

# PRELIMS PYQs

(2011-2022)



**LIVE** *Marathon* SESSION

# GEOGRAPHY



**Shradha Ma'am**



## **Agenda of the Discussion**

- 1) Conceptual Clarity
- 2) Quick Revision
- 3) Extra Points
- 4) Develop a Line of Thought
- 5) What to attempt /What not to attempt



# CLIMATOLOGY

**Q. La Nina is suspected to have caused recent floods in Australia. How is La Nina different from El Nino?**

1. La Nina is characterised by unusually cold ocean temperature in equatorial Indian Ocean whereas El Nino is characterised by unusually warm ocean temperature in the equatorial Pacific Ocean.
2. El Nino has adverse effect on south-west monsoon of India, but La Nina has no effect on monsoon climate.

**Which of the statements given above is/are correct?**

- a) 1 only
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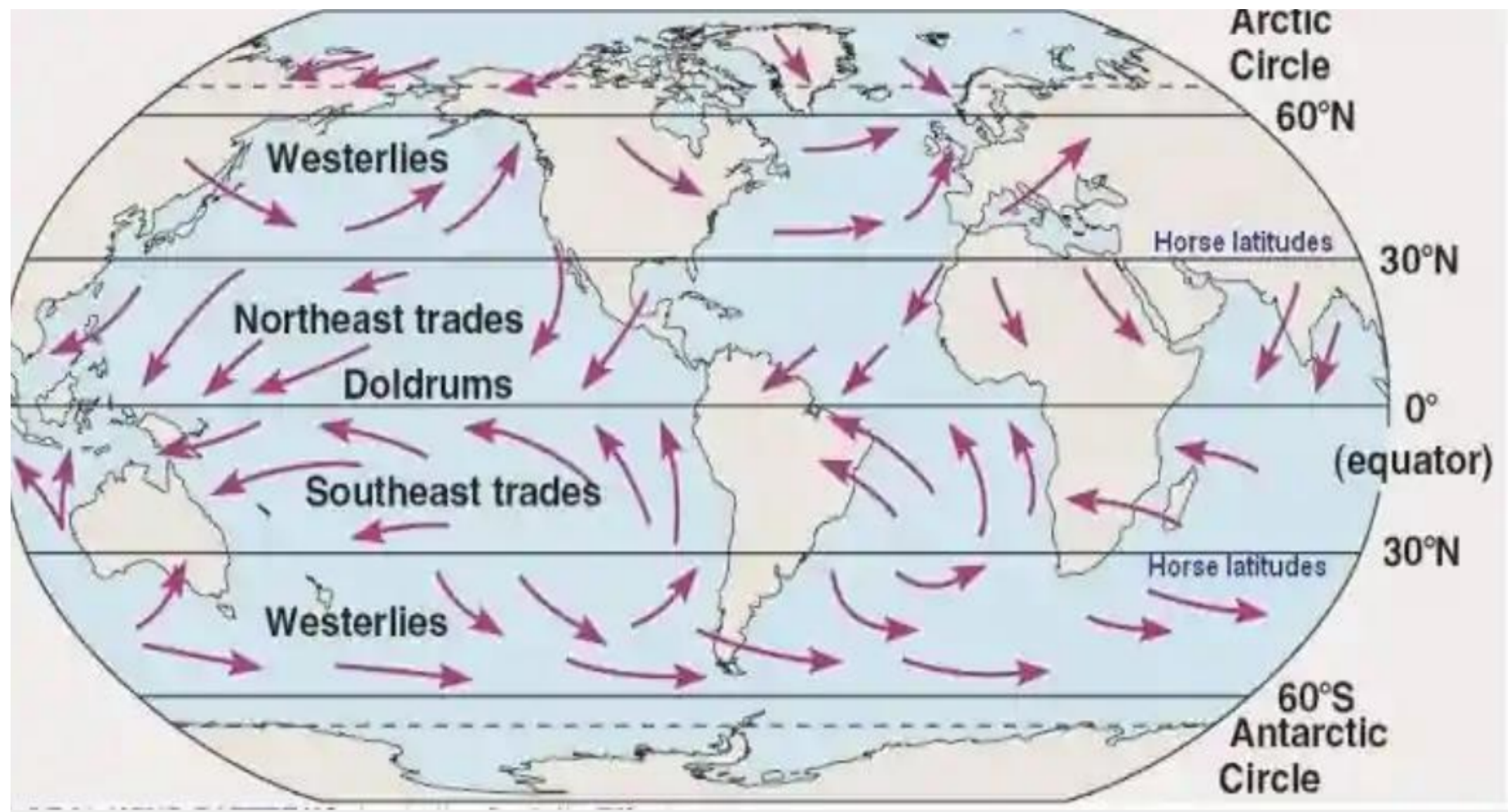


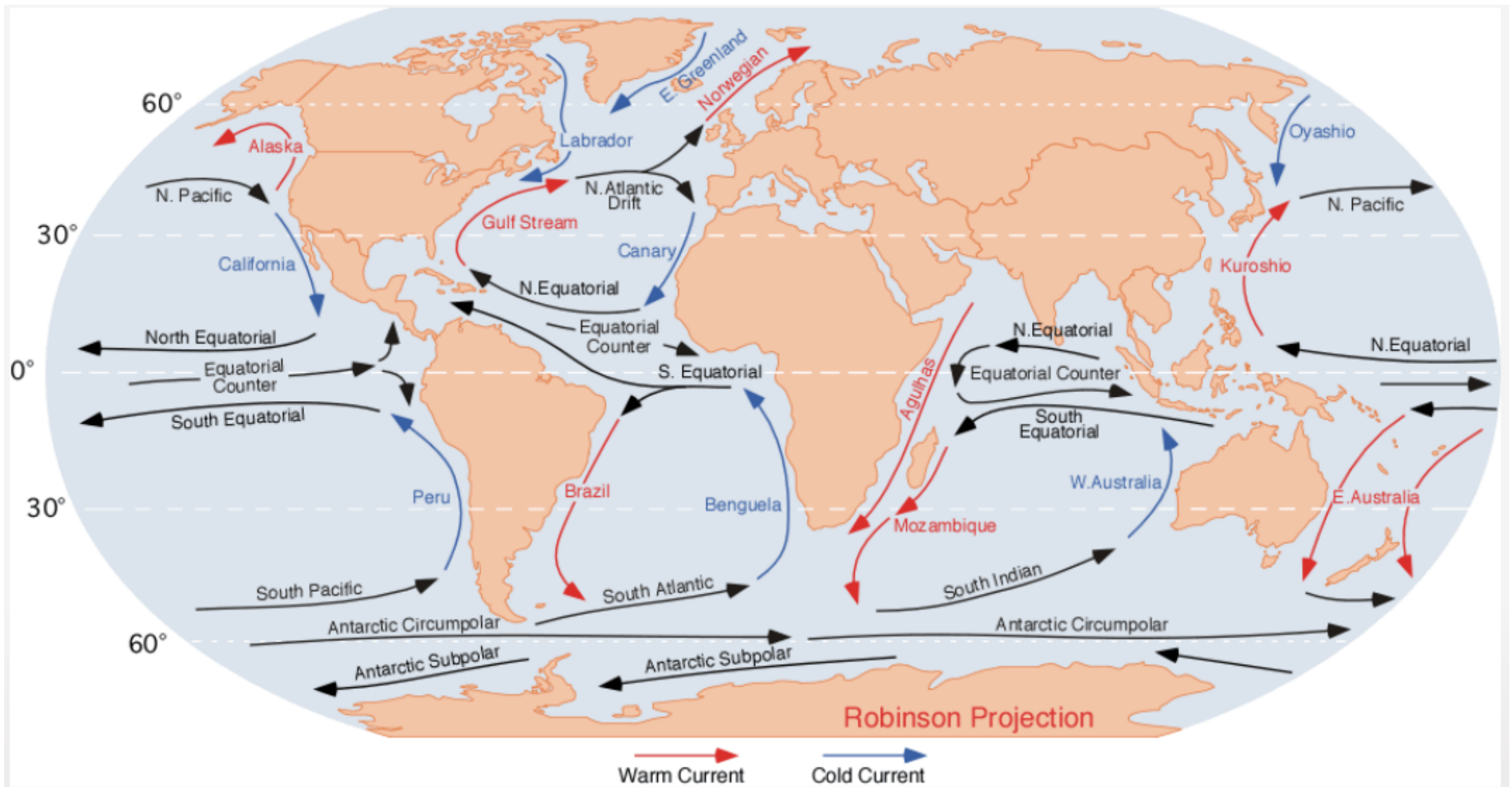
# Concept – Normal Condition



## LA – NINA

1. Western Pacific Warm Pool- Australia
2. Trade Winds
3. Low Pressure – Australia
4. Rainfall – Australia
5. Cold Current – Peru
6. Upwelling zones
7. Good – Fishing Industry
8. Deserts with Cold Current
9. High Pressure – Peru
10. Mascarene High
11. Rainfall in India - Favorable







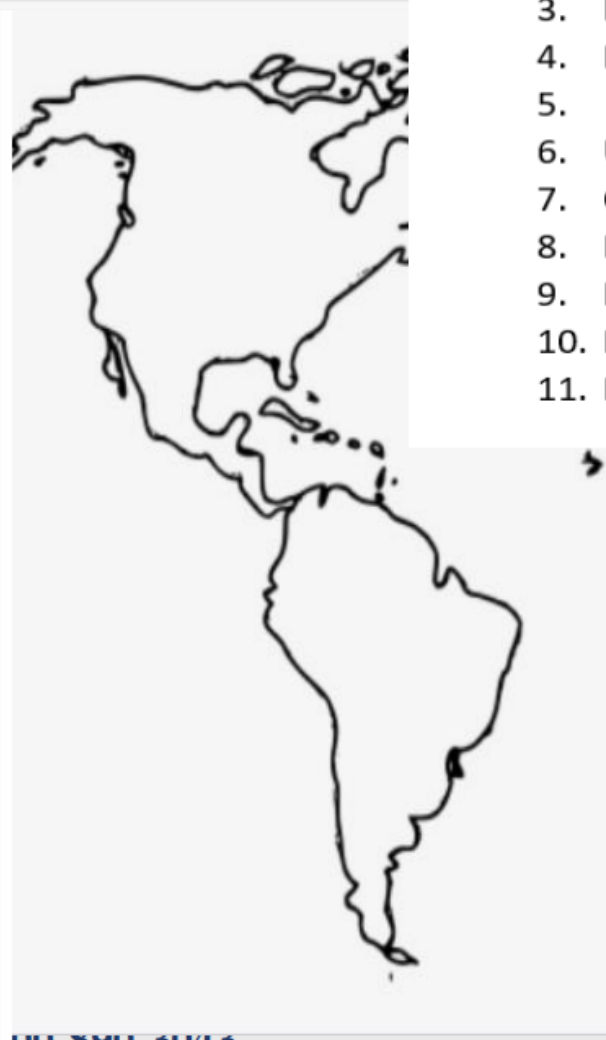
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# Concept – La-Nina



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# Concept - El-Nino



## EL - NINO

1. Peruvian Coast - Downwelling zones
2. Issue with Fishing Industry
3. Peruvian Coast - Low Pressure
4. Peruvian Coast - Rainfall
5. Trade Winds Weakens
6. Drought - Australia + Forest Fires
7. India - Drought



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**Q) Normally, the temperature decreases with the increase in height from the Earth's surface, because**

1. The atmosphere can be heated upwards only from the Earth's surface
2. There is more moisture in the upper atmosphere.
3. The air is less dense in the upper atmosphere.

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- Giveaway : Statement 2
- Since the atmosphere is warmed from the ground up, and since the air is at its most dense near the surface of the earth, the air near the surface is going to be able to retain much more heat than the air at higher elevations due to the increased amounts of air molecules; higher elevations have fewer air molecules and consequently can't retain as much heat.
- Water vapour decreases rapidly with Altitude .

## Additional Information

- Shortwave radiation contains a lot of energy; longwave radiation contains less energy than shortwave radiation
- Solar energy enters our atmosphere as shortwave radiation .  
The sun emits shortwave radiation because it is extremely hot and has a lot of energy to give off.
- Next the surface absorb the solar energy.
- The ground heats up and re-emits energy as longwave radiation .
- Earth emits longwave radiation because Earth is cooler than the sun and has less energy available to give off.



## Extra Information - NCERT

- The insolation received by the earth is in short waves forms and heats up its surface.
- The earth after being heated itself becomes a radiating body and it radiates energy to the atmosphere in long wave form.
- This energy heats up the atmosphere from below. This process is known as terrestrial radiation.

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**Q)The acidification of oceans is increasing. Why is this phenomenon a cause of concern:**

1. The growth and survival of calcareous phytoplankton will be adversely affected.
2. The growth and survival of coral reefs will be adversely affected.
3. The survival of some animals that have phytoplanktonic larvae will be adversely affected.
4. The cloud seeding and formation of clouds will be adversely affected.

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- Ocean acidification is the ongoing decrease in the pH of the Earth's oceans, caused by the uptake of carbon dioxide (CO<sub>2</sub>) from the atmosphere.
- To achieve chemical equilibrium, some of it reacts with the water to form carbonic acid.
- Some of these extra carbonic acid molecules react with a water molecule to give a bicarbonate ion and a hydronium ion, thus increasing ocean acidity (H<sup>+</sup> ion concentration).

- Increase in atmospheric CO<sub>2</sub> levels lead to a decrease in pH level, an increase in the concentration of carbonic acid and bicarbonate ions, causing a decrease in the concentration of carbonate ions. The decrease in the amount of carbonate ions available makes it more difficult for marine calcifying organisms, such as coral (calcareous corals) and some plankton (calcareous plankton), to form biogenic calcium carbonate.
- Commercial fisheries are threatened because acidification harms calcifying organisms which form the base of the Arctic food webs.
- Increasing acidity accentuates coral bleaching as corals are very sensitive to changes in water composition.

- The majority of sulphur in the atmosphere is emitted from the ocean, often in the form of dimethylsulfide (DMS) produced by phytoplankton. Some of DMS produced by phytoplankton enters the atmosphere and reacts to make sulphuric acid, which clumps into aerosols, or microscopic airborne particles.
- Aerosols seed the formation of clouds, which help cool the Earth by reflecting sunlight.
- But, in acidified ocean water, phytoplankton produces less DMS.
- This reduction of sulphur may lead to decreased cloud formation, raising global temperatures.



## Additional Information - Geoengineering Techniques

- Cloud seeding is the process of spreading either dry ice or more commonly, silver iodide aerosols, into the upper part of clouds to try to stimulate the precipitation process and form rain.
- Cirrus cloud thinning is a kind of technology that involves thinning the wispy, elongated cirrus clouds of high altitudes.. Thinning the clouds would allow more heat to escape into space and thereby cool the planet.
- Stratospheric Aerosol Injection (SAI) is a technique that would involve spraying large quantities of inorganic particles (e.g., Sulphur dioxide) into the stratosphere to act as a reflective barrier against incoming sunlight, thus helping to reduce the global warming.

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**Q) Which one of the following is the characteristic climate of the Tropical Savannah Region?**

- a) Rainfall throughout the year
- b) Rainfall in winter only
- c) An extremely short dry season
- d) A definite dry and wet season

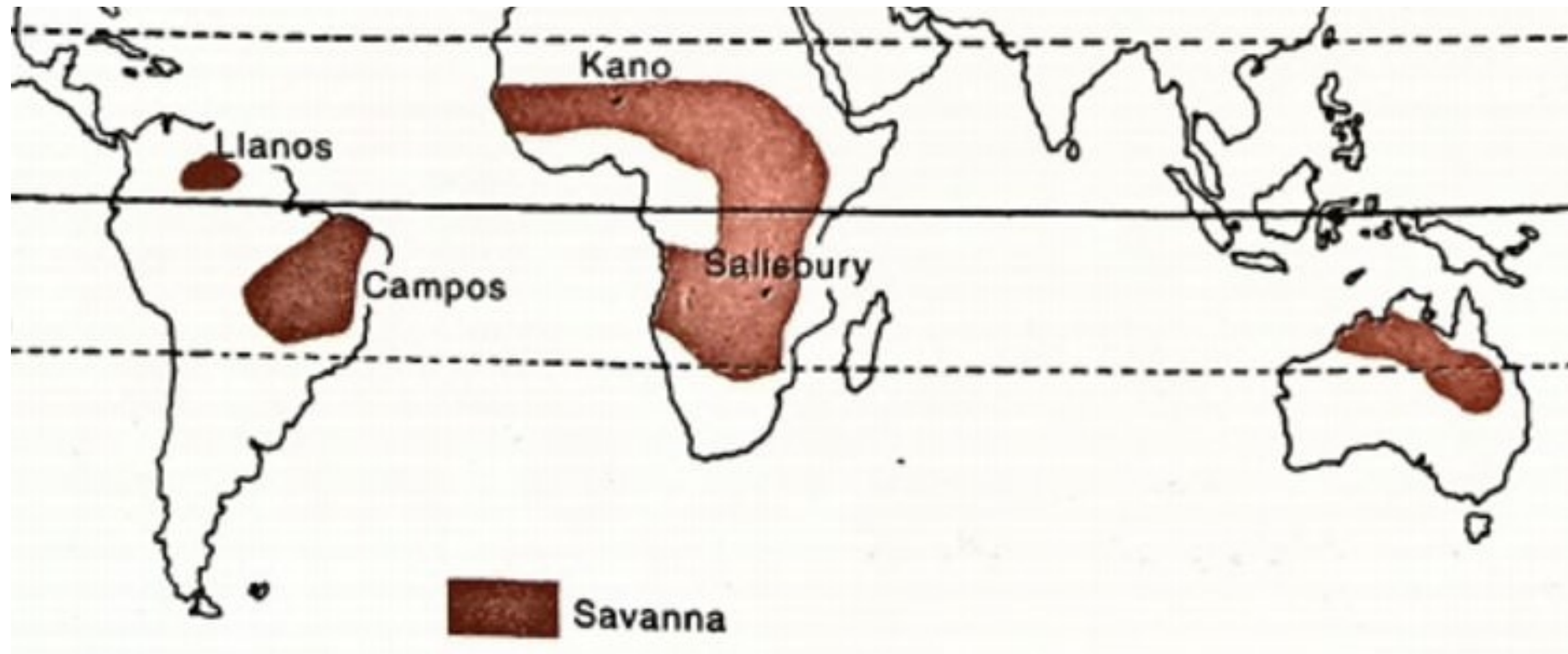
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COLD ZONE	<u>Arctic or Polar Type</u> Tundra vegetation, mosses, lichens			90°
	<hr/>			65° N
COOL TEMPERATE ZONE	Western Margin <u>British type</u> Deciduous forests	Central Continent <u>Siberian type</u> Evergreen, coniferous forests	Eastern Margin <u>Laurentian type</u> Mixed forests	45° N
	<u>Mediterranean type</u> Mediterranean Forests & shrubs	<u>Steppe type</u> Steppe temperate grassland	<u>China type</u> Warm wet forests	30° N
HOT ZONE	<hr/>			10° N
	<u>Hot desert</u> Desert vegetation	<u>Sudan type</u> Savanna, tropical grassland	<u>Monsoonal type</u> Monsoon forests	0°
EQUATORIAL ZONE	<u>Hot Wet Equatorial Climate</u> Equatorial rain forests			0°

