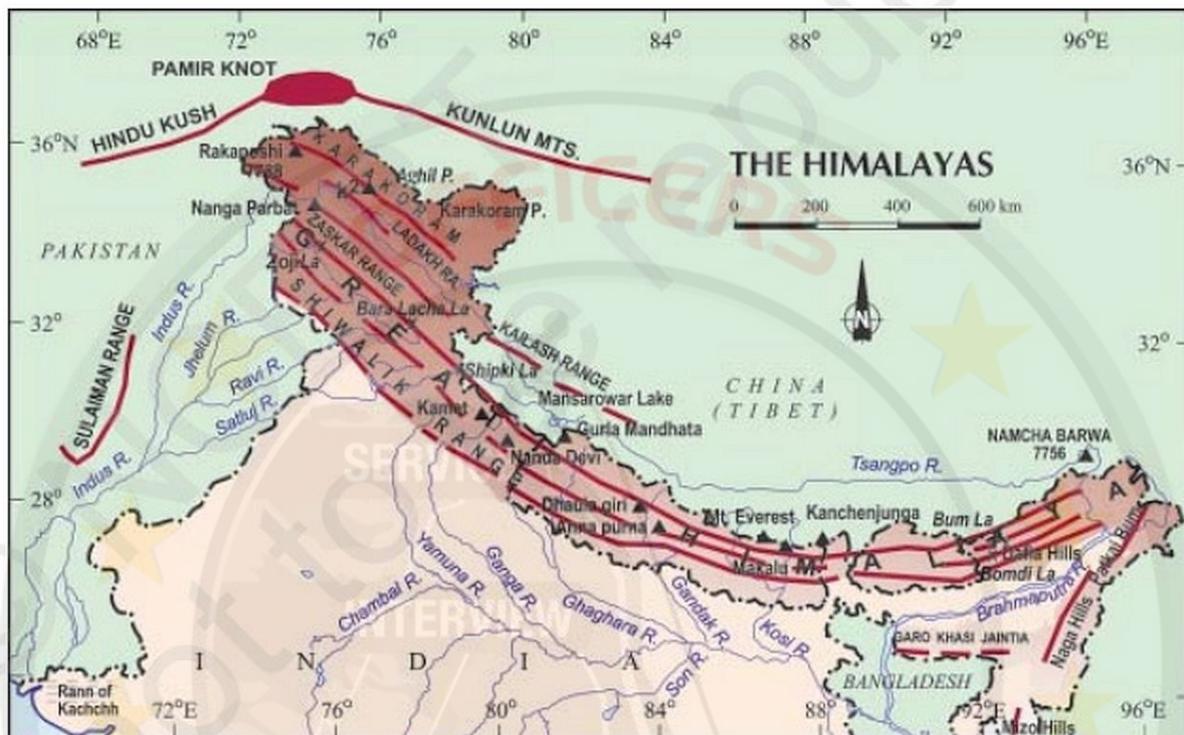
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(c) 2 and 3 only

(d) 1 and 3 only

Answer. B

Explanation:



- In India, Himalayas is spread across 6 states and they are as follows:

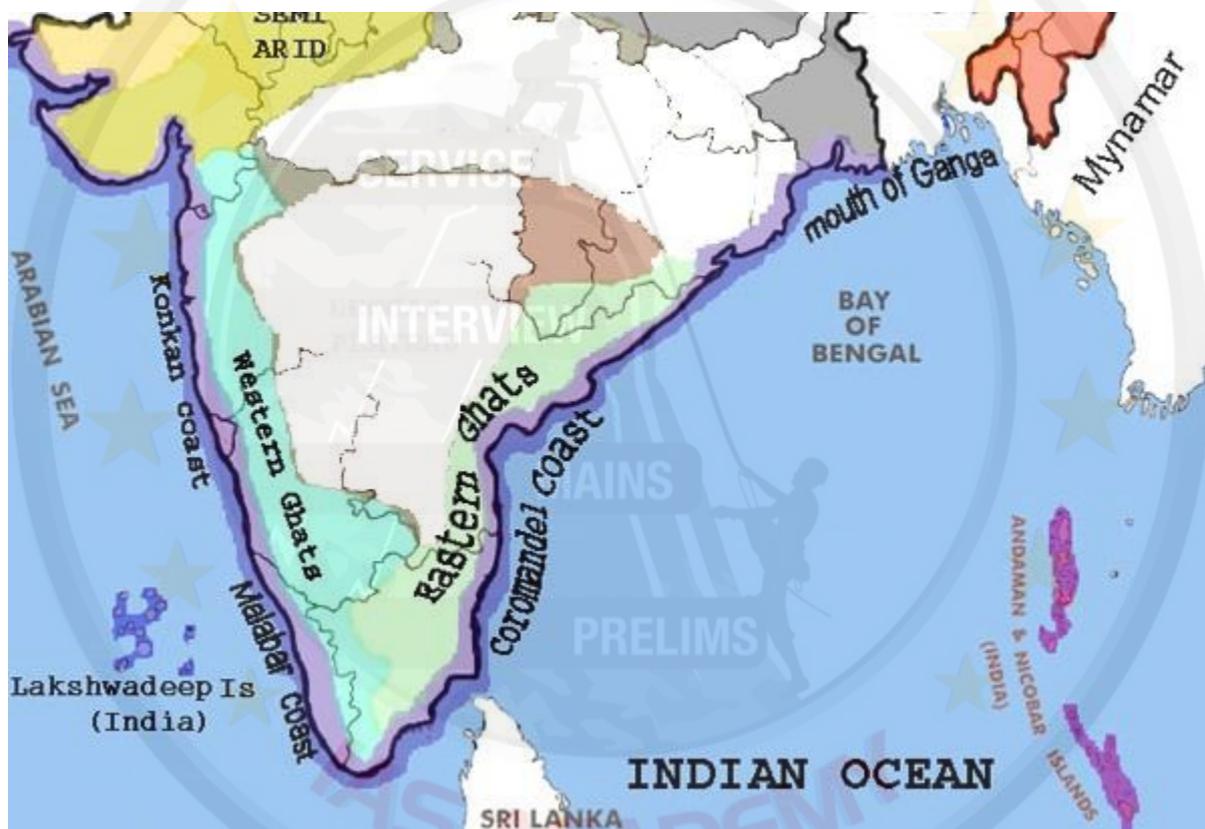
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1. Jammu and Kashmir
2. Himachal Pradesh
3. Uttarakhand
4. West Bengal (Darjeeling)
5. Sikkim
6. Arunachal Pradesh