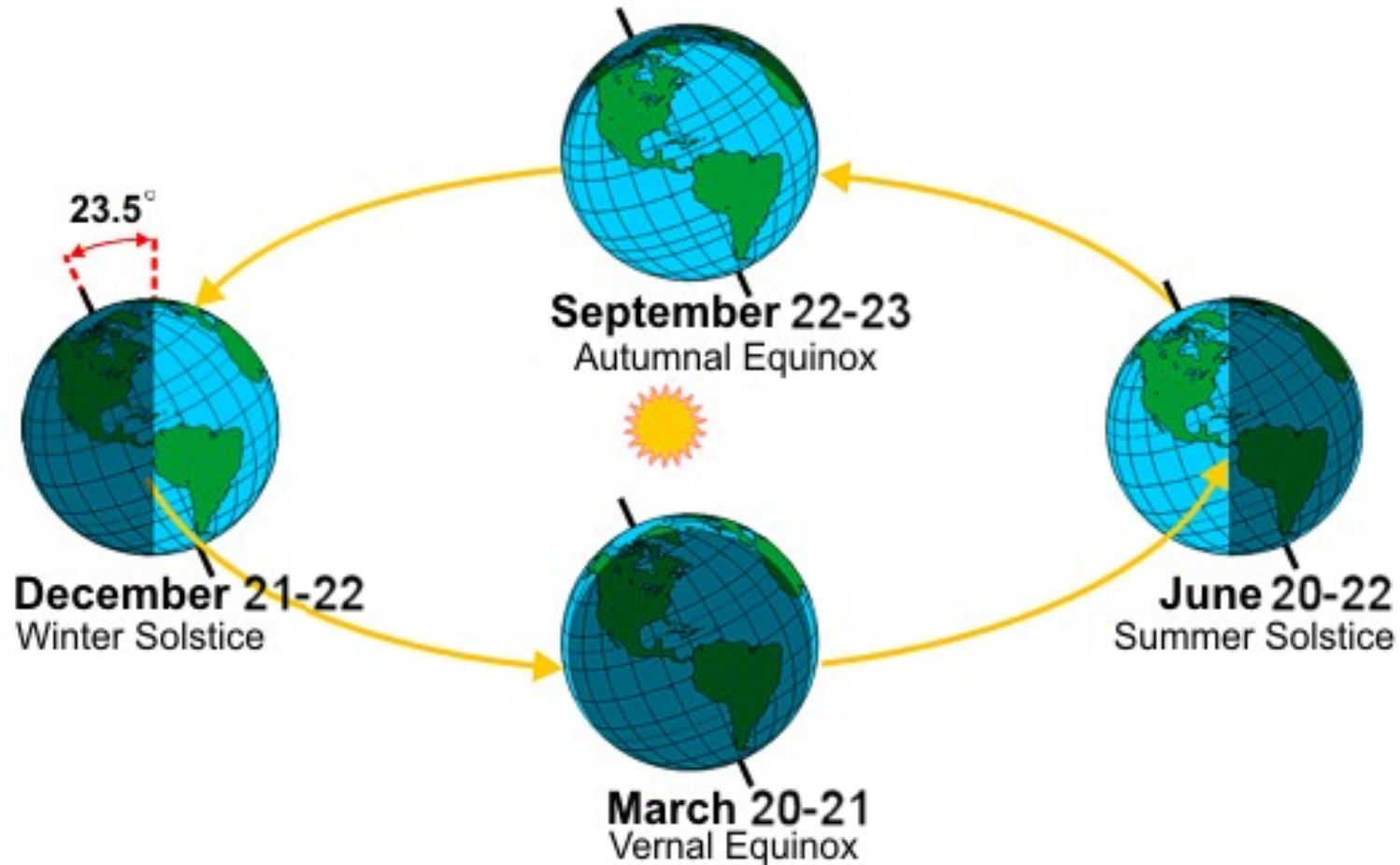
*Image of Arctic or Polar Type*

It lies in both the hemispheres

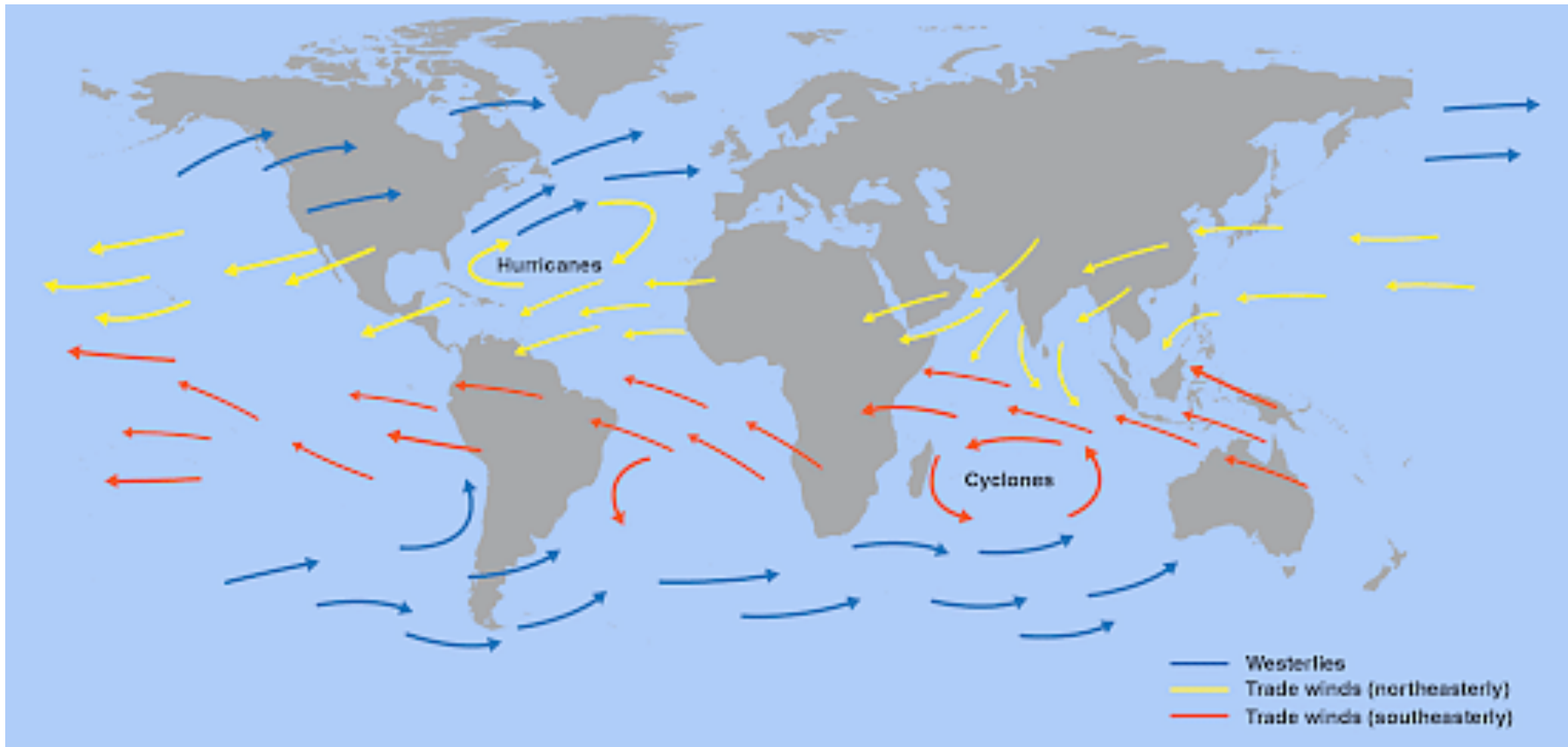




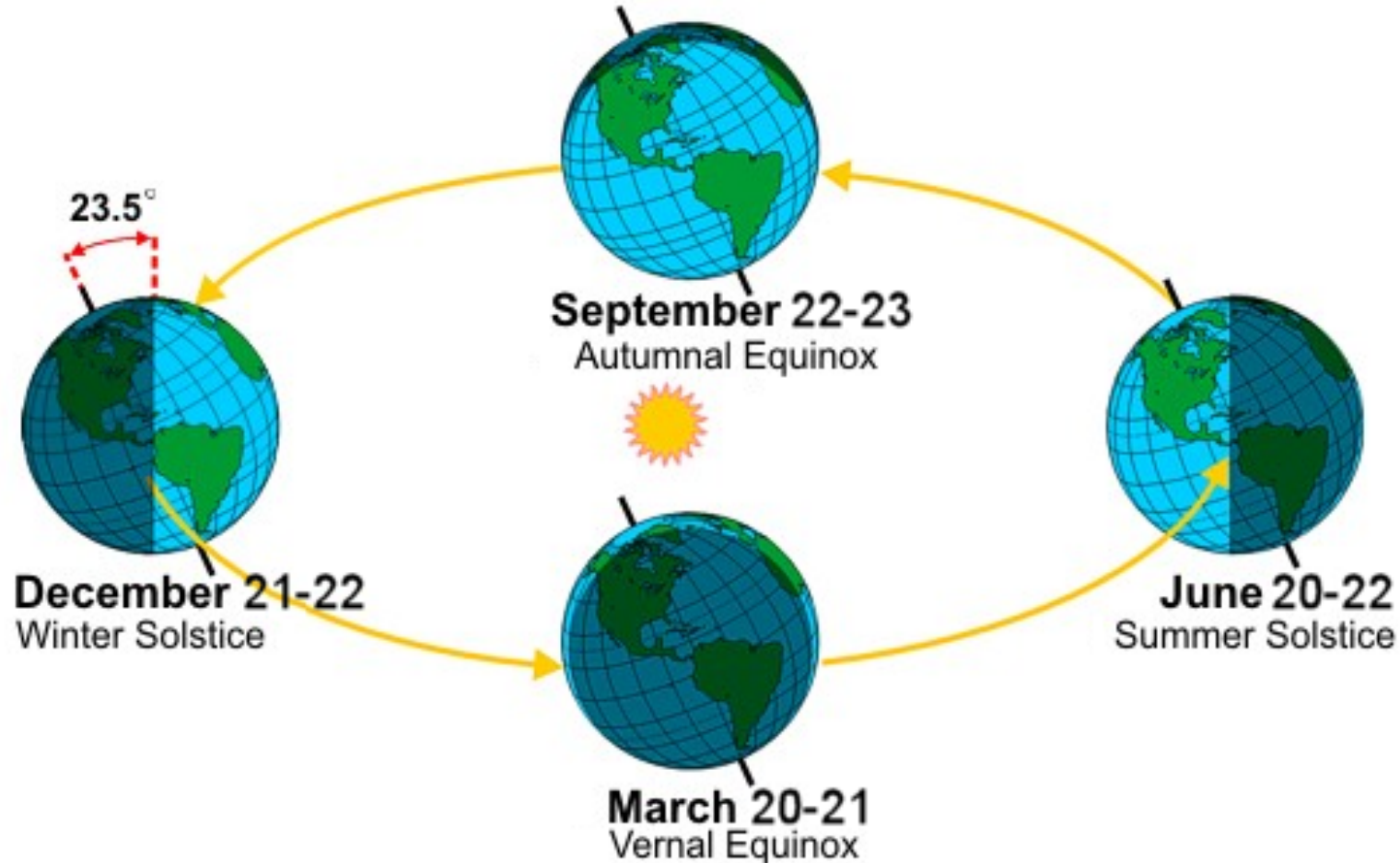
# Alternate Hot and Cool Season- Sun Overhead between Tropic of Cancer and Capricorn



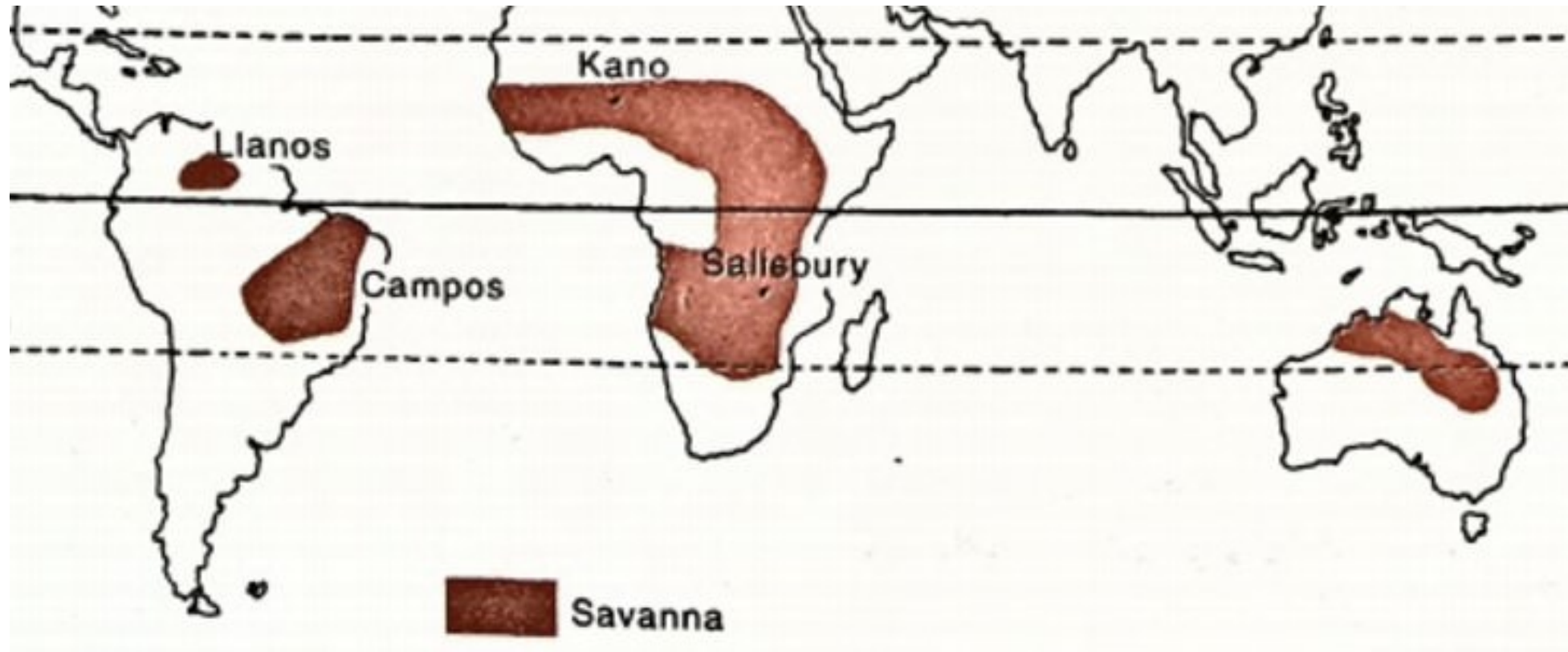
# Alternate - Hot + Rainy [Trade Winds Strong during Summer] and Cool + Dry Season



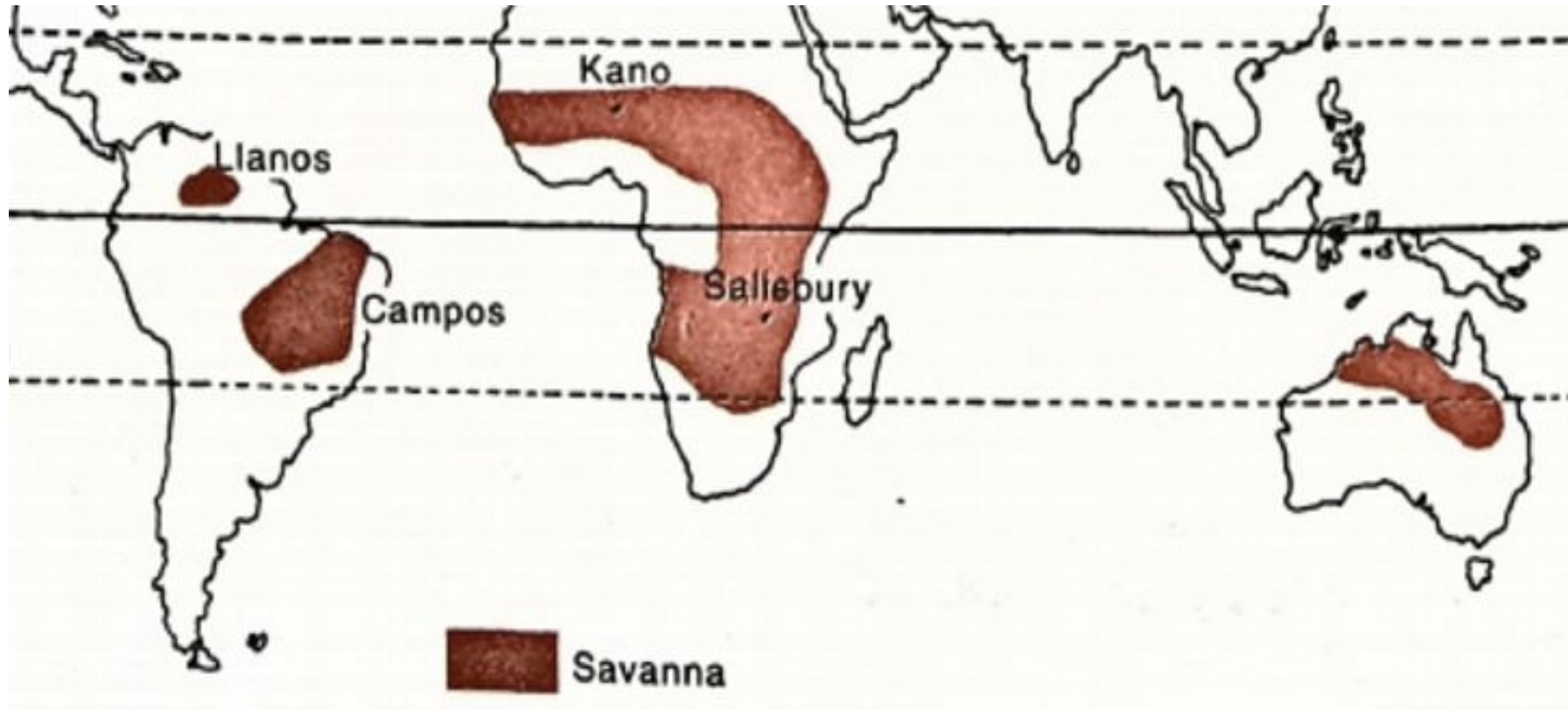
Trivia : Highest Temperature do not coincide with period of highest Sun - Due to drop in temperature due to Rainy Season



## Extreme Diurnal Temperature



## Natural Vegetation – Tall Grass and Short Tress + Special Case – Thorny Scrub (Margins )

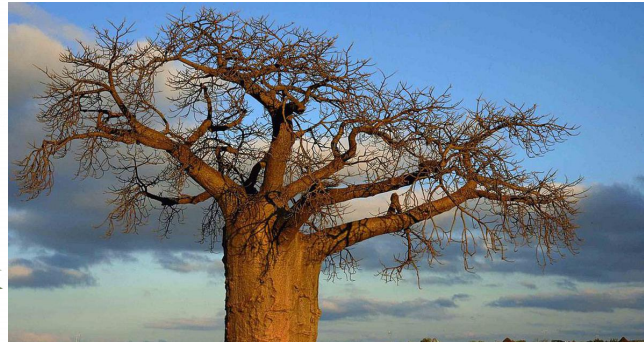




# Natural Vegetation – Tall Grass and Short Tress



- Elephant Grass
- Deciduous Tress - Acaciac
- Broad Trunks (Water Storing Devices )
- Umbrella Shaped Tress
- Palms Trees – Wettest Areas and Along Rivers



## Tropical Savannah Region :

- Savannas grow in tropical regions 8° to 20° from the Equator.
- Conditions are warm to hot in all seasons.
- Mean annual precipitation is generally 80 to 150 cm.
- Alternating Dry and Wet Season -
- Mean monthly temperatures are about 10 to 20 °C in the dry season and 20 to 30 °C in the wet season
- The dry season is typically longer than the wet season.



# Special Prelims Based Session



One Shot Series - Complete World Climate Types in One Video - UPSC Prelims 2023

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Sleepy Classes IAS

Presenting the most comprehensive compilation for Geography for UPSC Prelims and Mains. Topics covered are: 1) 00:00 - Hot, ...



1).Hot, Wet Equatorial Climate. | 2).The Tropical monsoon & Tropical Marine Climate. | 3).The...

11 chapters ▾

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- 1) Presence of tall, closely set trees with crowns forming a continuous canopy.
- 2) Coexistence of a large number of species.
- 3) Presence of numerous varieties of epiphytes.

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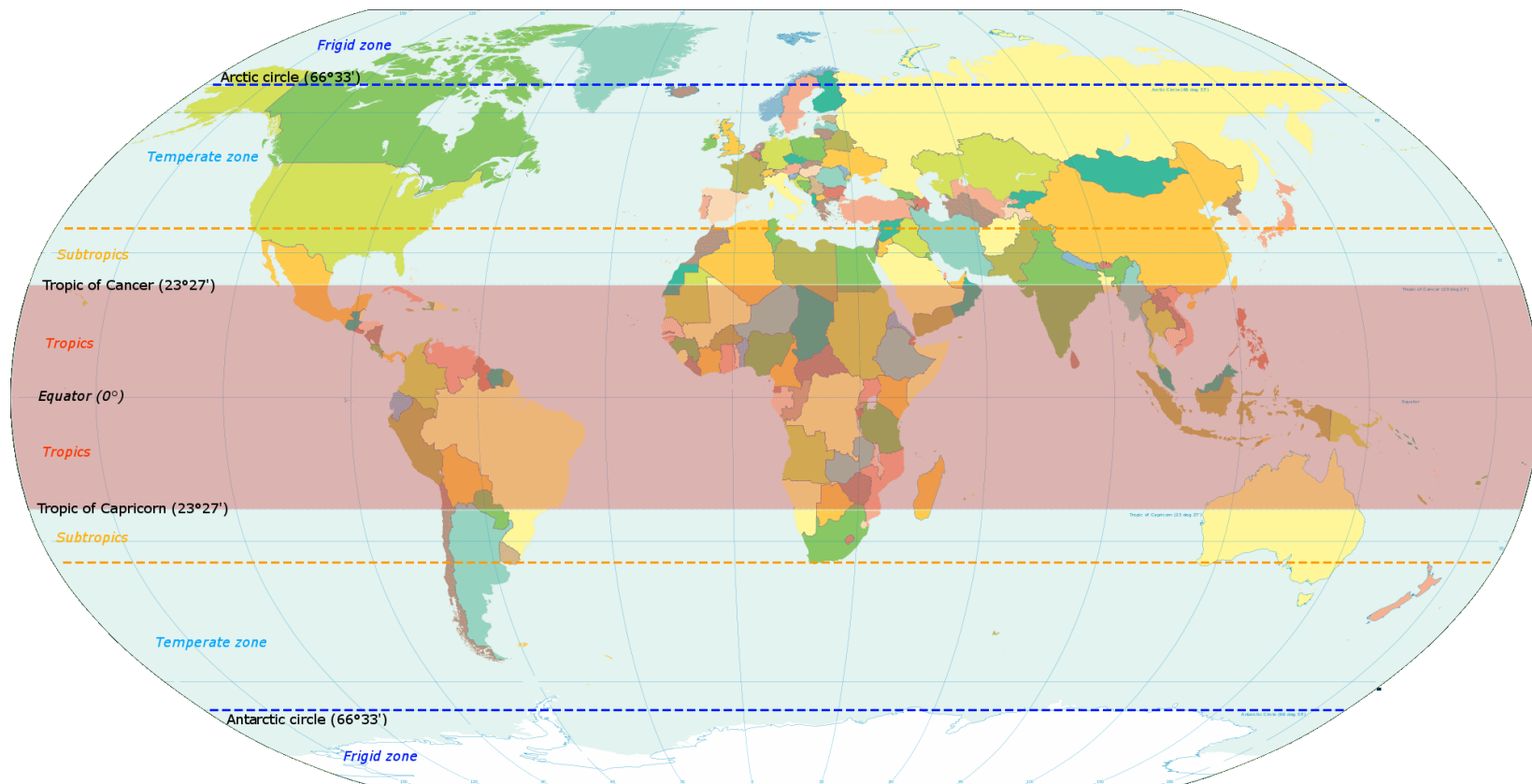
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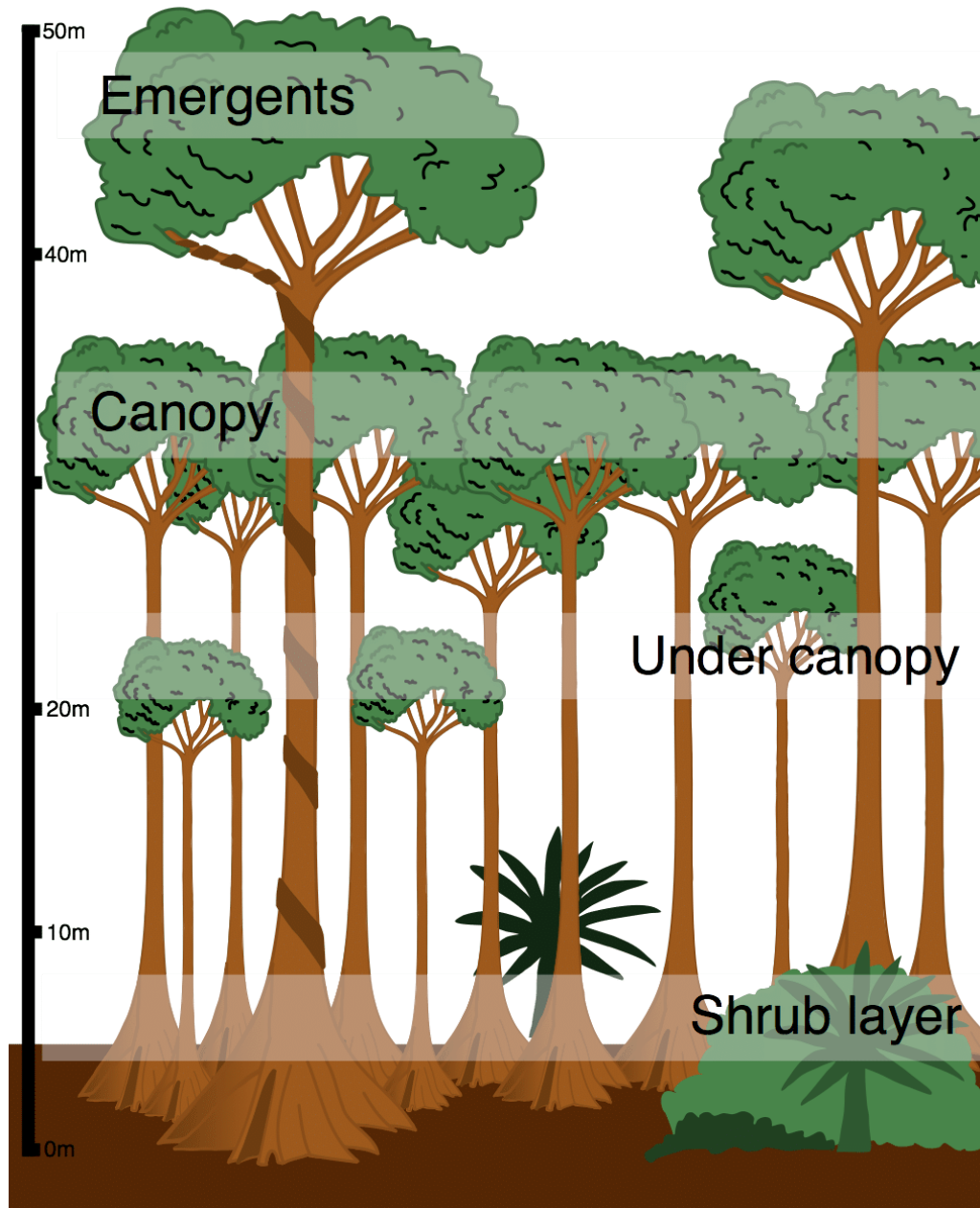
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- **Equatorial Forest**

- The rainforest biome is typically found between the Tropics of Cancer and Capricorn.
- The equatorial tropical rainforest is found within 5 degrees north and south of the equator .
- The **equatorial rainforest supports the greatest biodiversity (number and types of living organisms in an area) on Earth.** This is the **result of abundant moisture and sunlight.**
- **High temperature and abundant rainfall support a luxuriant tropical rain forest.**
- From the air, the **tropical rain forest appears like a thick canopy of foliage,** broken only where it is crossed by large rivers or cleared for cultivation.
- All plants struggle upwards (**most epiphytes**) for sunlight resulting in a peculiar layer arrangement.



## Hot, Wet Equatorial Climate – Convectional Rainfall

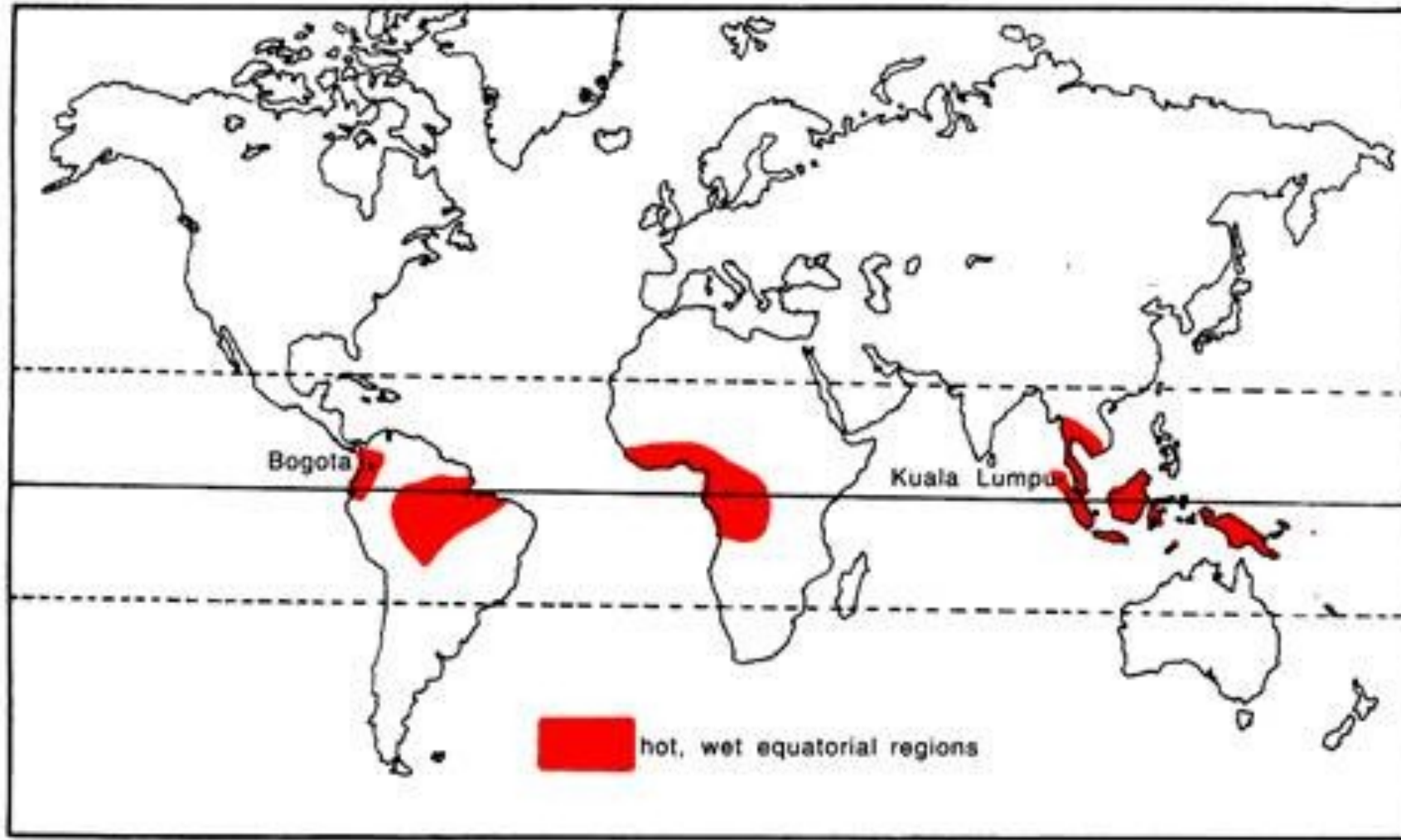


Fig. 121 The hot, wet equatorial regions

# Land Breeze and Sea Breeze - Diurnal Range of Temperature

## ***LAND VS SEA BREEZE***

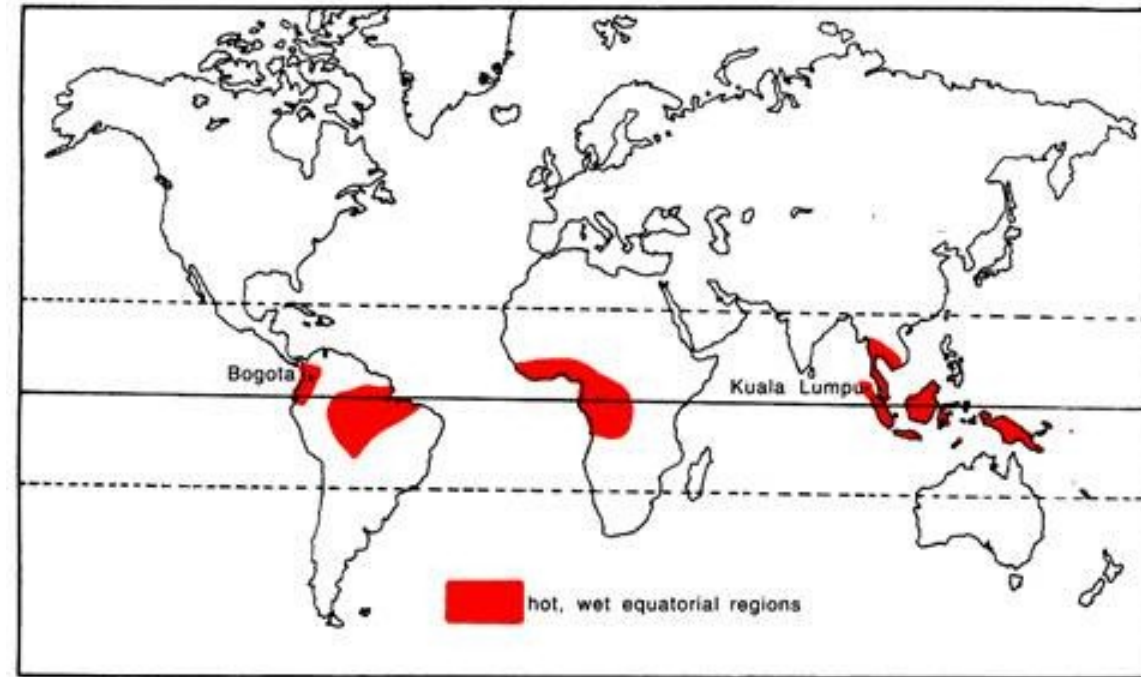
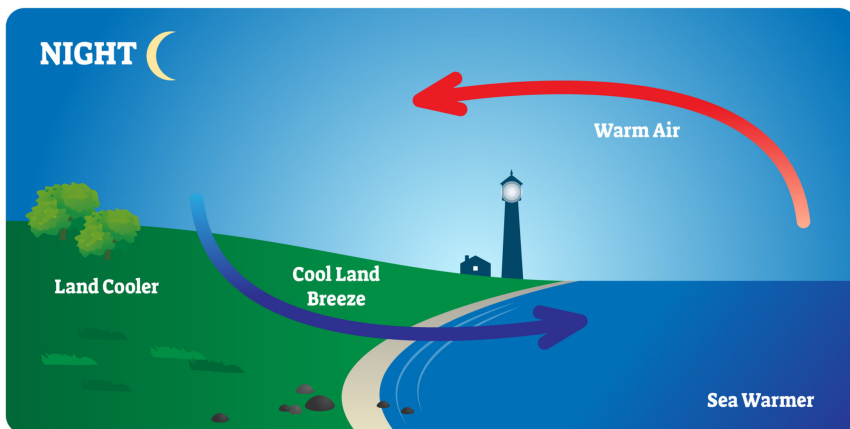
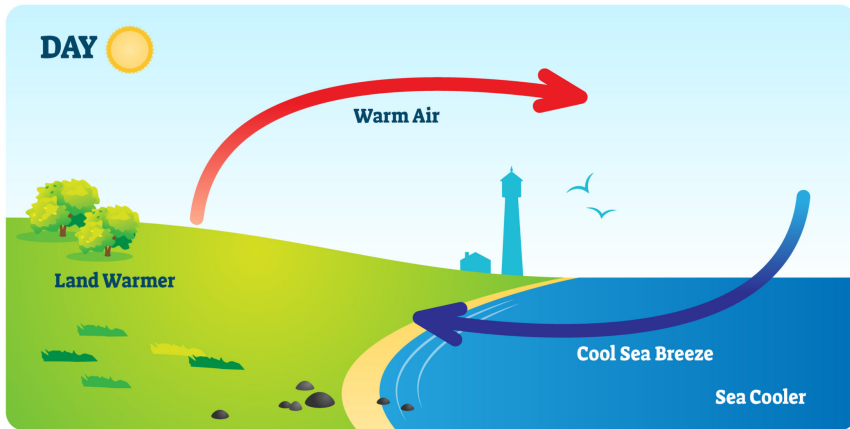


Fig. 121 The hot, wet equatorial regions

# Hot, Wet Equatorial Climate- Lowlands + Altitudes

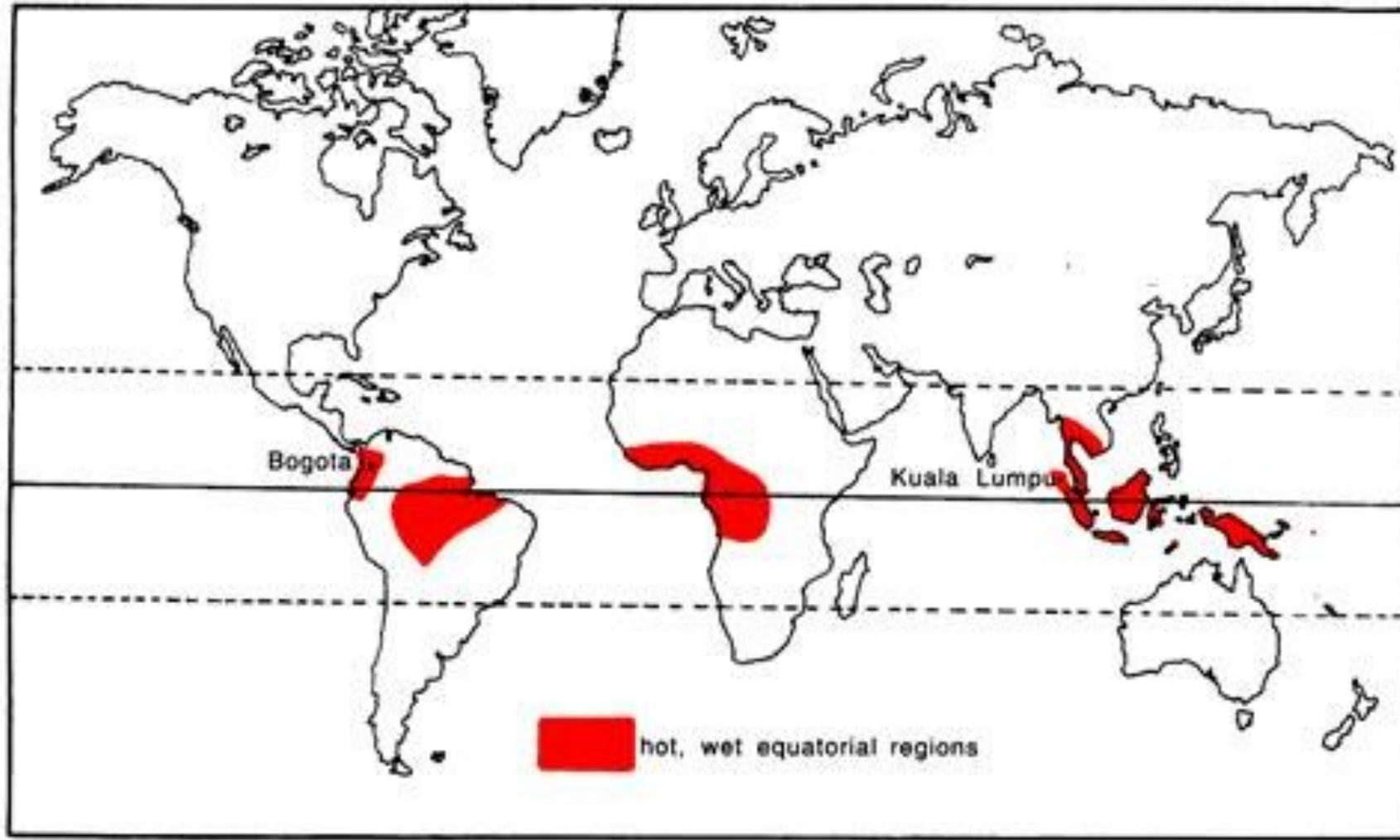


Fig. 121 The hot, wet equatorial regions

## Generally

- Amazon Lowlands
- Congo
- Malaysia

## Altitudes

- Cameron Highlands in Malaysia
- Kenyan Highlands in East Africa

# Rainfall – Convectional + Orographic

## ***LAND VS SEA BREEZE***

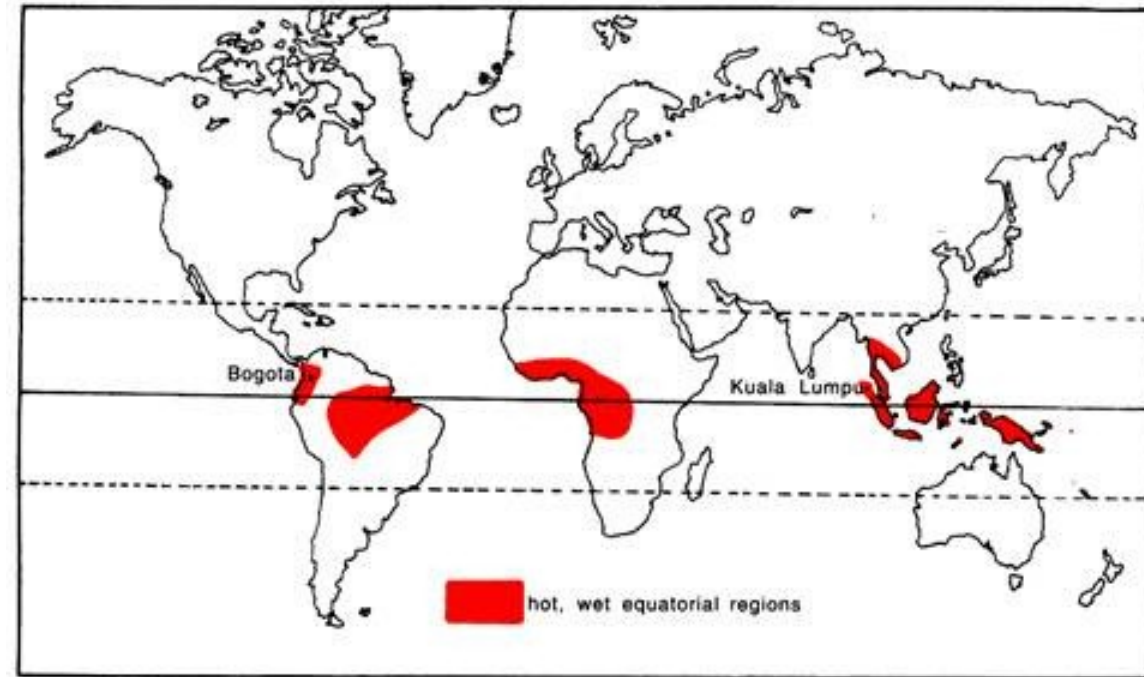
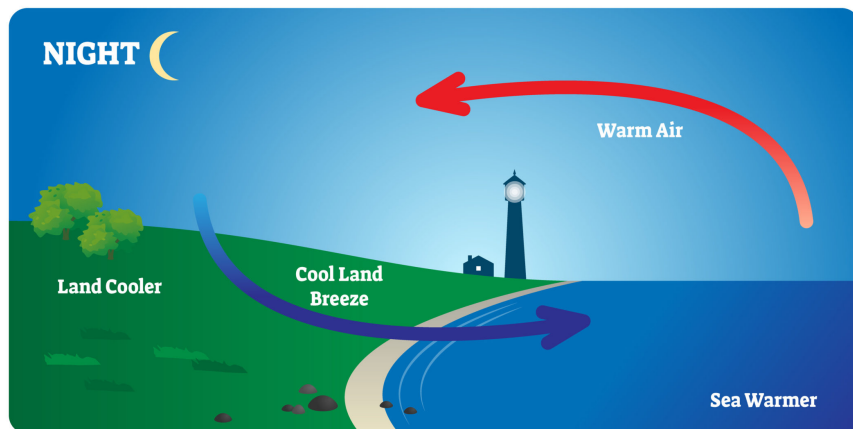
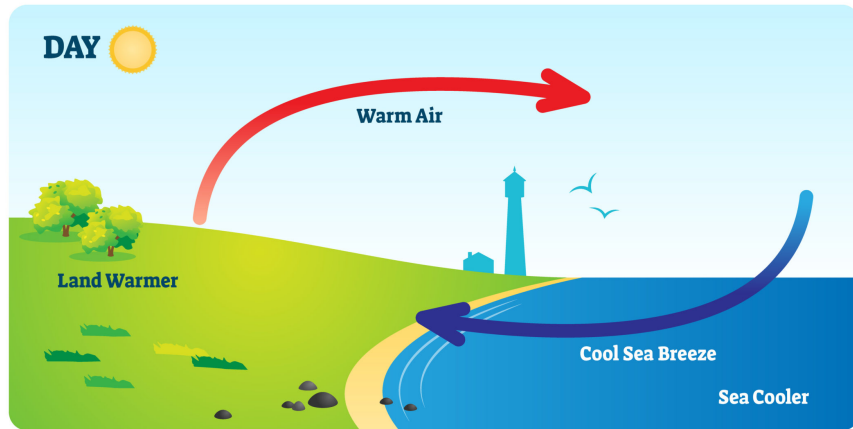
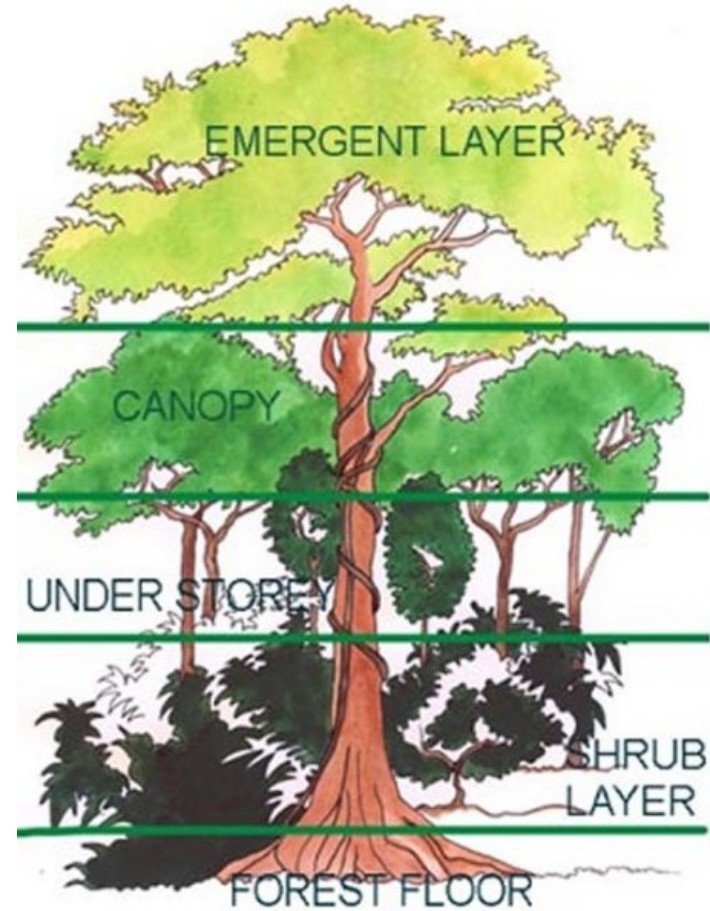


Fig. 121 The hot, wet equatorial regions



# Hot, Wet Equatorial Climate - Equatorial Vegetation - Stratification + Epiphytes



Q)Which of the following is/are unique characteristic/characteristics of equatorial forests?

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**Q) The annual range of temperature in the interior of the continents is high as compared to coastal areas. What is/are the reason/reasons?**

- 1) Thermal difference between land and water
- 2) Variation in altitude between continents and oceans
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- 4) Heavy rains in the interior as compared to coasts

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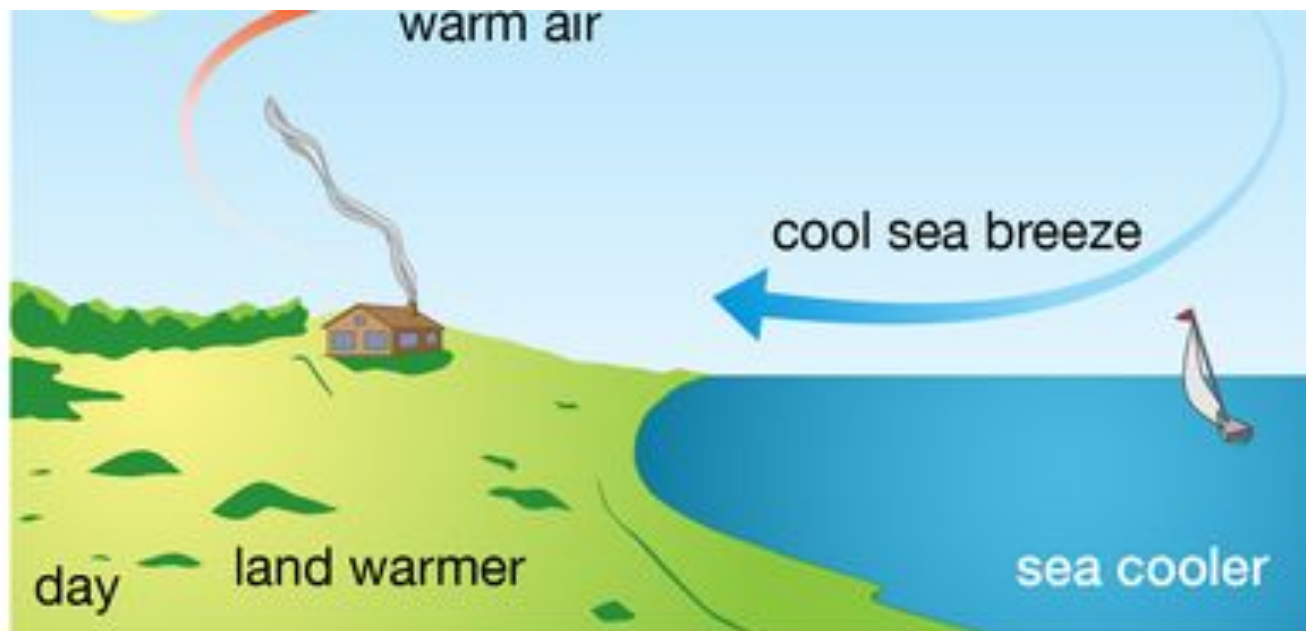
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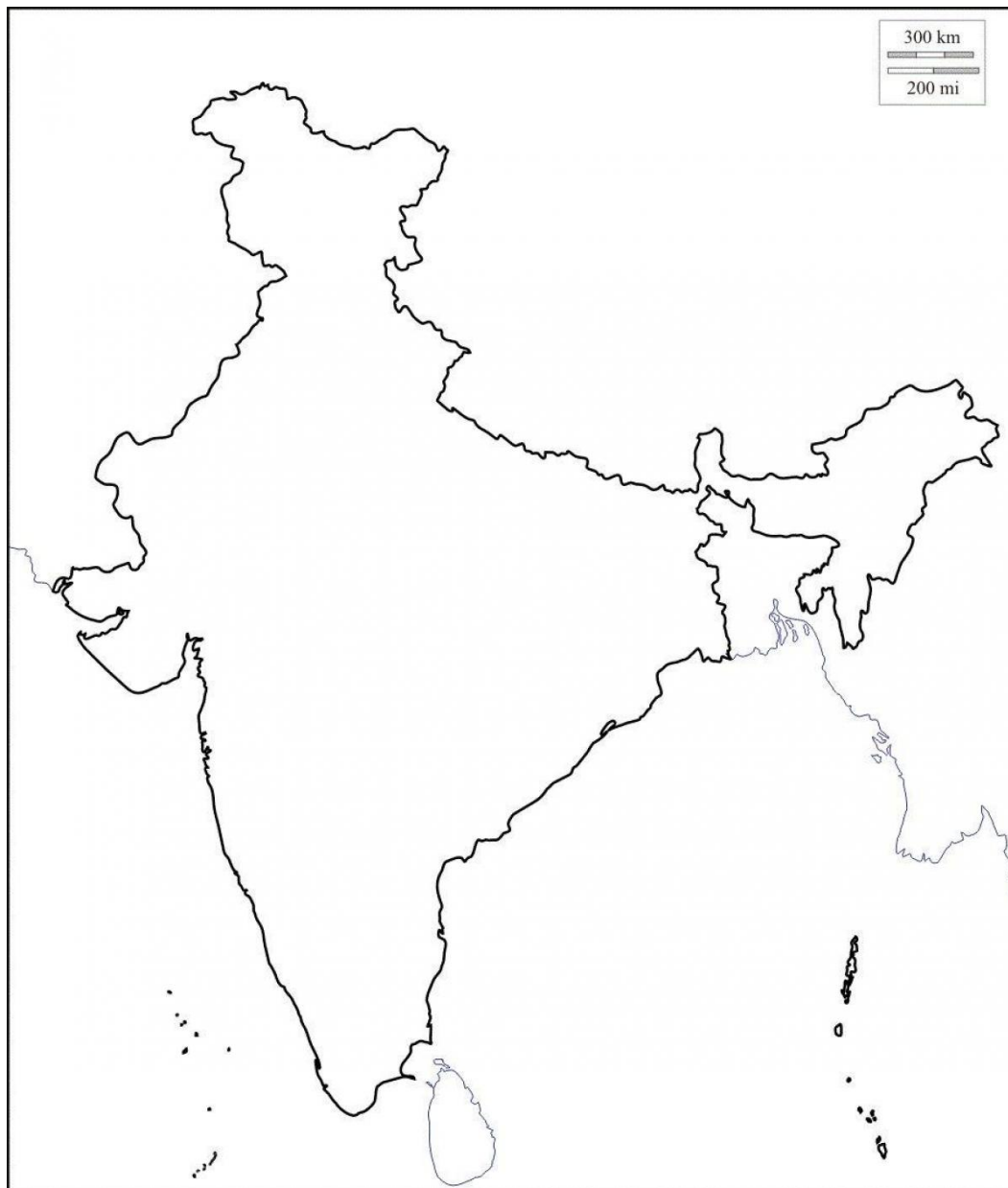
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- Areas in the interior of India are far away from the moderating influence of the sea. Such areas have extremes of climate.
- There may or may not be much difference between the altitudes of land and ocean.
- Winds do not contribute enough to the variations in temperature.
- Coastal region receive more rainfall.