Hence statement 1 is Incorrect

- The Western Ghats is one of the eight hotspots of biological diversity in the world and is spread across six states—Gujarat, Maharashtra, Goa, Karnataka, Tamil Nadu and Kerala.

Hence statement 2 is Incorrect.



Pulicat lake:

Pulicat Lake is spread over Andhra Pradesh and Tamil Nadu. Hence statement 3 is correct.

Q12. With reference to river Teesta, consider the following statements:

1. The source of river Teesta is the same as that of Brahmaputra but it flows through Sikkim.
2. River Rangeet originates in Sikkim and it is a tributary of river Teesta.
3. River Teesta flows into Bay of Bengal on the border of India and Bangladesh.

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Which of the statements given above is/are correct?

- (a) 1 and 3 only
- (b) 2 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

Answer. B

Explanation:

- **Teesta river (also known as Tista) originates at an altitude of 5,330m from Tso Lhamo lake of North Sikkim Himalayas. Hence statement 1 is Incorrect.**
- **Teesta then runs downhill through Sikkim and Darjeeling hills for 172kms, then meanders along the plains of West Bengal for about 98kms and eventually enters Bangladesh where it flows into river Brahmaputra at Fulchori. Hence statement 3 is Incorrect.**

The main tributary of river Teesta, the Rangit river meets it just before the Teesta bridge. The river leaves Darjeeling district at Sevoke.

River Rangeet:

- **The Rangeet River is a tributary of River Teesta, the largest river at Sikkim. It originates in the mountains of Himalayas in West Sikkim and flows past the towns of Jorethang, Pelling and Legship. Hence statement 2 is correct.**
- **It is a perennial river and obtains its waters from the melting summer snow of the Himalayas and the rains of monsoon.**

Q13. With reference to 'Indian Ocean Dipole (IOD)' sometimes mentioned in the news while forecasting Indian monsoon, which of the following statements is/are correct?

1. IOD phenomenon is characterised by a difference in sea surface temperature between tropical Western Indian Ocean and tropical Eastern Pacific Ocean.
2. An IOD phenomenon can influence an El Nino's impact on the monsoon.

Select the correct answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer. B

Explanation:

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IOD is a coupled ocean-atmosphere phenomenon.

Sustained changes in the **difference between sea surface temperatures of the tropical western and eastern Indian Ocean** are known as the Indian Ocean Dipole or IOD. Hence **statement 1 is Incorrect.**

An IOD can either aggravate or weaken the impact of El Nino on Indian monsoon. Hence statement 2 is correct.

If there is a positive IOD, it can bring good rains to India despite of an El Nino.

Q14. Consider the following statements:

1. In India, State Governments do not have the power to auction non-coal mines.
2. Andhra Pradesh and Jharkhand do not have gold mines.
3. Rajasthan has iron ore mines.

Which of the statements given above is/are correct?

- (a) 1 and 2
- (b) 2 only
- (c) 1 and 3
- (d) 3 only

Answer-C

Explanation:

Statement 1 is incorrect: State governments can auction Non-coal mines.

Statement 2 is incorrect: Both Jharkhand and Andhra Pradesh have gold mines.

Statement 3 is correct: Bhilwara in Rajasthan has an iron ore mine.

Q15. Consider the following statements

1. Most of the world's coral reefs are in tropical waters.
2. More than one-third of the world's coral reefs are located in the territories of Australia, Indonesia and Philippines.
3. Coral reefs host far a greater number of animal phyla than those hosted by tropical rainforests.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

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Answer-D

Explanation:

Coral reefs are highly diverse ecosystems vital to the welfare of human populations throughout the tropical area.