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Q) “Climate is extreme, rainfall is scanty and the people used to be nomadic herders.” The above statement best describes which of the following regions?

- a) African Savannah
- b) Central Asian Steppe
- c) North American Prairie
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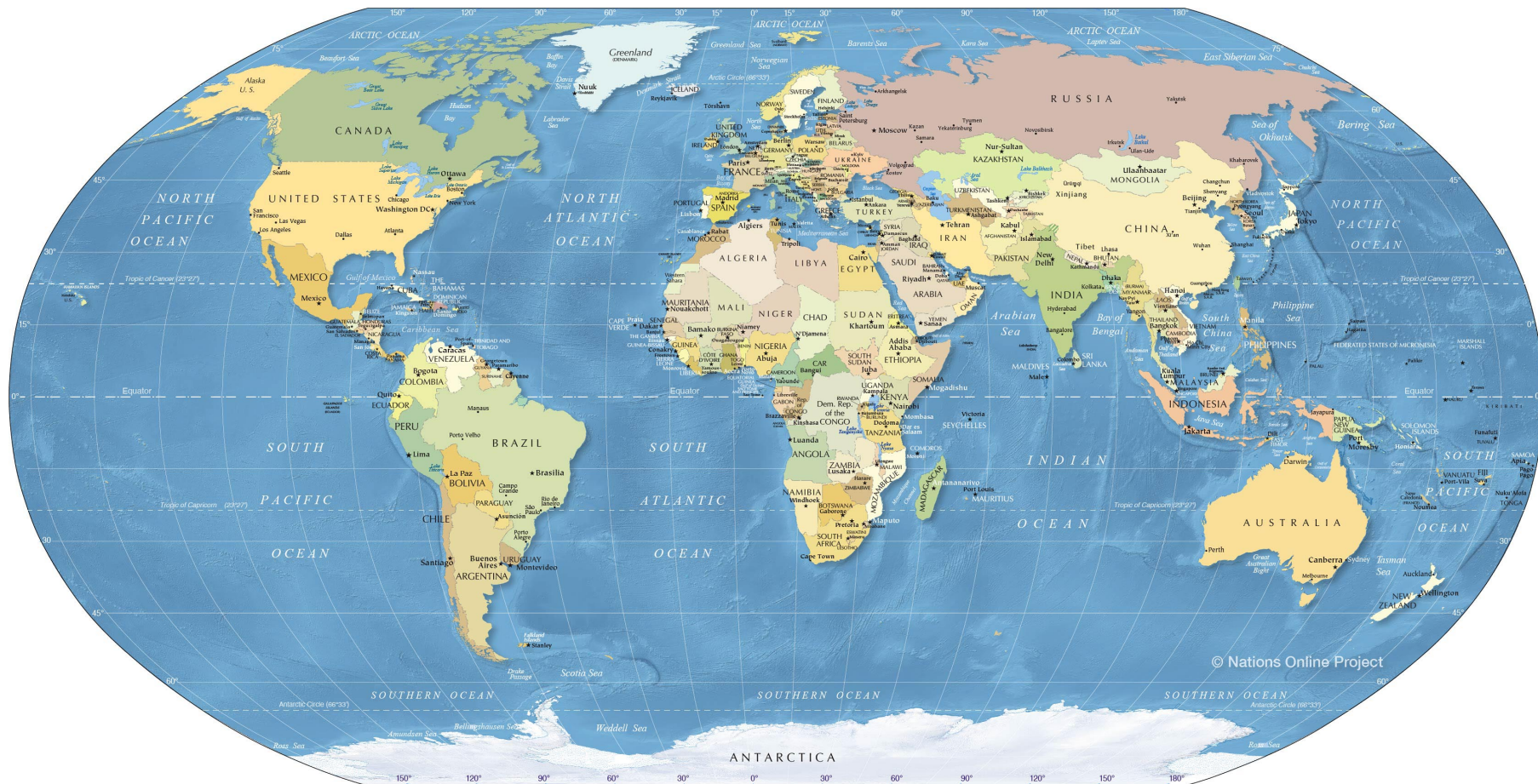
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- Steppe's climate is continental with extremes of temp.
- Rainfall is expected to be light.
- The mid-latitude (Central Asian) grassland were once home to pastoral nomads like Kirgiz, Kazakh and Kalmuks, Mongols.
- North American Prairie - Tech
- Siberian Tundra – Hunting Gathering



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Q) During a thunderstorm, the thunder in the skies is produced by the

- 1) Meeting of cumulonimbus clouds in the sky.
- 2) Lightning that separates the nimbus clouds.
- 3) Violent upward movement of air and water particles.

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- Thunder is the sound caused by lightning.
- The sudden increase in pressure and temperature from lightning produces rapid expansion of the air surrounding and within a bolt of lightning. In turn, this expansion of air creates a sonic shock wave, similar to a sonic boom, which produces the sound of thunder.

**Q) Which of the following leaf modifications occurs/occur in desert areas to inhibit water loss?**

- 1) Hard and waxy leaves
- 2) Tiny leaves or no leaves
- 3) Thorns instead of leaves

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- Wax coatings on leaves prevent water loss through evaporation.
- Leaves are also smaller on desert plants.
- Many plants in the desert conserve water by not having any leaves at all.
- Many cacti have spines in place of leaves, which conduct photosynthesis , small structures also reflect light, further reducing water loss, cacti will grow temporary root systems and absorb water.



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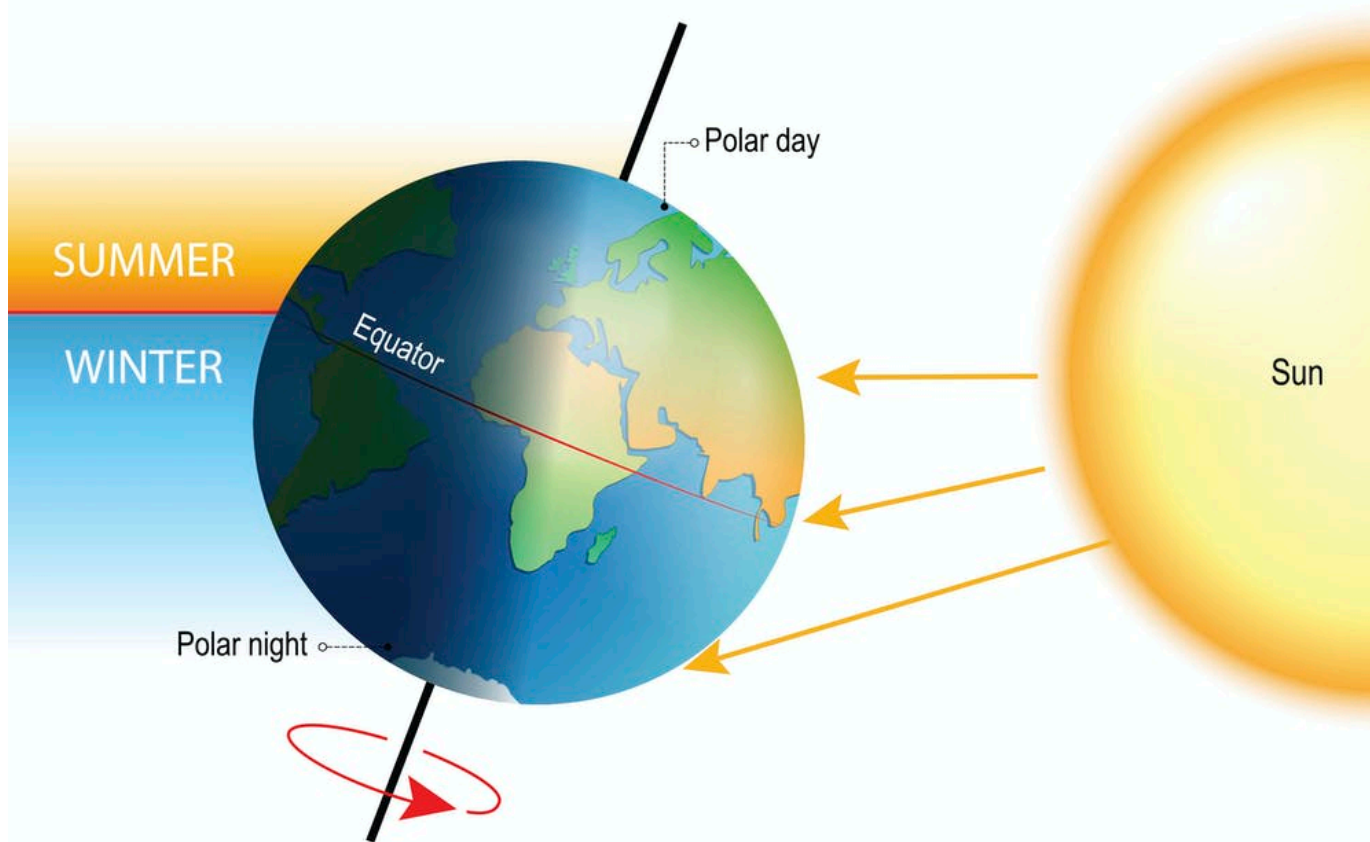
**Q) Variations in the length of daytime and nighttime from season to season are due to**

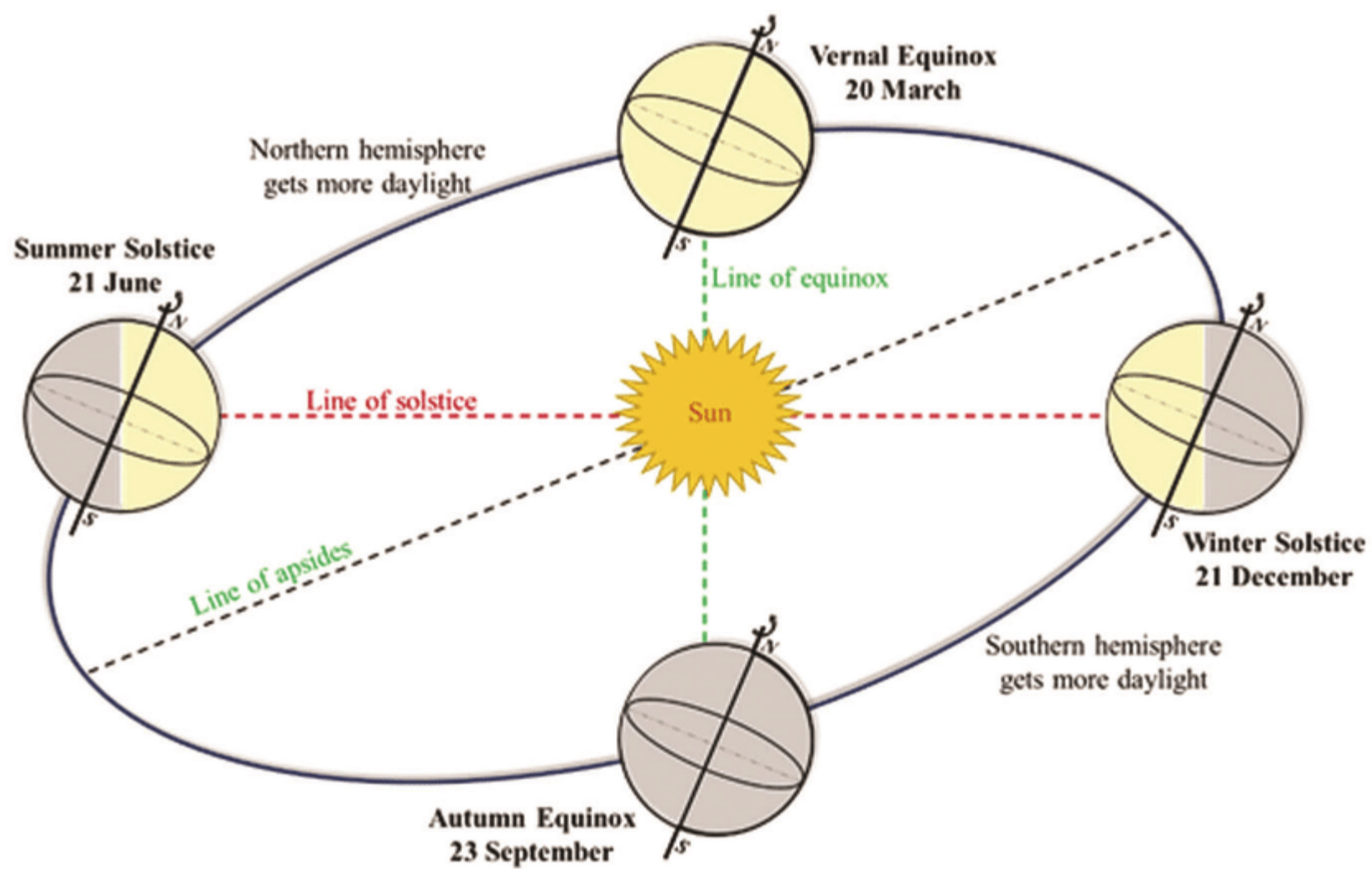
- a) the earth's rotation on its axis
- b) the earth's revolution round the sun in an elliptical manner
- c) latitudinal position of the place
- d) revolution of the earth on a tilted axis

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# EARTH'S SEASONS





- Variations in the length of daytime and nighttime from season to season are due to the revolution of the earth on a tilted axis.
- On its path around the sun, the earth's axis always remains inclined to one side. Because of this constant inclination in one direction, the Northern Hemisphere remains inclined towards the sun or faces the sun during one half of the year. Therefore, a larger part of this hemisphere receives sunlight.
- In contrast, the Southern Hemisphere is away from the sun. It, therefore, has shorter days and longer nights. During the other half of the year, the Southern Hemisphere is inclined towards the sun. Hence, it has longer days and shorter nights.

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**Q30) Consider the following:**

- 1) Electromagnetic radiation
- 2) Geothermal energy
- 3) Gravitational force
- 4) Plate movements
- 5) Rotation of the earth
- 6) Revolution of the earth

**Which of the above are responsible for bringing dynamic changes on the surface of the earth?**

- a) 1, 2, 3 and 4 only
- b) 1, 3, 5 and 6 only
- c) 2, 4, 5 and 6 only
- d) 1, 2, 3, 4, 5 and 6



**Q) Consider the following:**

1) Electromagnetic radiation

2) Geothermal energy

3) Gravitational force

**4) Plate movements - Start from this**

5) Rotation of the earth

6) Revolution of the earth

**Which of the above are responsible for bringing dynamic changes on the surface of the earth?**

a) 1, 2, 3 and 4 only

b) 1, 3, 5 and 6 only

c) 2, 4, 5 and 6 only

**d) 1, 2, 3, 4, 5 and 6**

- 1) Geothermal energy- Volcanoes – Mid Oceanic Ridges
- 2) Gravitational force – Tides – Gravitational Pull of Moon – Coastal Erosion
- 3) Plate movements –Earthquakes
- 4) Revolution of the earth - responsible for seasons + monsoon + landslides and soil erosion – Changes in surface

**Q) Consider the following:**

- 1) Electromagnetic radiation
- 2) Geothermal energy
- 3) Gravitational force
- 4) Plate movements
- 5) Rotation of the earth
- 6) Revolution of the earth

**Which of the above are responsible for bringing dynamic changes on the surface of the earth?**

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- b) 1, 3, 5 and 6 only
- c) 2, 4, 5 and 6 only
- d) 1, 2, 3, 4, 5 and 6**

**Q43) Which of the following phenomena might have influenced the evolution of organisms ?**

- 1) Continental drift
- 2) Glacial cycles

**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

Q43) Which of the following phenomena might have influenced the evolution of organisms ?

- 1) Continental drift
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A glacial period (alternatively glacial or glaciation) is an interval of time (thousands of years) within an ice age that is marked by colder temperatures and glacier advances.

Interglacials, on the other hand, are periods of warmer climate between glacial periods.

Continental Drift : moved some animals ,some animals stuck there

## Continental Drift : moved some animals ,some animals stuck there



225 million years ago



150 million years ago



100 million years ago



Earth today

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A glacial period (alternatively glacial or glaciation) is an interval of time (thousands of years) within an ice age that is marked by colder temperatures and glacier advances.

Interglacials, on the other hand, are periods of warmer climate between glacial periods.

Continental Drift : moved some animals ,some animals stuck there



## **Additional Information : Evidences of Continental Drift Theory**

- 1) The Matching of Continents
- 2) Rocks of Same Age Across the Oceans:
- 3) Tillite
- 4) Placer Deposits
- 5) **Distribution of Fossils**

# The “Big Five” mass extinctions



## First mass extinction

**85%** of all species, including marine invertebrates like:

- graptolites
- brachiopods
- conodonts.



## Second mass extinction

**75%** of all species including:

- brachiopods
- bivalves
- sarcopterygians.



## Third mass extinction (the largest)

**95%** of all species, including marine animals like:

- *Dimetrodon*
- *Estemmenosuchus*
- *Orthacanthus*
- trilobites
- *Moschops*.



## Fourth mass extinction

**80%** of all species, including:

- ichthyosaurs
- paddle-finned plesiosaurs
- phytoplankton
- many species of frogs, salamanders, turtles, snakes, spiders and grasshoppers.



## Fifth mass extinction

**76%** of all species including:

- non-avian dinosaurs
- bivalves (*Exogyra* and *Gryphaea*)
- inoceramids
- flying reptiles (pterosaurs).



Q) Which of the following phenomena might have influenced the evolution of organisms ?

- 1) Continental drift
- 2) Glacial cycles

**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

Q) The seasonal reversal of winds is the typical characteristic of

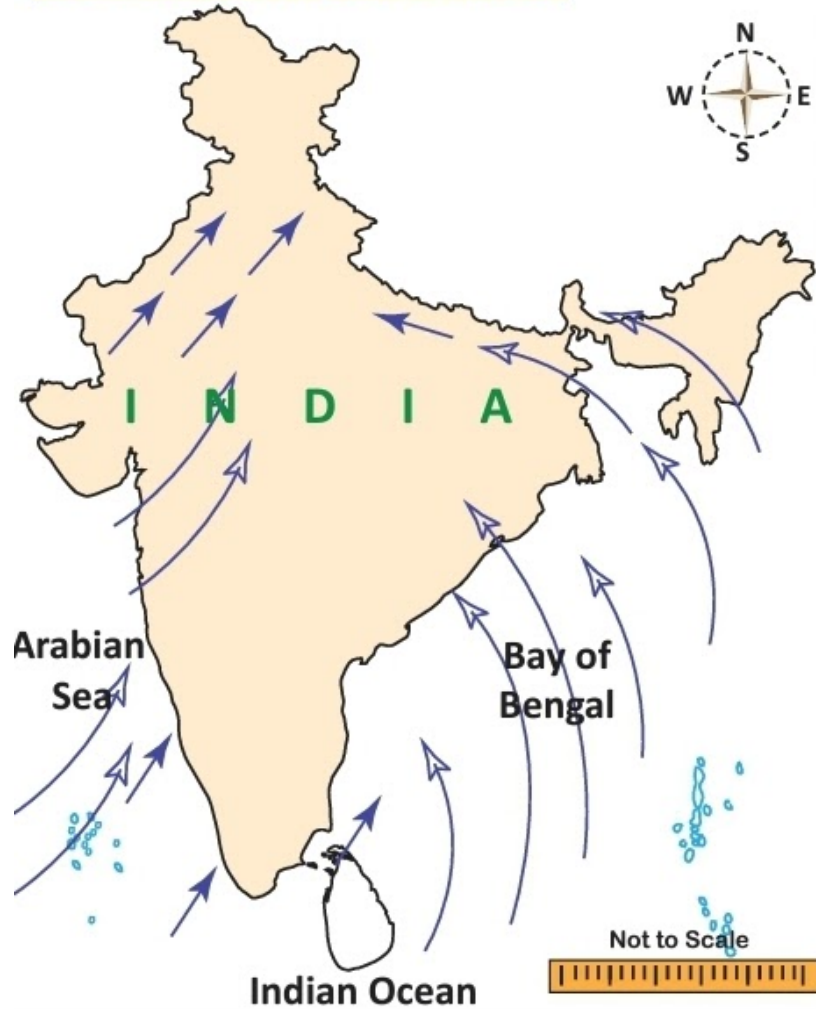
- a) Equatorial climate
- b) Mediterranean climate
- c) Monsoon climate
- d) All of the above climates

Q46) The seasonal reversal of winds is the typical characteristic of

- a) Equatorial climate
- b) Mediterranean climate
- c) Monsoon climate**
- d) All of the above climates

# How to Guess

**South West Monsoon In India**



**North East Monsoon In India**



- Seasonal reversal of wind direction takes place over the Indian subcontinent because in winter there is a high-pressure area in the north of the Himalayas & there is a low-pressure area over the ocean to the south. So cold and dry winds blow from the Himalayan region towards the ocean.
- In summer due to high temperatures, a low-pressure area develops over interior Asia as well as over northwestern India. This causes a complete reversal of the direction of the wind during summer and the rise of the Southwest monsoon.

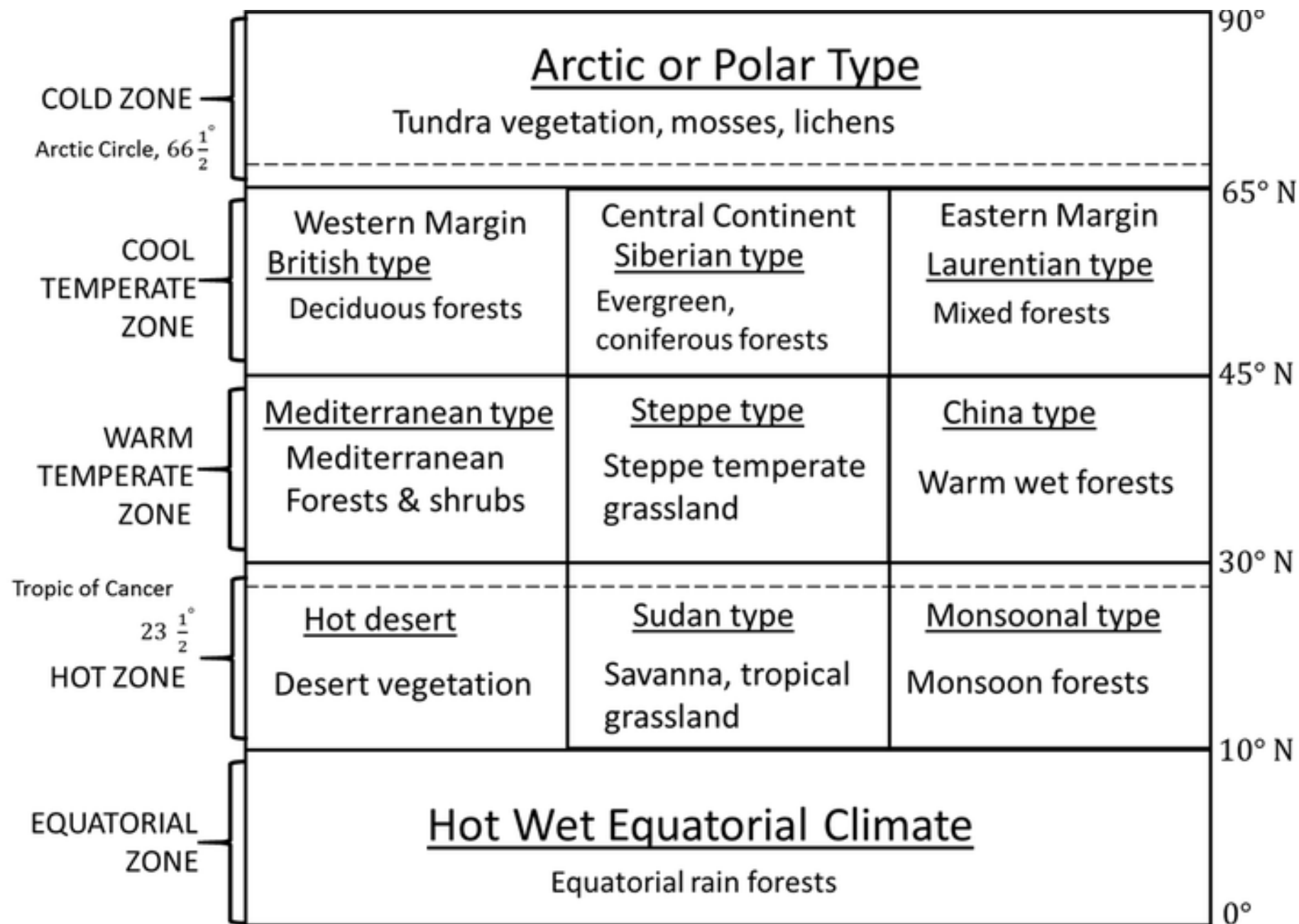
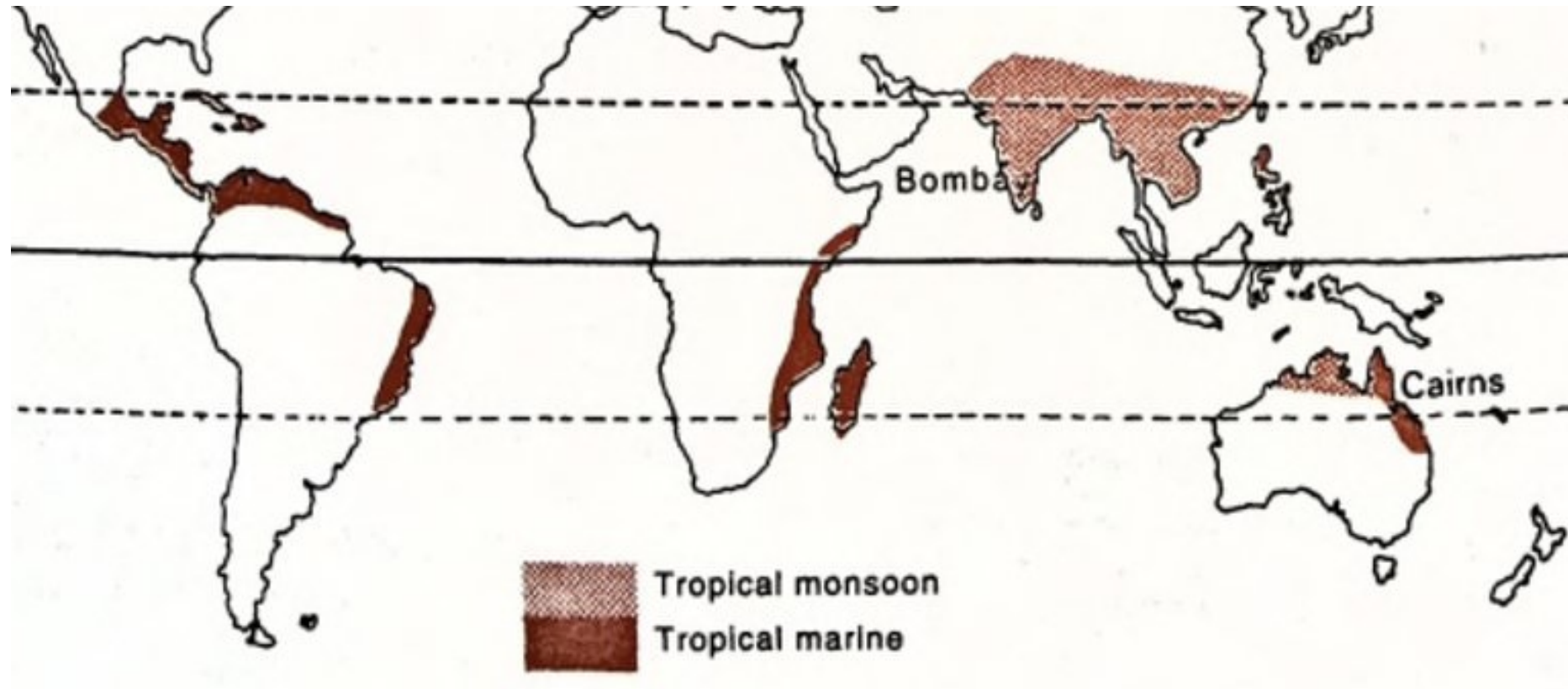


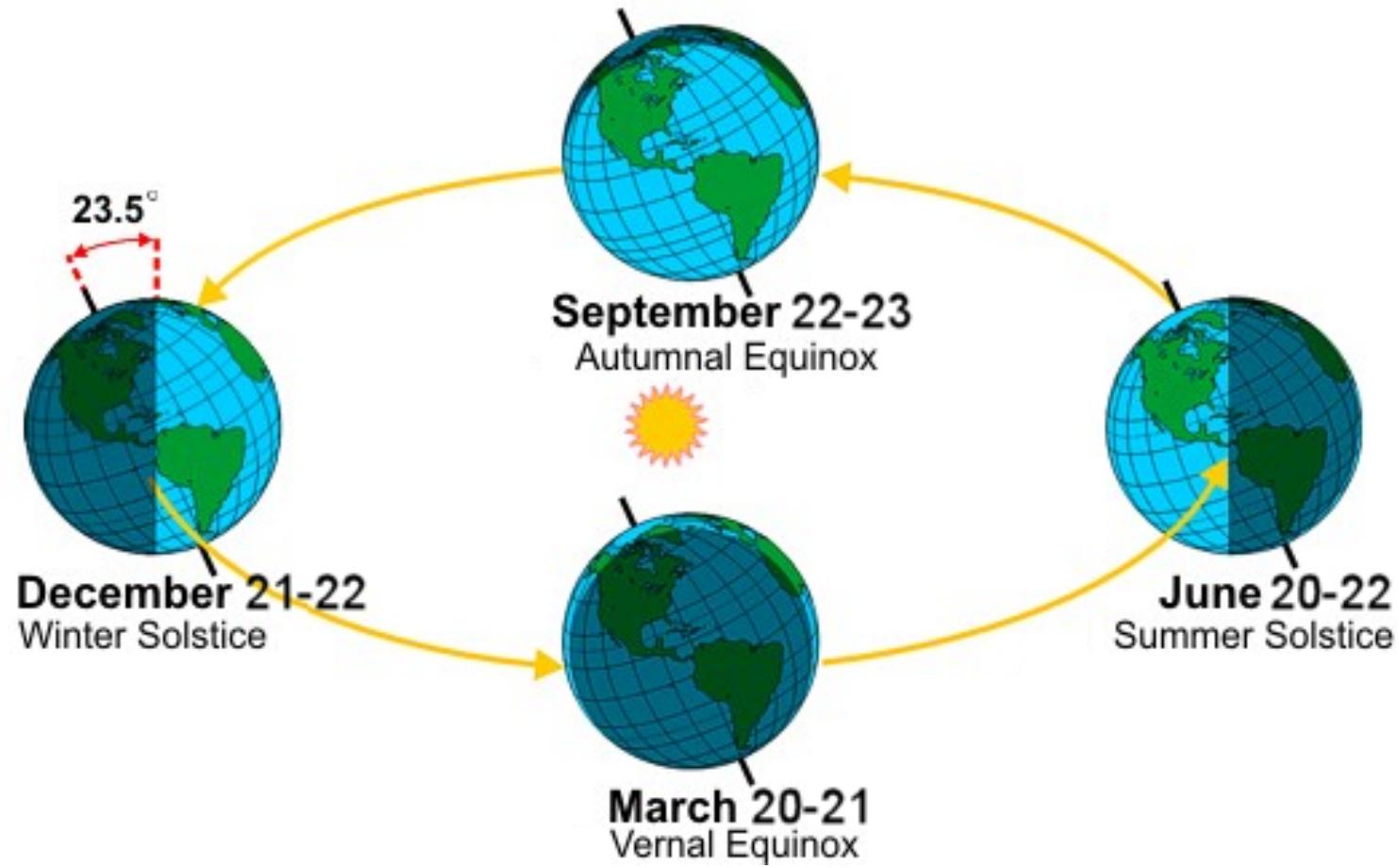
Image of Arctic or Polar Type



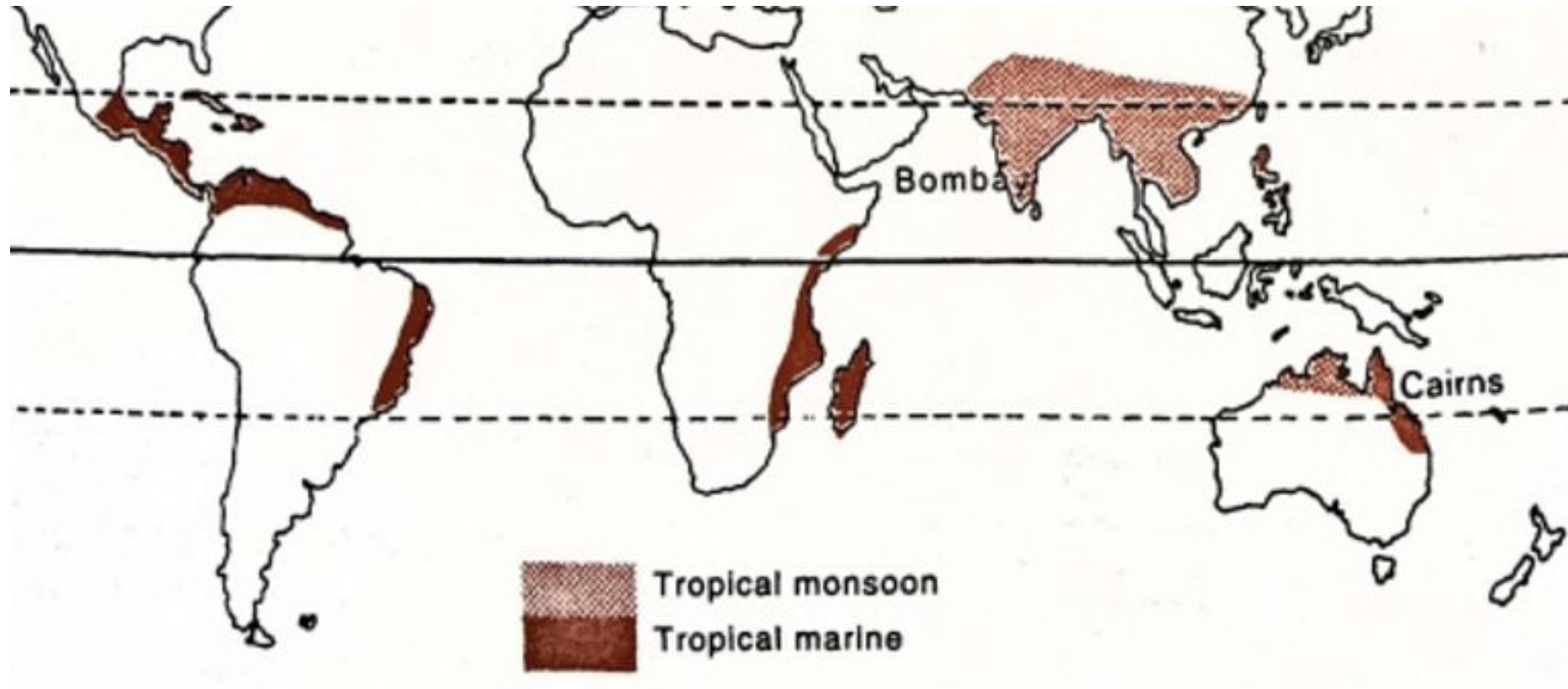
# The Tropical Monsoon and Marine Climate



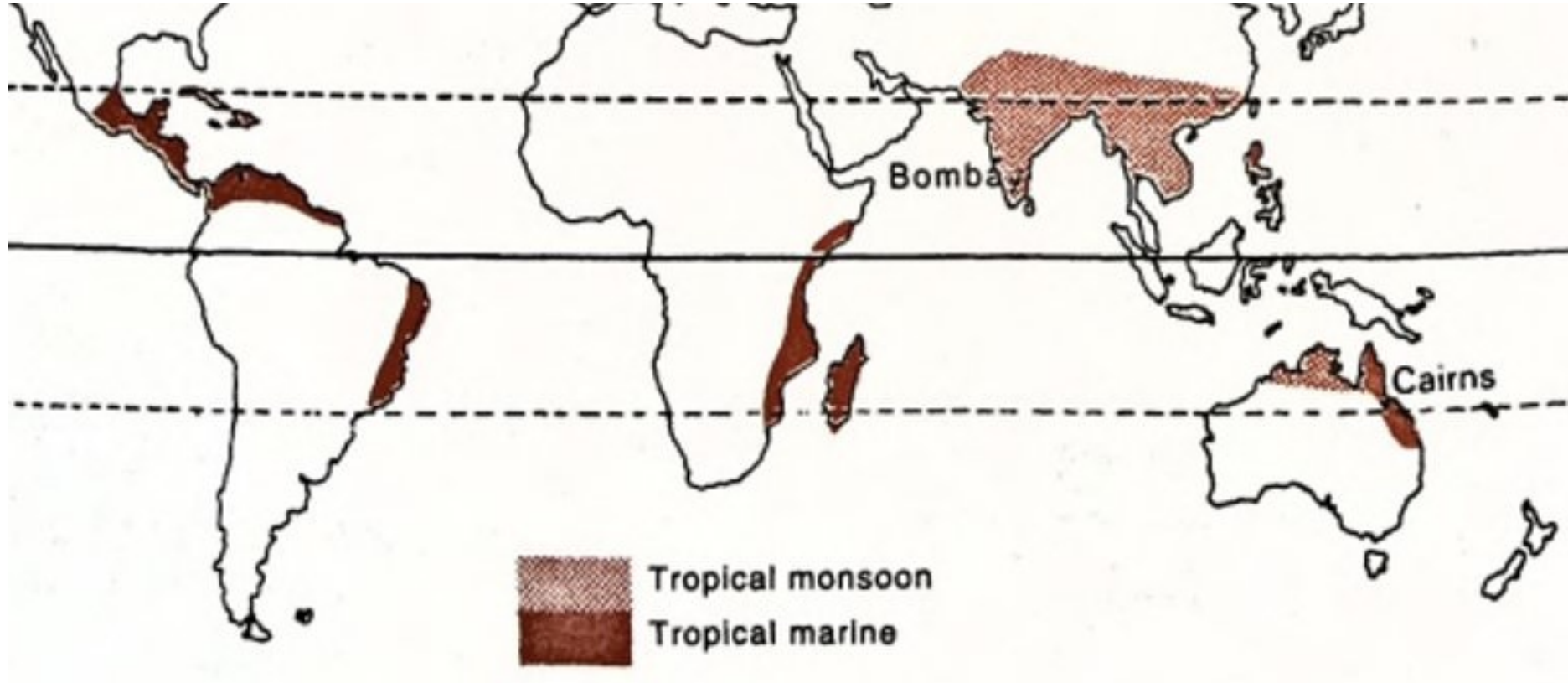
# Sun Overhead Tropic of Cancer



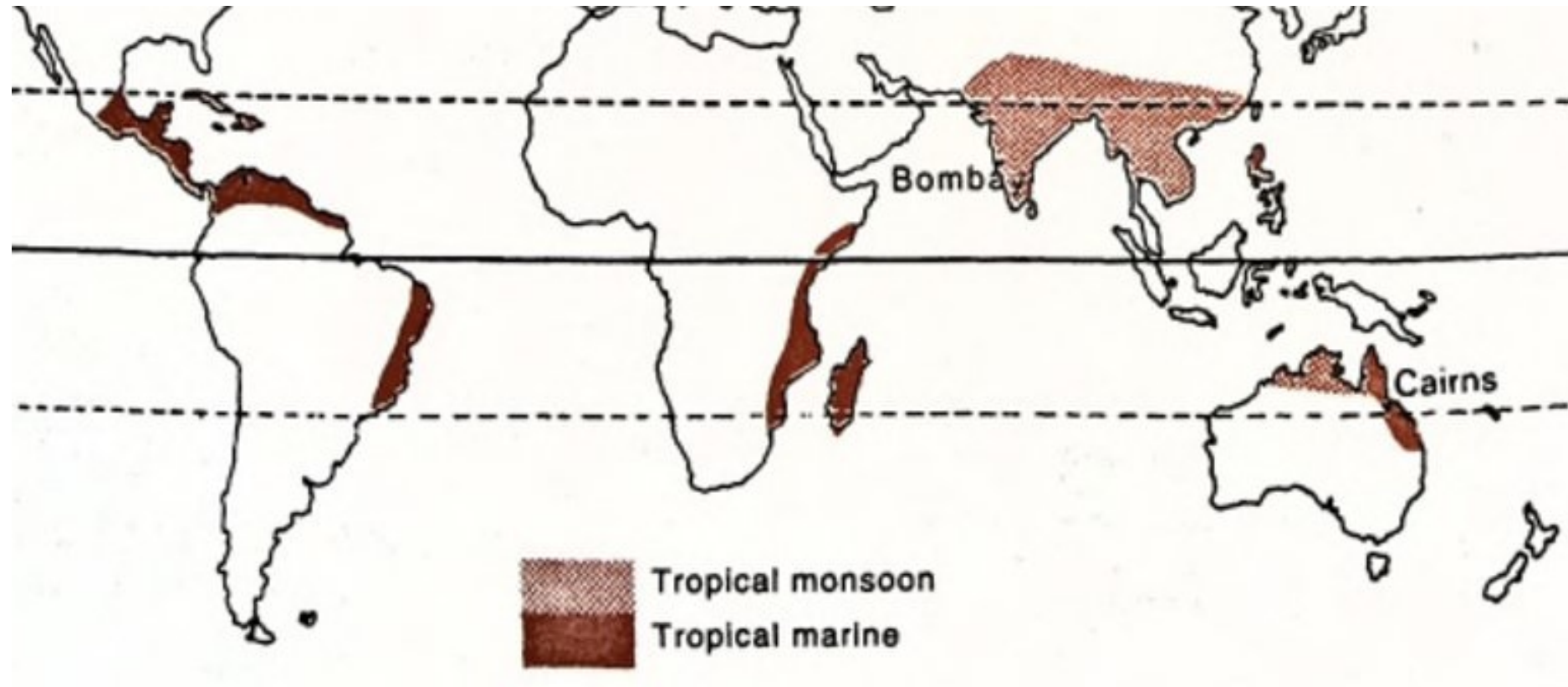
## What happens in Summer and Winter?



## Summer Conditions – South East and South West monsoon



## Winter Conditions – North East Monsoon and North West Monsoon



Q46) The seasonal reversal of winds is the typical characteristic of

- a) Equatorial climate
- b) Mediterranean climate
- c) Monsoon climate**
- d) All of the above climates



# Special Prelims Based Session



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1).Hot, Wet Equatorial Climate. | 2).The Tropical monsoon & Tropical Marine Climate. | 3).The...

11 chapters ▾

**Q) In the South Atlantic and South-Eastern Pacific regions in tropical latitudes, cyclone does not originate. What is the reason?**

- a) Sea surface temperatures are low
- b) Inter-tropical Convergence Zone seldom occurs
- c) Coriolis force is too weak
- d) Absence of land in those regions



Q) In the South Atlantic and South-Eastern Pacific regions in tropical latitudes, cyclone does not originate. What is the reason?