Coral reefs are located in tropical oceans near the equator. Hence statement 1 is correct.

Coral reefs are found in shallow, warm salt water. The sunlight filters through clear water and allows microscopic organisms to live and reproduce. The Indian Ocean holds 60% of the world's coastal reefs, 25% are in the Pacific and 15% are in the western Atlantic.

There are coral reefs in the Australia, Persian Gulf, Madagascar, the Philippines, Hawaiian Islands and off Southeast Asia. Hence statement 2 is correct.

It occupies less than one quarter of 1% of the marine environment, **coral reefs are home to more than 25% of all known marine fish species**

For example-32 of the 34 recognised animal Phyla are found on coral reefs compared to 9 Phyla in tropical rainforests. Hence statement 3 is correct.

The immediate threat to coral reefs from climate change is acute; 16% of the world's reef suffered serious damages during the global bleaching event of 1998.

Q16. Consider the following statements:

1. The Earth's magnetic field has reversed every few hundred thousand years.
2. When the Earth was created more than 4000 million years ago, there was 54% oxygen and no carbon dioxide.
3. When living organisms originated, they modified the early atmosphere of the Earth.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer.C

Explanation:

The Earth formed approximately 4.5 billion years ago, along with the other seven planets in the solar system.

Every several hundred thousand years or so, Earth's magnetic field dramatically shifts and reverses its polarity. Hence statement 1 is correct.

Magnetic north shifts to the geographic South Pole and, eventually, back again.

Eg: North magnetic pole moving towards Siberia

As the Earth cooled, a primitive atmosphere was created by the out-gassing of early volcanoes.

The early atmosphere contained no oxygen and would have been toxic to human beings, as well as most other life on Earth today.

Based on an analysis of gases vented by modern volcanoes, it seems likely that this early atmosphere consisted mostly of water vapour (H₂O) and carbon dioxide (CO₂) and nitrogen gas (N₂). Hence statement 2 is Incorrect.

In the whole process of evolution, the **living organism changed the chemical composition of the Atmosphere. For example, oxygen came from the photosynthesis. Hence statement 3 is correct.**

Q17. In the context of which of the following do some scientists suggest the use of the cirrus cloud thinning technique and the injection of sulphate aerosol into the stratosphere?

- (a) Creating the artificial rains in some regions
- (b) Reducing the frequency and intensity of tropical cyclones
- (c) Reducing the adverse effects of solar wind on the Earth
- (d) Reducing the global warming

Answer: D

Explanation:

The geo-engineering technique known as stratospheric aerosol injection (SAI) could limit rising temperatures that are causing climate change.

It would involve the use of huge hoses, cannons or specially designed aircraft to spray large quantities of sulphate particles into the upper layer of the atmosphere to act as a reflective barrier against sunlight.

Q18. On 21st June, the Sun

- (a) does not set below the horizon at the Arctic Circle
- (b) does not set below the horizon at Antarctic Circle
- (c) shines vertically overhead at noon on the Equator
- (d) shines vertically overhead at the Tropic of Capricorn

Answer: A

Explanation:

21st June-Summer Solstice:

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Summer solstice or June solstice is known for marking the longest daylight period of the year and the start of astronomical summer in Earth's northern hemisphere.

On June 21, the sun can be seen straight overhead along the Tropic of Cancer, while the North Pole reaches its maximum annual tilt toward the sun.

As the planet rotates on its axis, areas within the Arctic Circle see the sun circle through the sky for 24 hours.

Around the summer solstice (approximately 21 June in the Northern Hemisphere and 23 December in the Southern Hemisphere), the Sun does not set below the horizon within a 24-hour period.

Thus, this phenomenon is also known as "Midnight Sun" Phenomenon. The term "midnight sun" refers to the consecutive 24-hour periods of sunlight experienced north of the Arctic Circle and south of the Antarctic Circle.

Option B is Incorrect:

The sun does not set below the horizon at Antarctic Circle on December 23 that is marked as Winter Solstice.

Option C is Incorrect:

The sun shines vertically overhead at noon on the Equator during Equinox position.

Option D is Incorrect:

The sun shines vertically overhead at the Tropic of Capricorn on December 23 that is marked as Winter Solstice.

Q19. Why are dewdrops not formed on a cloudy night?

- (a) Clouds absorb the radiation released from the Earth's surface.
- (b) Clouds reflect back the Earth's radiation.
- (c) The Earth's surface would have the low temperature on cloudy nights.
- (d) Clouds deflect the blowing wind to ground level.

Answer: B

Explanation:

Dew is less likely to form on cloudy nights, because clouds act like blankets for heat.

With clouds, this heat cannot escape, and is instead re-radiated, or reflected, off the clouds and back to the surface. Since the air, and therefore the surface, will stay warmer, it is harder for it to cool to its dew point.

Hence, on a cloudy night, as the Earth radiates heat, the clouds will reflect it back to the surface, as a result of which the ground and air becomes warmer, making it harder to reach its dew point.