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c) Coriolis force is too weak

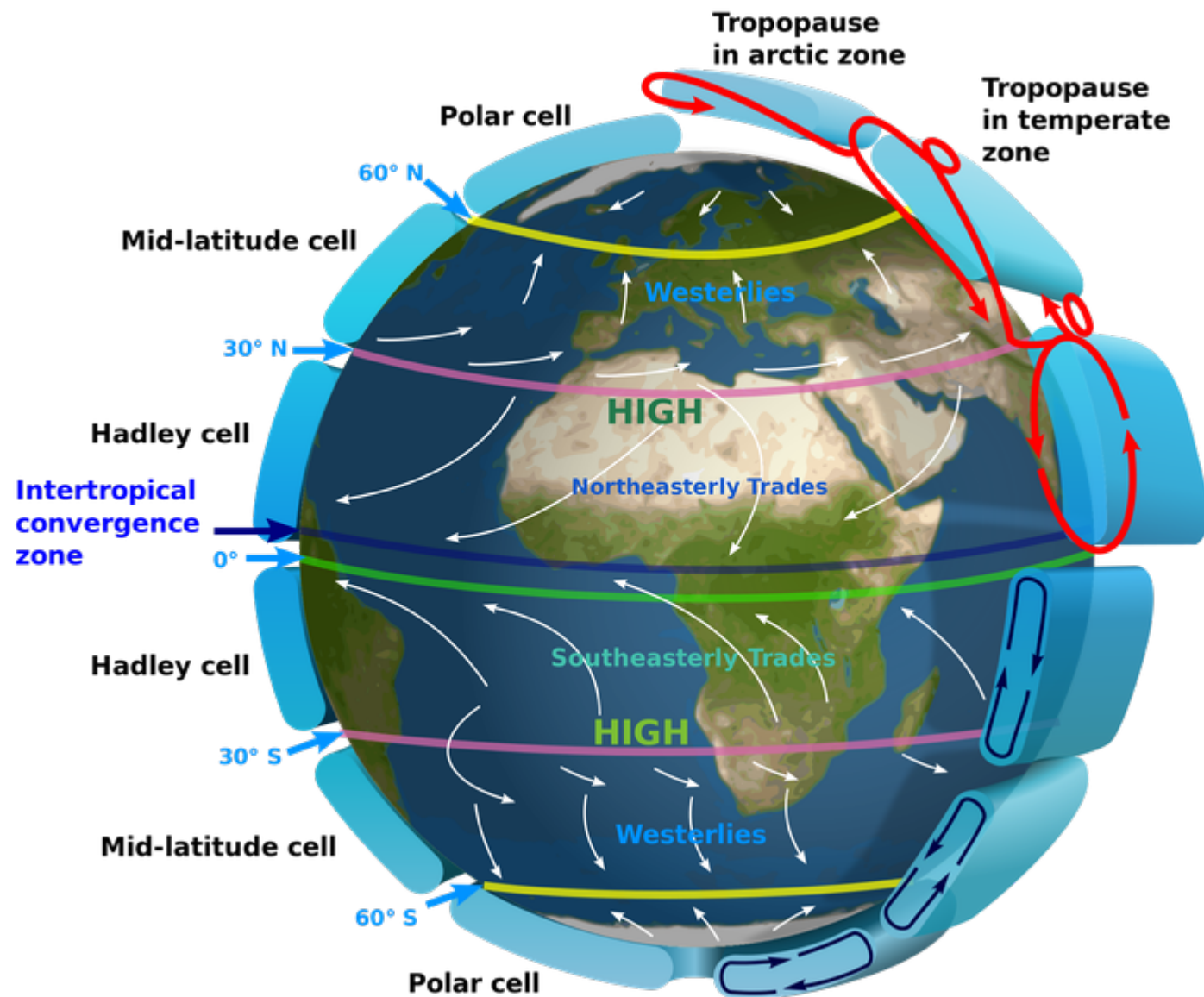
d) Absence of land in those regions

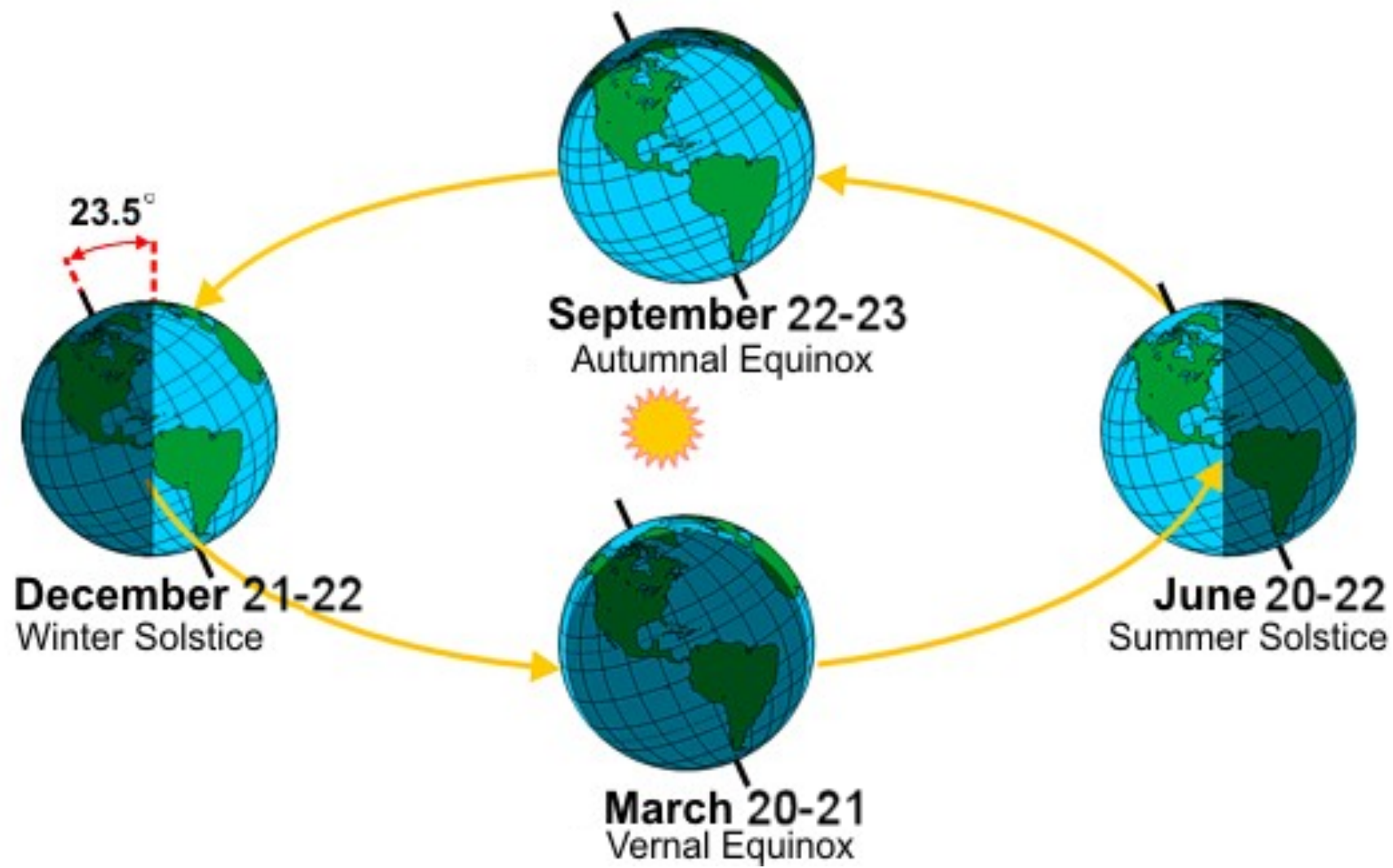
- The conditions favourable for the formation and intensification of tropical storms are:
  - Large sea surface with temperature higher than 27° C;
  - Presence of the Coriolis force; (
  - Small variations in the vertical wind speed;
  - A preexisting weak- low-pressure area or low-level cyclonic circulation;
  - Upper divergence above the sea level system.

Tropical cyclone formation also requires a trigger that initiates convection. One such trigger is the intertropical convergence zone (ITCZ), where warm sea-surface temperatures and convergence of surface trade winds foster convection (rising air). ITCZ does not shift Towards South Atlantic and South-Eastern Pacific regions in tropical latitudes.

- **Intertropical Convergence Zone**

- The Intertropical Convergence Zone known by sailors as the doldrums or the calms because of its monotonous windless weather, is the area where the northeast and the southeast trade winds converge.
- It encircles Earth near the thermal equator though its specific position varies seasonally. When it lies near the geographic Equator, it is called the near-equatorial trough.
- Where the ITCZ is drawn into and merges with a monsoonal circulation, it is sometimes referred to as a monsoon trough, a usage that is more common in Australia and parts of Asia.



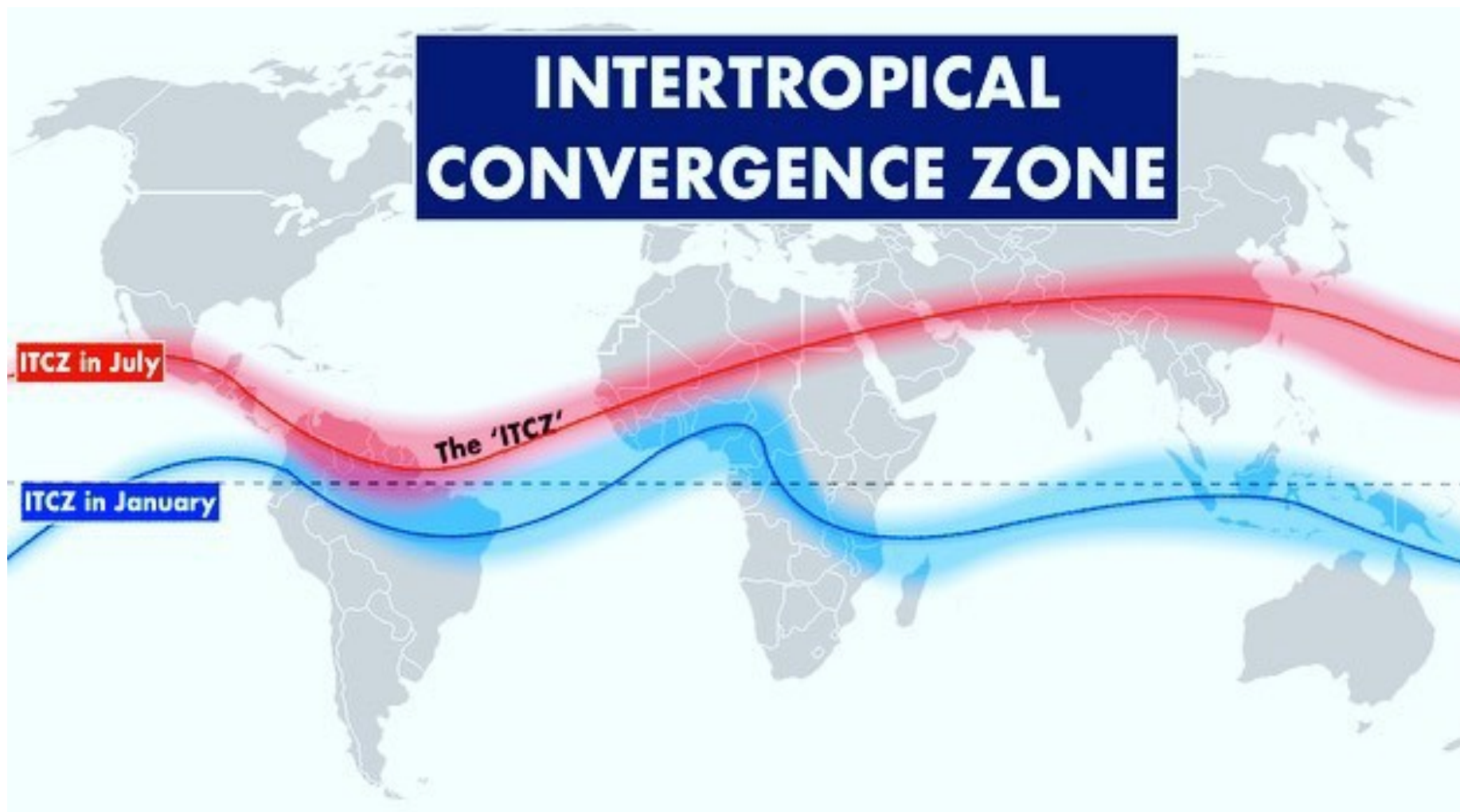


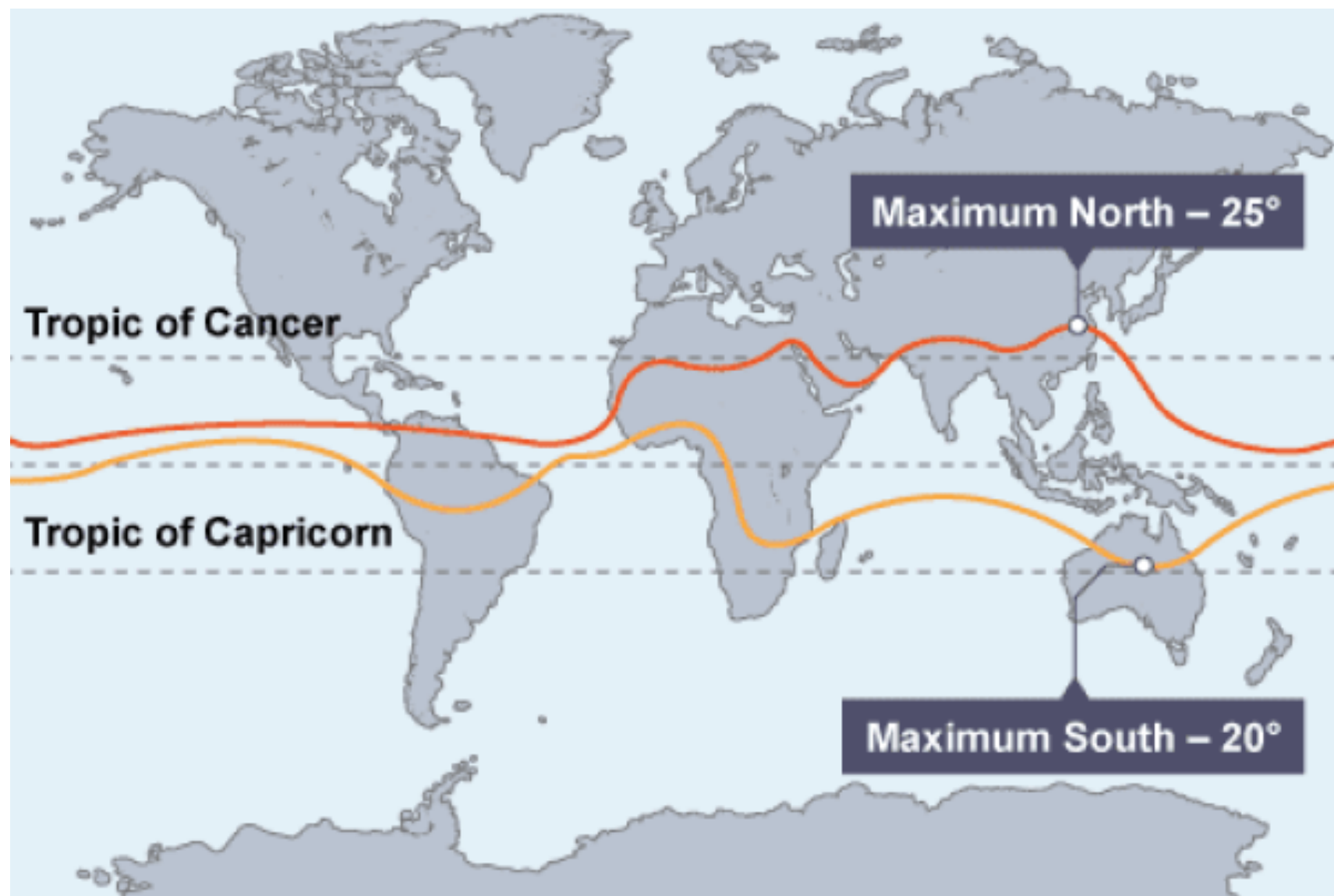
# INTERTROPICAL CONVERGENCE ZONE

ITCZ in July

The 'ITCZ'

ITCZ in January





**Q59) 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

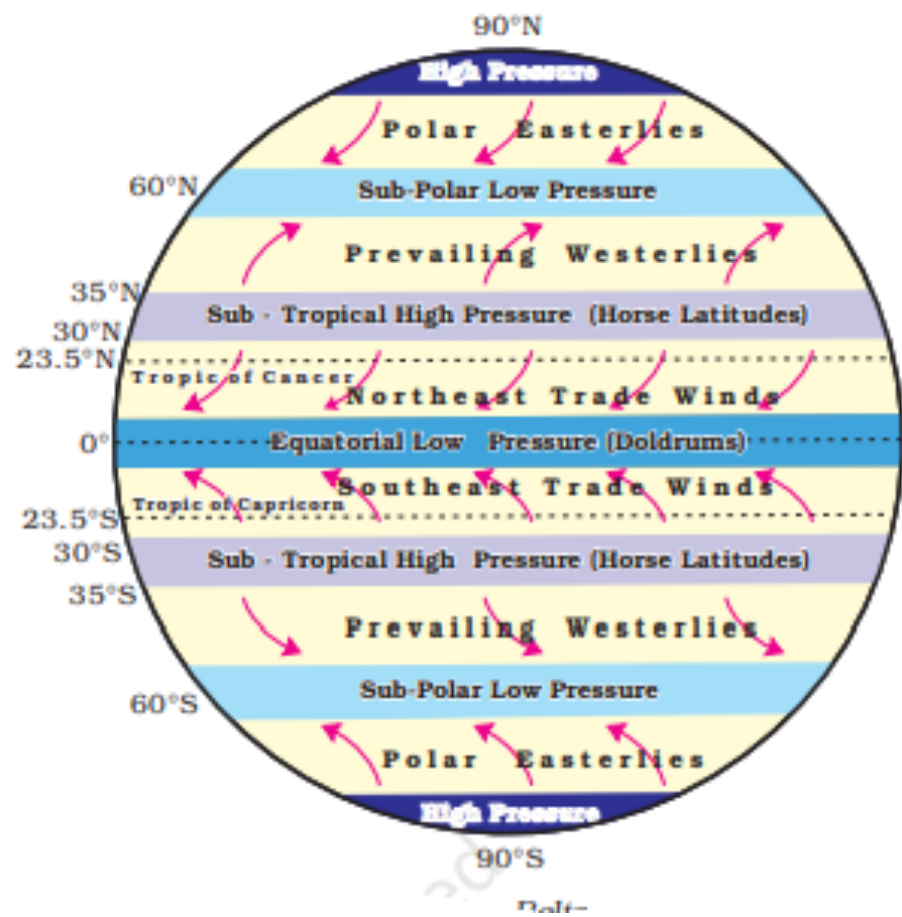


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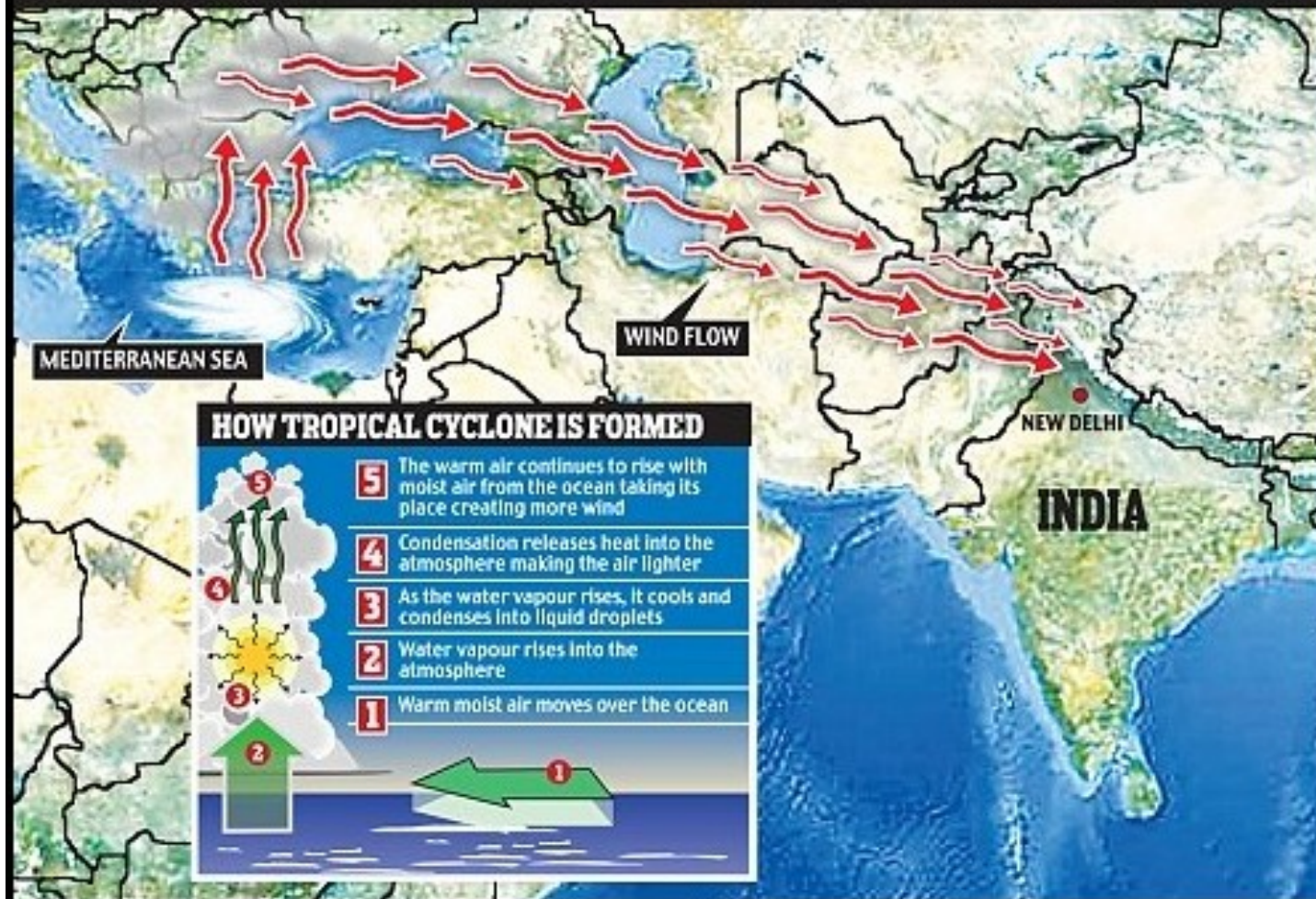
**Which of the statements given above is/are correct?**

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



# FAST AND FURIOUS

The extreme weather conditions are a result of a weather phenomenon called western disturbance, which is going to be quite intense



## WESTERN DISTURBANCE

- Western disturbance is a cyclonic circulation in the mid and lower troposphere (between 2.1 and 7.6 km above sea level) which originates over the Mediterranean Sea, Caspian Sea and Black Sea
- It is one of the most important weather systems that causes adverse weather conditions over North-West India and particularly over the western Himalayan region
- Western disturbance during winter leads to occurrence of clouds, rainfall and snowfall
- An intense western disturbance usually produces widespread heavy snowfall over the western Himalayan region and rains over northern plains for a day or two and may trigger avalanches

- Westerlies flow between latitudes 30-60 degrees North and 30-60 degrees South. The statement mentions 30N-60S.
- Winter Rains in India : This is a non-monsoonal precipitation pattern driven by the Westerlies.

**Q) Consider the following statements:**

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Q) "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



Q) "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

- Wet equatorial climate, is characterized by consistently high temperatures (around 30 °C [86 °F]), with plentiful precipitation (150–1,000 cm [59– 394 inches]) on most afternoons., heavy cloud cover, and high humidity, with very little annual temperature variation.
- Wet equatorial regions lie within about 12° latitude of the Equator.



**Q) 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

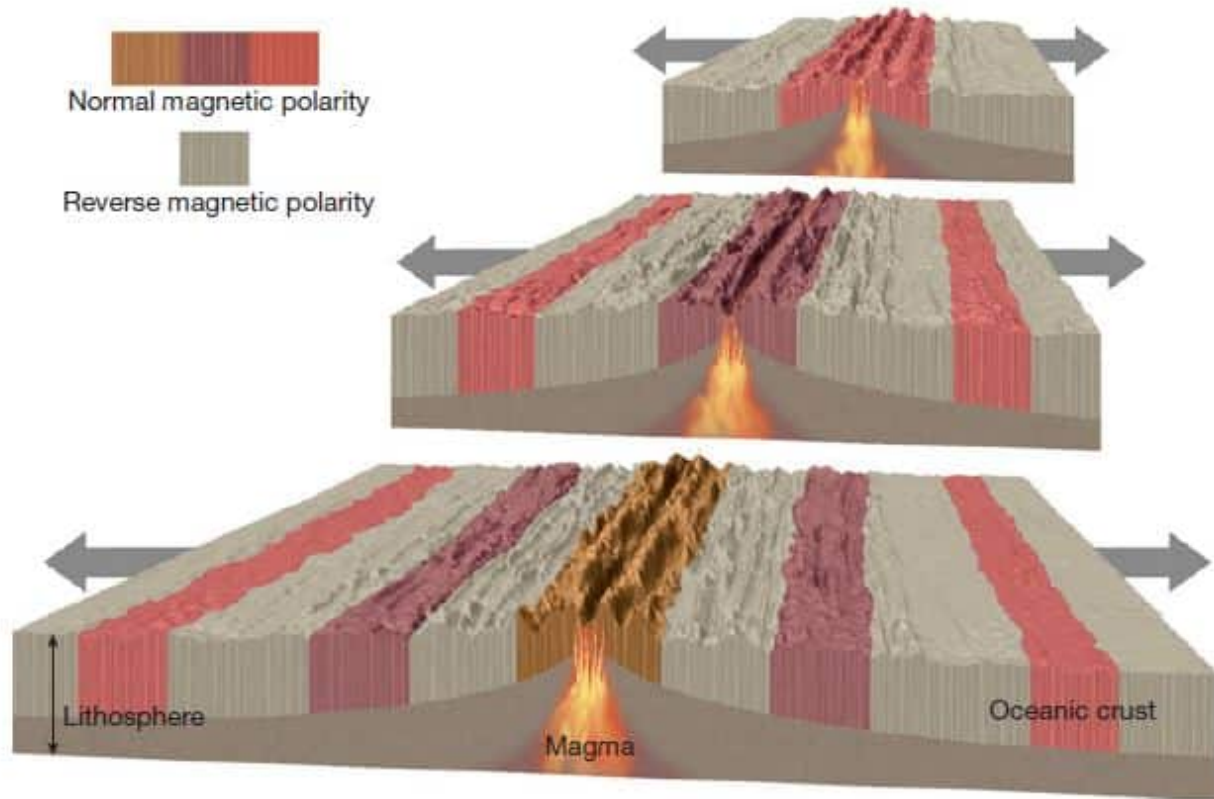
**Q) Consider the following statements:**

- 1) The Earth's magnetic field has reversed every few hundred thousand years.- Start with this**
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**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

# Distribution of Ocean and Continents



- Earth's magnetic field has reversed its polarity many times over the millennia.
- When Earth formed 4.6 billion years ago, it had almost no atmosphere. As Earth cooled, an atmosphere formed mainly from gases spewed from volcanoes which included hydrogen sulfide, methane, and 10 to 200 times as much carbon dioxide as today's atmosphere.
- Life started to have a major impact on the environment once photosynthetic organisms evolved. While photosynthetic life reduced the carbon dioxide content of the atmosphere, it also started to produce oxygen. So, when living beings originated, they did modify the atmosphere.

**Q) Consider the following statements:**

- 1) The Earth's magnetic field has reversed every few hundred thousand years.
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**Which of the statements given above is/are correct?**

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- c) 1 and 3 only**
- d) 1, 2 and 3

**Q) 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 more 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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**Which of the statements given above is/are correct?**

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- c) 1 and 3 only
- d) 1, 2 and 3**





- Most coral reefs are located in tropical shallow waters less than 50 meters deep, in the western regions of the Indian ocean, Pacific Ocean and Greater Caribbean.
  - **Note :** The **Coral Triangle (CT)** is a **roughly triangular area in the tropical waters** around Indonesia, Malaysia, Papua New Guinea, the Philippines, the Solomon Islands and Timor-Leste. This area contains at least 500 species of reef-building corals in each ecoregion.
- **Global distribution of corals**
  - Australia-17%
  - Indonesia-16%
  - Philippines-9%
- 32 of the 34 recognised animal Phyla are found on coral reefs compared to only 9 Phyla in tropical rainforests.

# Special Prelims Based Session - 1



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# Special Prelims Based Session – 2

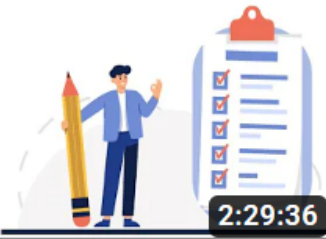
## Geography

Most Complicated Topics

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### TOPICS:

EL NINO & LA NINA, Indian Ocean  
Dipole, Bomb Cycle **and more.**



Maha Video -El Nino Modoki , La Nina Modoki, Madden Jullien Oscillation , Bomb Cyclone, Jet Streams

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**Q83) Consider the following statements:**

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**Which of the statements given above is/are correct?**

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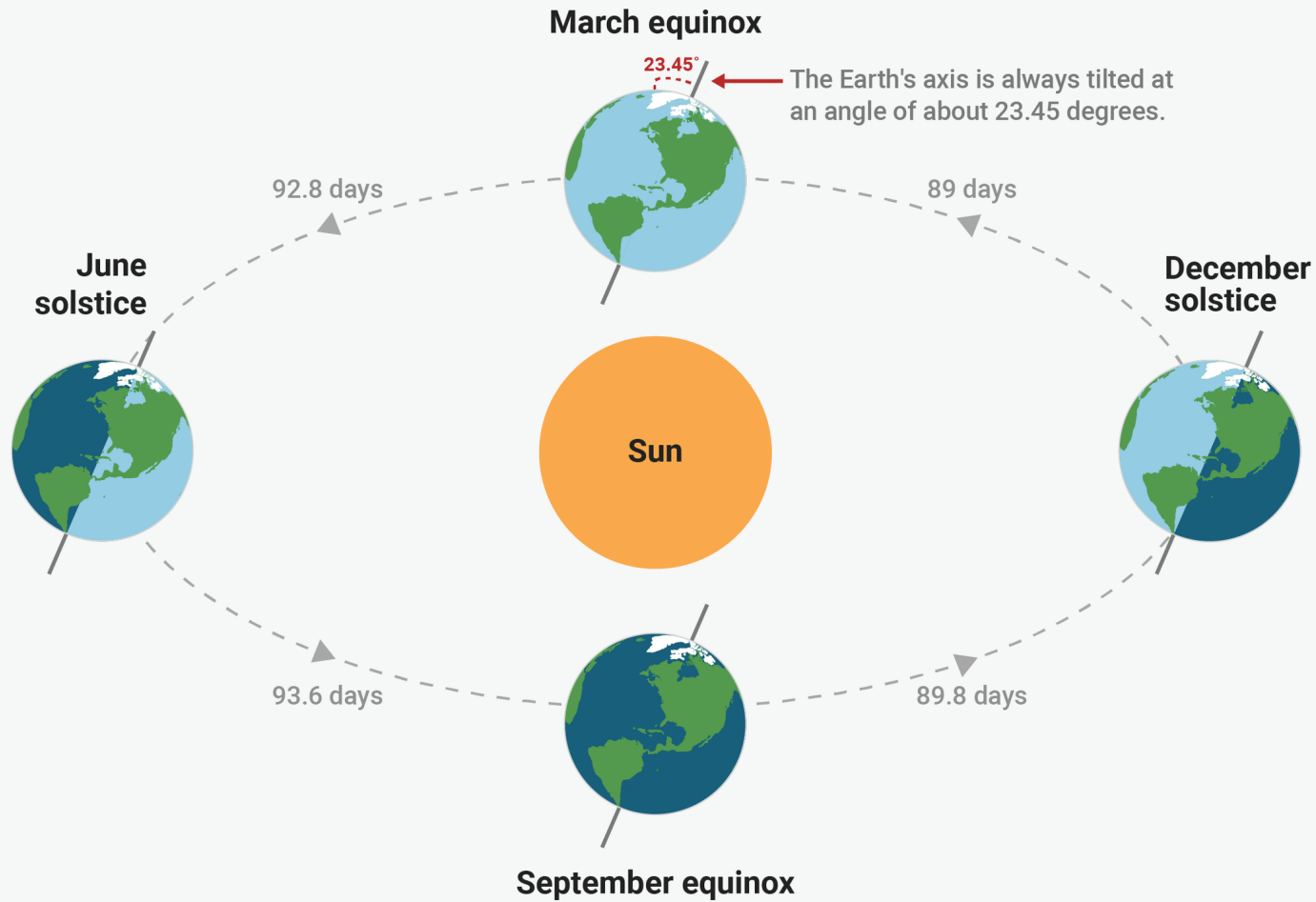
**Q) On 21<sup>st</sup> June, the Sun**

- 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

Q) On 21<sup>st</sup> 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

# Earth's equinoxes and solstices



- The North Pole is inclined towards the sun and the places beyond the Arctic Circle experience continuous daylight for about six months.
- Since a large portion of the Northern Hemisphere is getting light from the sun, it is summer in the regions north of the equator. The longest day and the shortest night at these places occur on 21st June.



Q) On 21<sup>st</sup> 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
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**Q ) 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 low temperature on cloudy nights.
- d) Clouds deflect the blowing wind to ground level.

**Q89 ) Why are dew drops 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 low temperature on cloudy nights.
- d) Clouds deflect the blowing wind to ground level.

Dew is the result of water changing from a vapor to a liquid.

Dew forms as temperatures drop and objects cool down.

But when sky is cloudy ,clouds send the earth s radiation back to ground so the ground never gets cold enough for the dew to form.

**Q.) Why are dew drops 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 low temperature on cloudy nights.
- d) Clouds deflect the blowing wind to ground level.

**Q) With reference to Ocean Mean Temperature (OMT), which of the following statements is/are correct?**

- 1) OMT is measured up to a depth of 26°C isotherm which is 129 meters in the south -western Indian Ocean during January –March.
- 2) OMT collected during January –March can be used in assessing whether the amount of rainfall in monsoon will be less or more than a certain long -term mean.

**Select the correct using the code given below:**

- a) 1 only
- b) 2 only
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- d) Neither 1 nor 2

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c) Both 1 and 2

d) Neither 1 nor 2

- **The Hindu** - Ocean mean temperature can better predict Indian summer monsoon. Compared with SST which has 60% success rate of predicting the Indian summer monsoon, OMT has 80% success rate.
- The energy created by the motion of molecules in the ocean is measured through Ocean Temperature.
- Ocean Mean Temperature(OMT) is measured up to a depth of 26 degrees isotherm. It is measured with the help of satellites that orbit the earth.
- In the Indian ocean, OMT is analyzed by measuring the ocean thermal energy during the period from January to March.
- The 26 degrees isotherm is seen at depths varying from 50-100 meters.
- During January-March, the mean 26 degrees C isotherm depth in the Southwestern Indian Ocean is 59 meters.



- The temperature of the ocean water on the surface is known as Sea Surface Temperature
- Sea surface temperature (SST) is routinely used for predicting whether the total amount of rainfall that India receives during the monsoon season. Compared with SST which has 60% success rate of predicting the Indian summer monsoon, OMT has 80% success rate.
- Ocean mean temperature(OMT) is a better indicator of monsoon rainfall than sea surface temperature (SST) because it measures ocean thermal.
- This worked because the sea surface temperature is restricted to the skin of the ocean which doesn't have the kind of impact as that of the heat content of the upper ocean.

**Q93) With reference to Ocean Mean Temperature (OMT), which of the following statements is/are correct?**

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- 2) OMT collected during January –March can be used in assessing whether the amount of rainfall in monsoon will be less or more than a certain long -term mean.

**Select the correct using the code given below:**

a) 1 only

**b) 2 only**

c) Both 1 and 2

d) Neither 1 nor 2

**Q) Consider the following statements:**

- 1) Jet streams occur in the **Northern Hemisphere only**.
- 2) **Only** some cyclones develop an eye.
- 3) The **temperature** inside the **eye of a cyclone is nearly 10°C lesser** than that of the surroundings.

**Which of the statements given above is/are correct?**

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

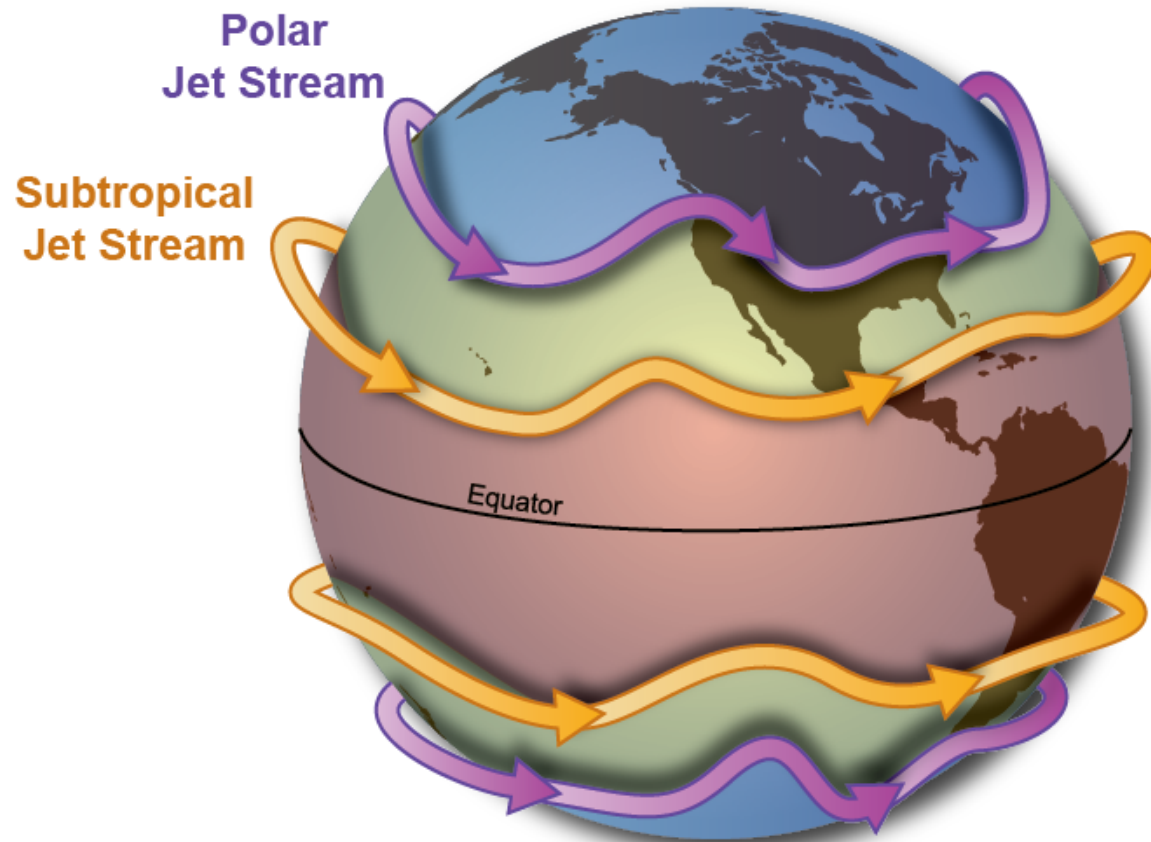
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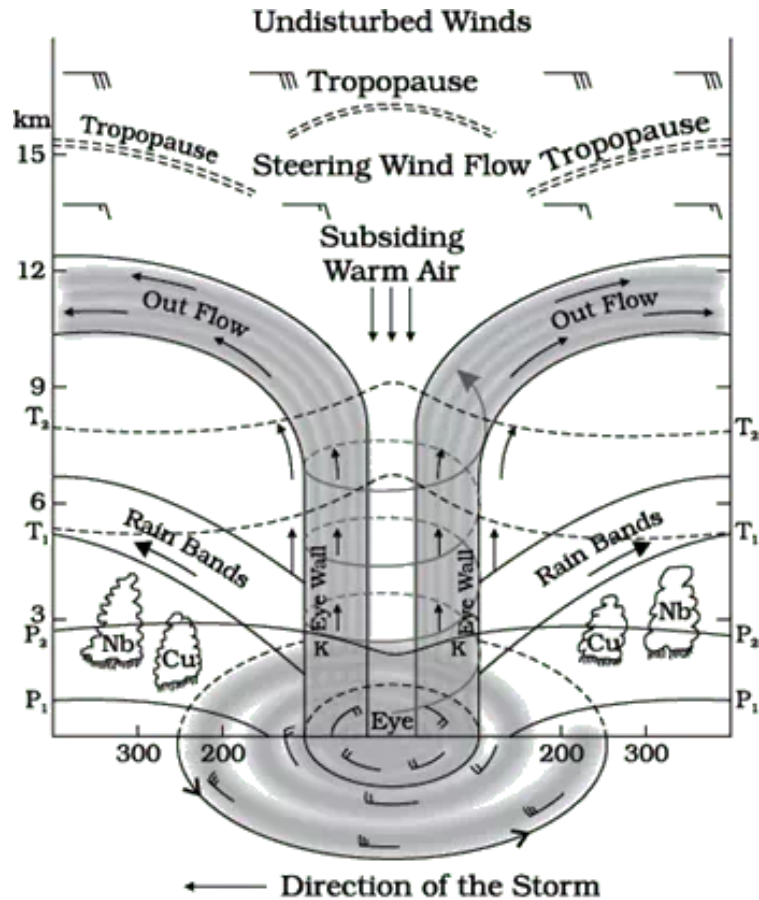
Jet streams occur in both the Northern and Southern Hemispheres.



- Jet streams occur in both the Northern and Southern Hemispheres.
- Extra-tropical cyclones may not always have an eye.
- Eye :It is warmer and not colder for a tropical cyclone. The warmer temperature is what drives the storm

**Note** : Tropical cyclones are characterized and driven by the release of large amounts of latent heat of condensation as moist air is carried upwards and its water vapor condenses. This heat is distributed vertically, around the center of the storm. Thus, at any given altitude (except close to the surface where water temperature dictates air temperature) the environment inside the cyclone is warmer than its outer surroundings.

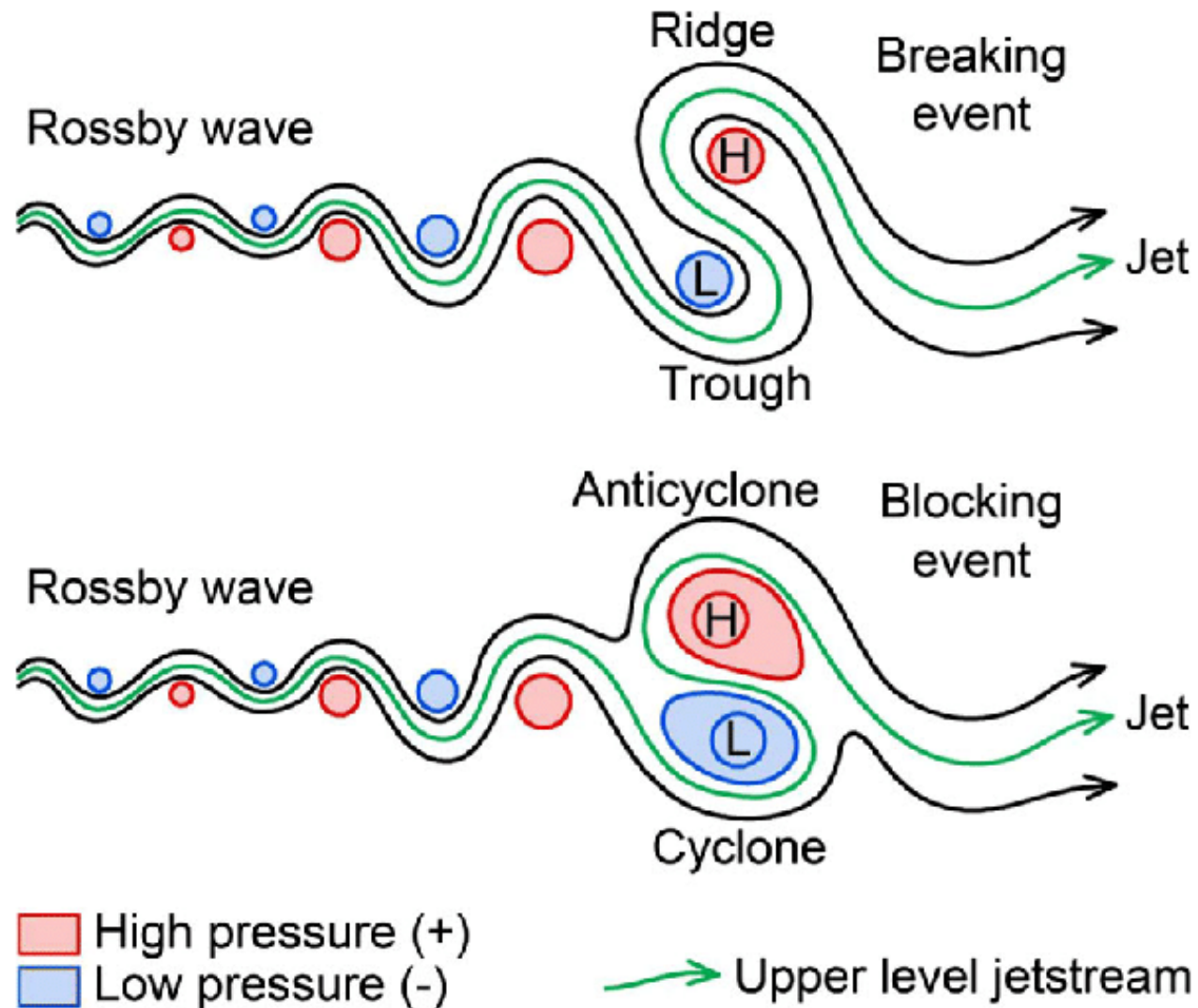
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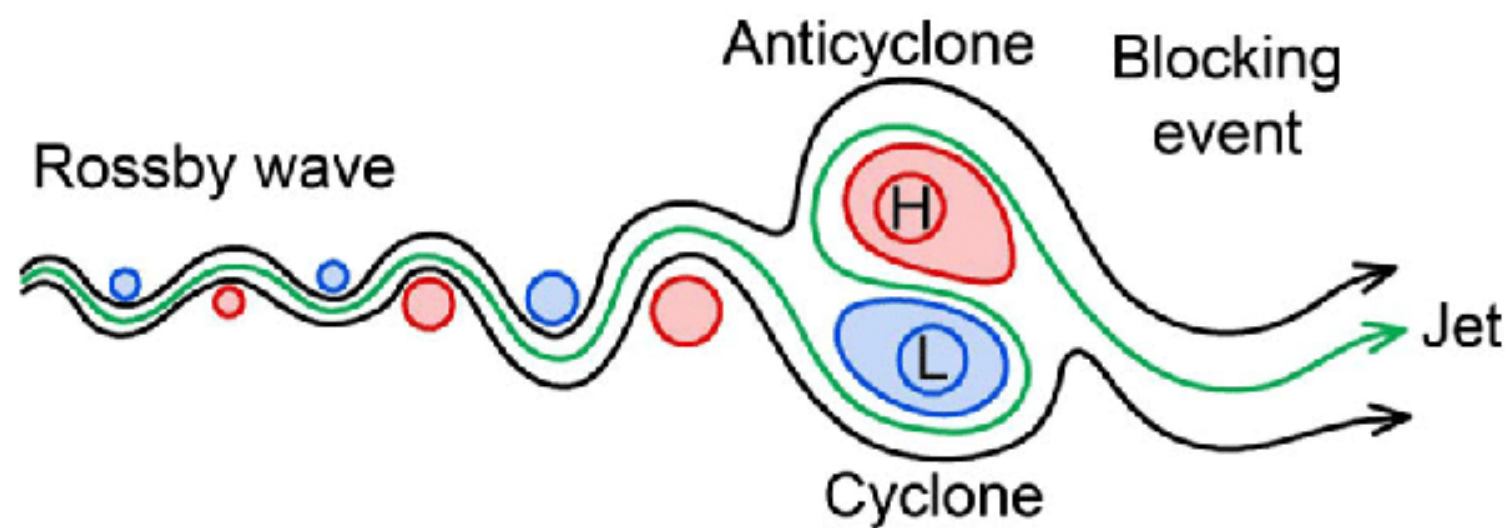
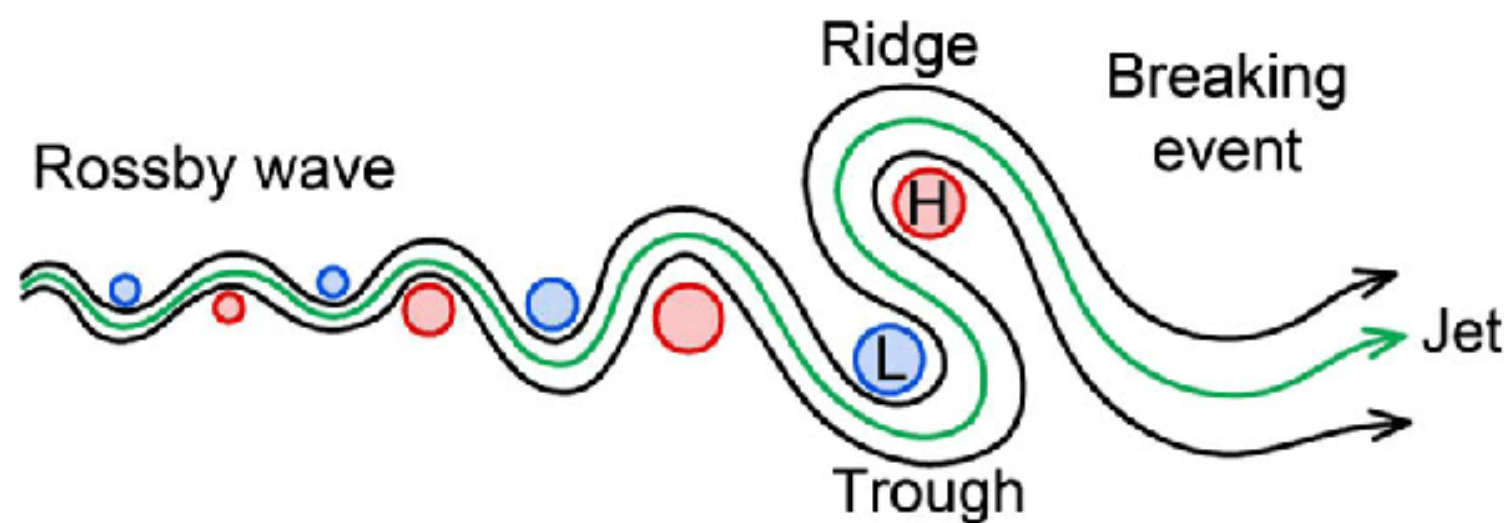
Note: Latent Heat of Condensation

**Fig: Vertical section of the tropical cyclone**

## Additional Information – Jetstreams







High pressure (+)

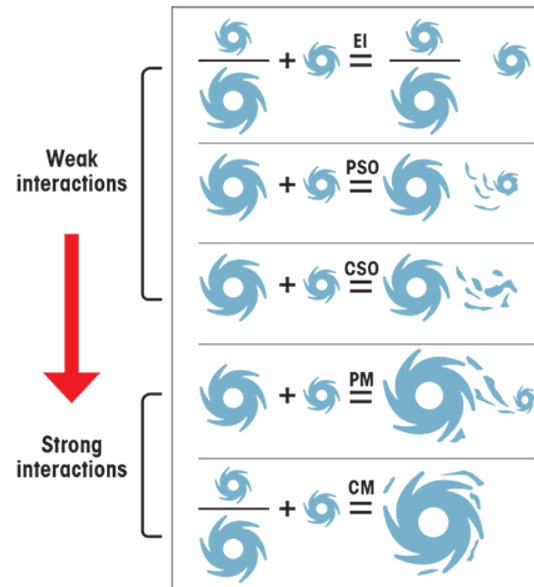
Low pressure (-)

Upper level jetstream

# Medicanes



The Fujiwhara Effect is any interaction between tropical storms formed around the same time in the same ocean region with their centres or eyes at a distance of less than 1,400 km, with intensity that could vary between a depression (wind speed under 63 km per hour) and a super typhoon (wind speed over 209 km per hour).



**Elastic Interaction (EI):** Interaction of vortices (storms) of same or different sizes, resulting in changes only in the direction of motion. This is the most commonly seen interaction

**Partial Straining-Out (PSO):** Interaction of vortices of unequal sizes. Part of the smaller vortex lost to the atmosphere.

**Complete Straining-Out (CSO):** Interaction of vortices of unequal sizes. The smaller vortex completely lost to the atmosphere

**Partial Merger (PM):** Interaction of vortices of unequal sizes. Part of the smaller vortex merged to the bigger vortex

**Complete Merger (CM):** Interaction of vortices of same or different sizes, resulting in complete merger of both the storms

**Q) Consider the following statements:**

- 1) Jet streams occur in the Northern Hemisphere only.
- 2) Only some cyclones develop an eye.
- 3) The temperature inside the eye of a cyclone is nearly  $10^{\circ}\text{C}$  lesser than that of the surroundings.

**Which of the statements given above is/are correct?**

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

**Q. Westerlies in southern hemisphere are stronger and persistent than in northern hemisphere. Why?**

1. Southern hemisphere has less landmass as compared to northern hemisphere.
2. Coriolis force is higher in southern hemisphere as compared to northern hemisphere

**Which of the statements given above is/are correct?**

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**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



# *Southern Hemisphere*



- Coriolis force acts identically in both the Hemispheres.
- Due to less landmass, the winds experience a lesser frictional force in the Southern Hemisphere compared to the Northern Hemisphere.



**Q. Westerlies in southern hemisphere are stronger and persistent than in northern hemisphere. Why?**

1. Southern hemisphere has less landmass as compared to northern hemisphere.
2. Coriolis force is higher in southern hemisphere as compared to northern hemisphere

**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

**Q. What could be the main reason/reasons of the formation of African and Eurasian desert belt?**

1. It is located in the sub-tropical high pressure cells.
2. It is under the influence of warm ocean currents.

**Which of the statements given above is/are correct in this context?**

- a) 1 only
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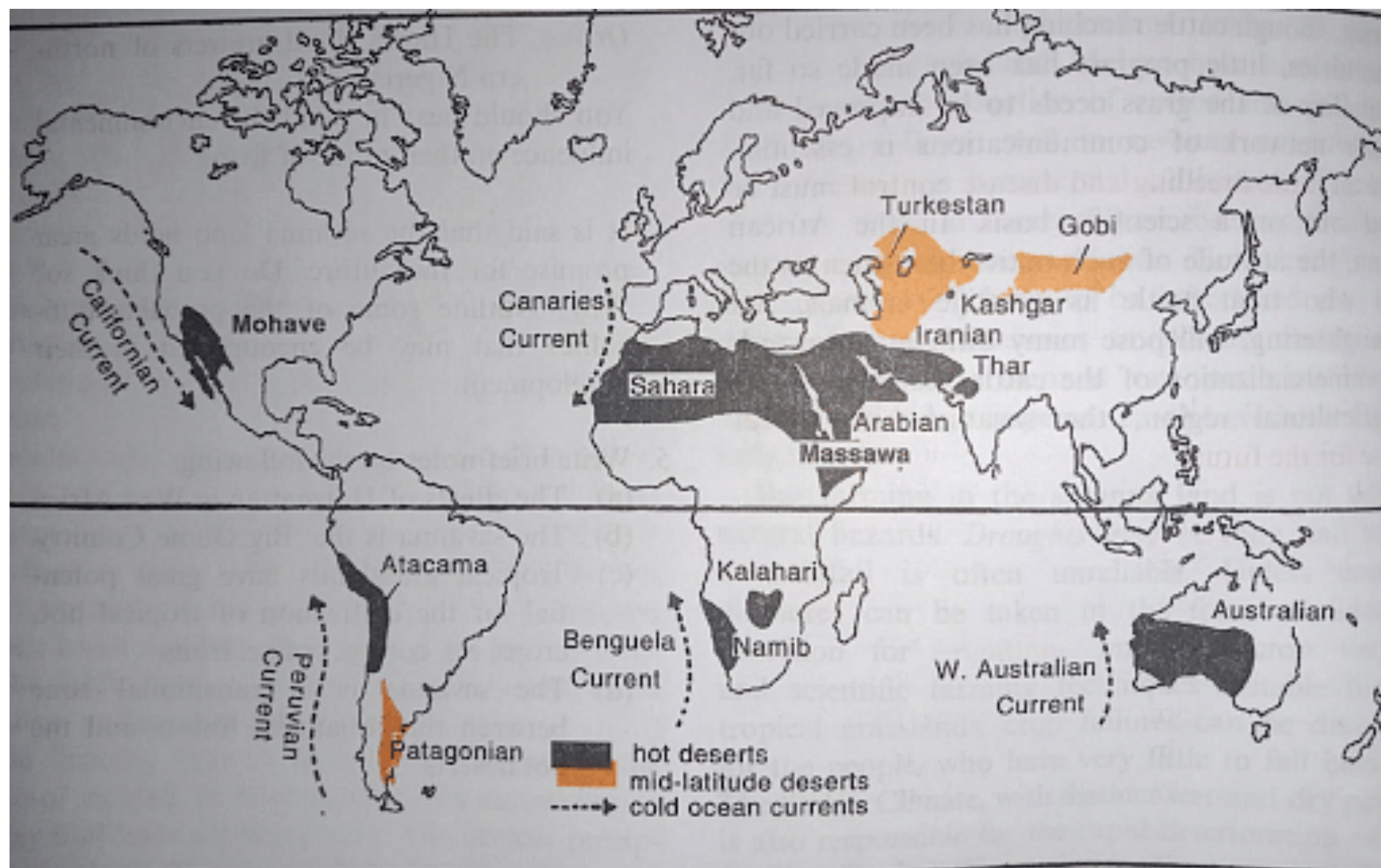
**Which of the statements given above is/are correct in this context?**

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

- The main reason for the formation of African and Eurasian desert belt is that it is located in the subtropical high pressure cells.
- It is under the influence of cold currents, which leads to higher aridity.

# THE HOT DESERT AND MID - LATITUDE DESERT CLIMATE

# The Hot Desert and Mid - Latitude Desert Climate

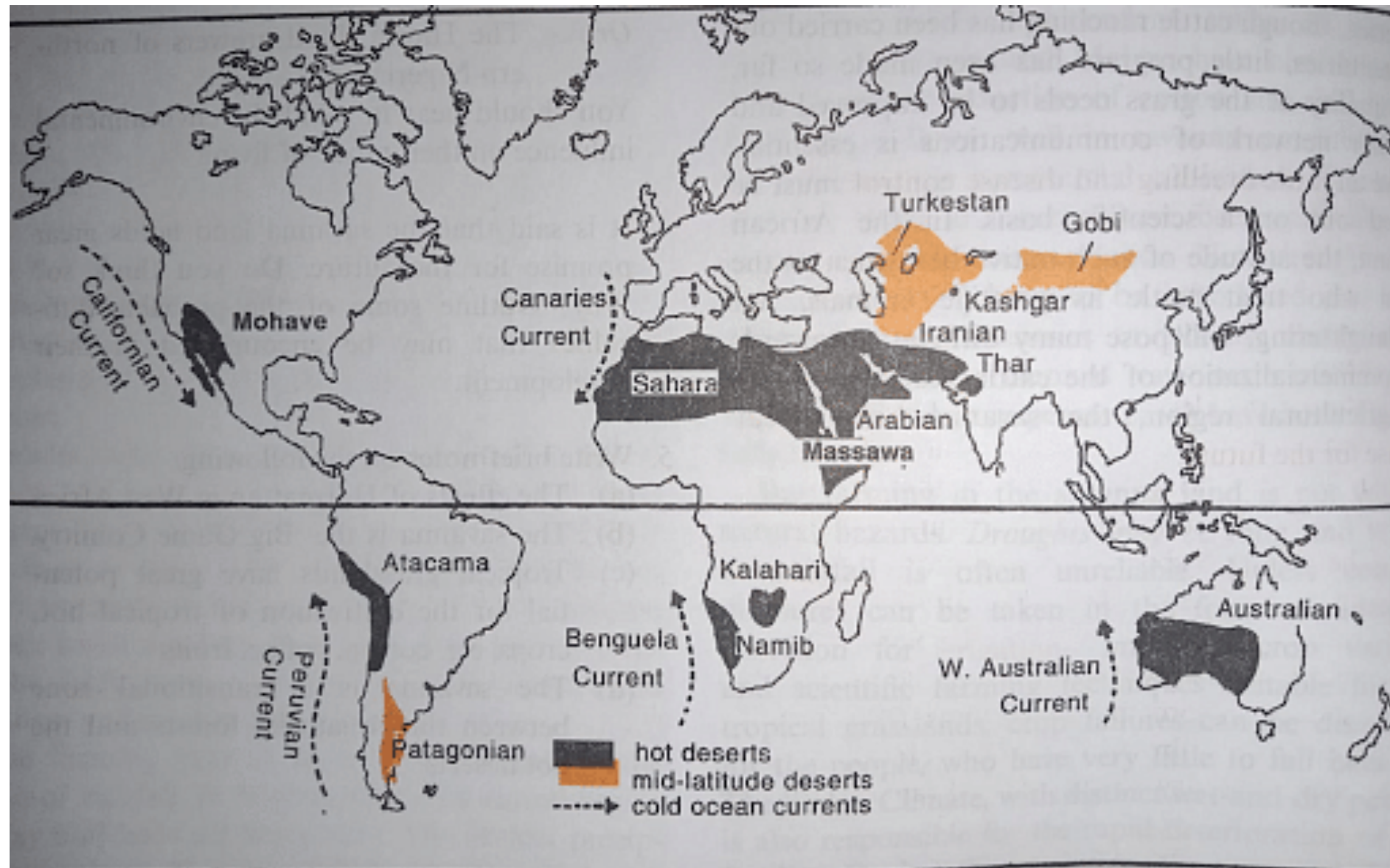


COLD ZONE	<u>Arctic or Polar Type</u> Tundra vegetation, mosses, lichens			90°
	<hr/>			65° N
COOL TEMPERATE ZONE	Western Margin <u>British type</u> Deciduous forests	Central Continent <u>Siberian type</u> Evergreen, coniferous forests	Eastern Margin <u>Laurentian type</u> Mixed forests	45° N
	<u>Mediterranean type</u> Mediterranean Forests & shrubs	<u>Steppe type</u> Steppe temperate grassland	<u>China type</u> Warm wet forests	30° N
HOT ZONE	<hr/>			10° N
	<u>Hot desert</u> Desert vegetation	<u>Sudan type</u> Savanna, tropical grassland	<u>Monsoonal type</u> Monsoon forests	0°
EQUATORIAL ZONE	<u>Hot Wet Equatorial Climate</u> Equatorial rain forests			0°

*Image of Arctic or Polar Type*

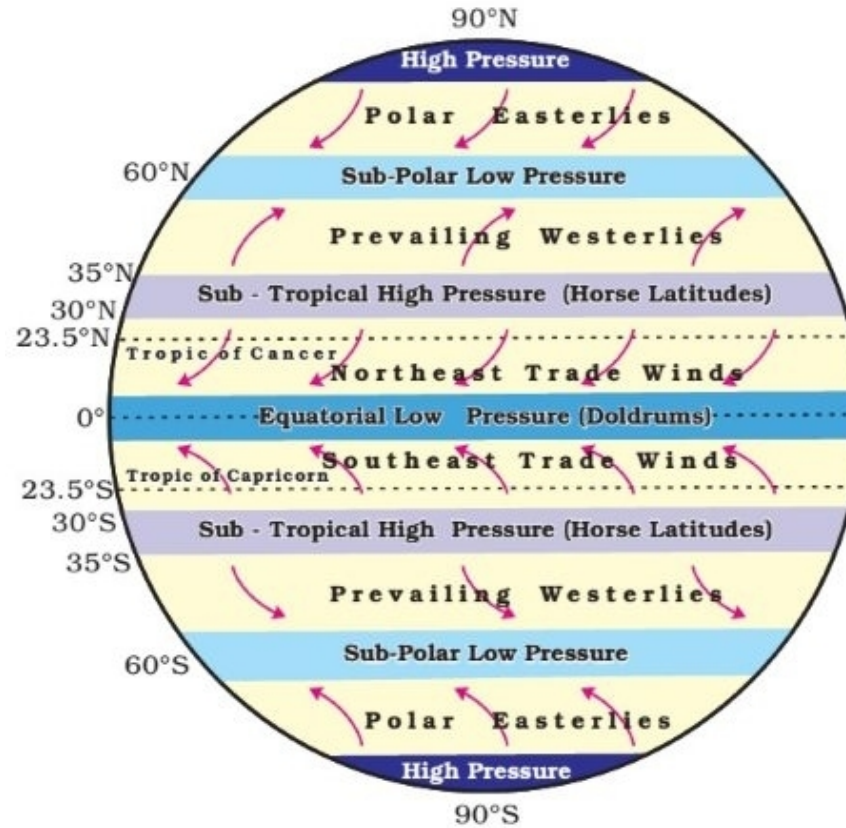


# Hot Deserts – Sub Tropical High Pressure Belt



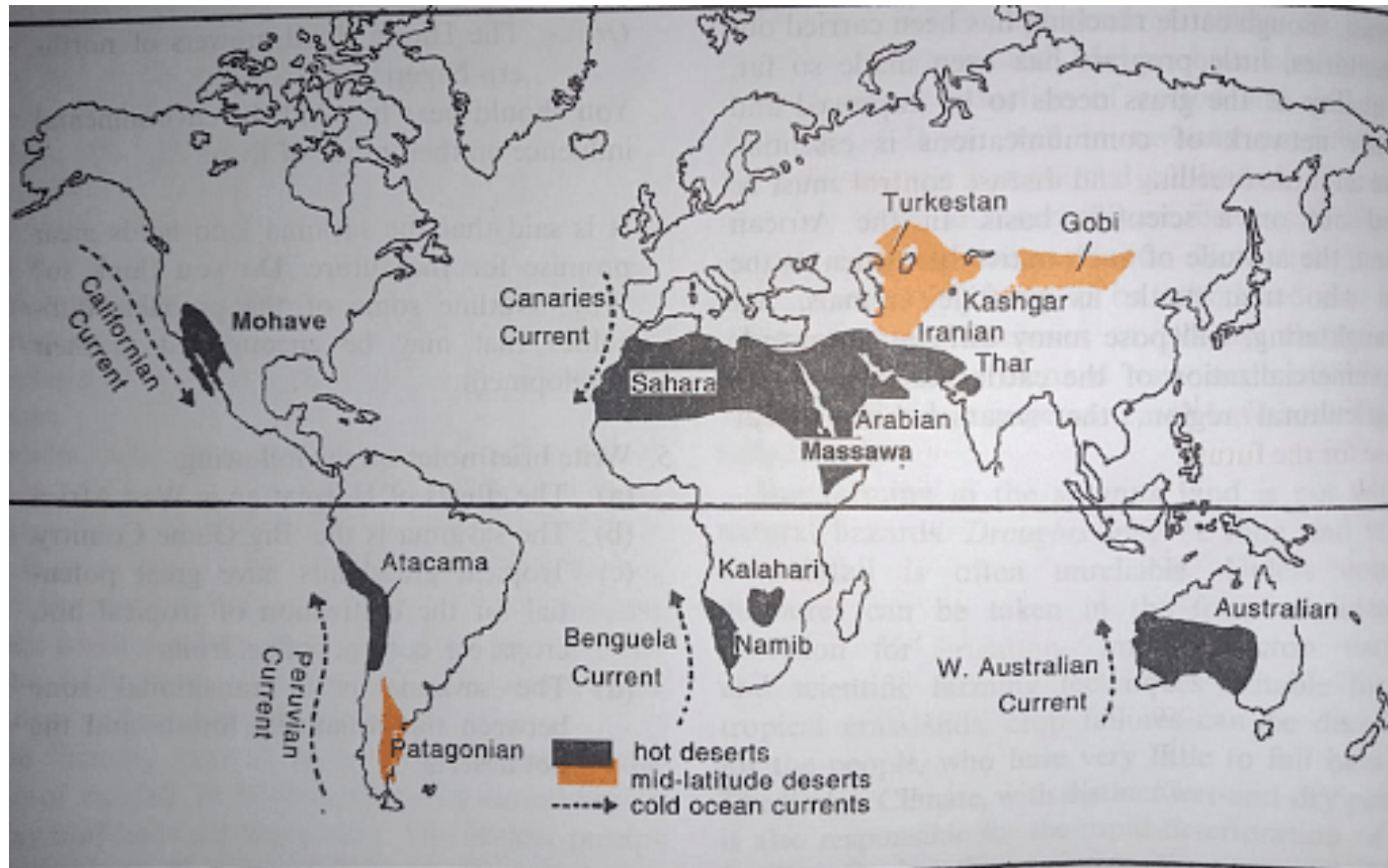


# Hot Deserts – Sub Tropical High Pressure Belt

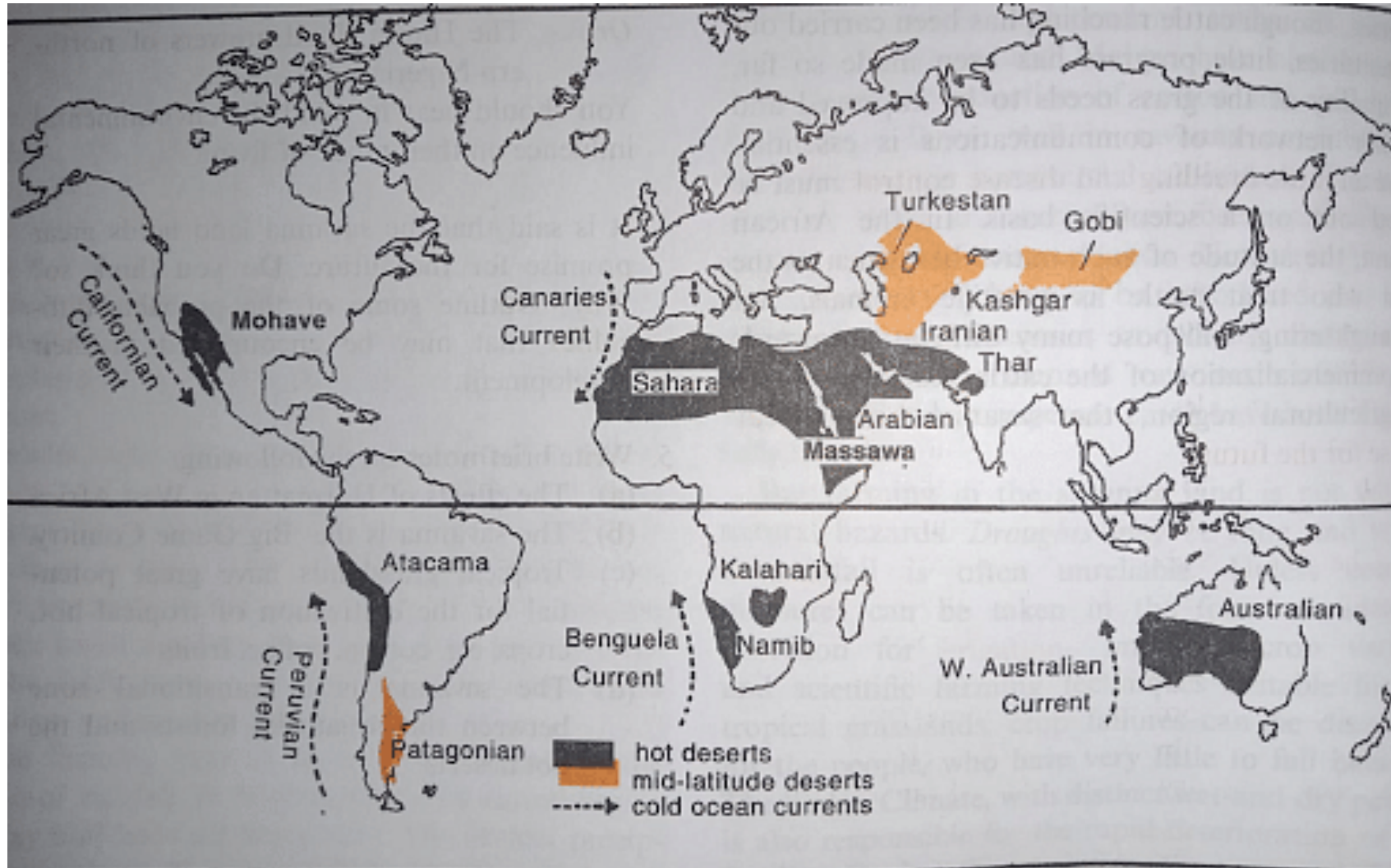


*Major Pressure Belts and Wind System*

## Hot Deserts – Cold Currents

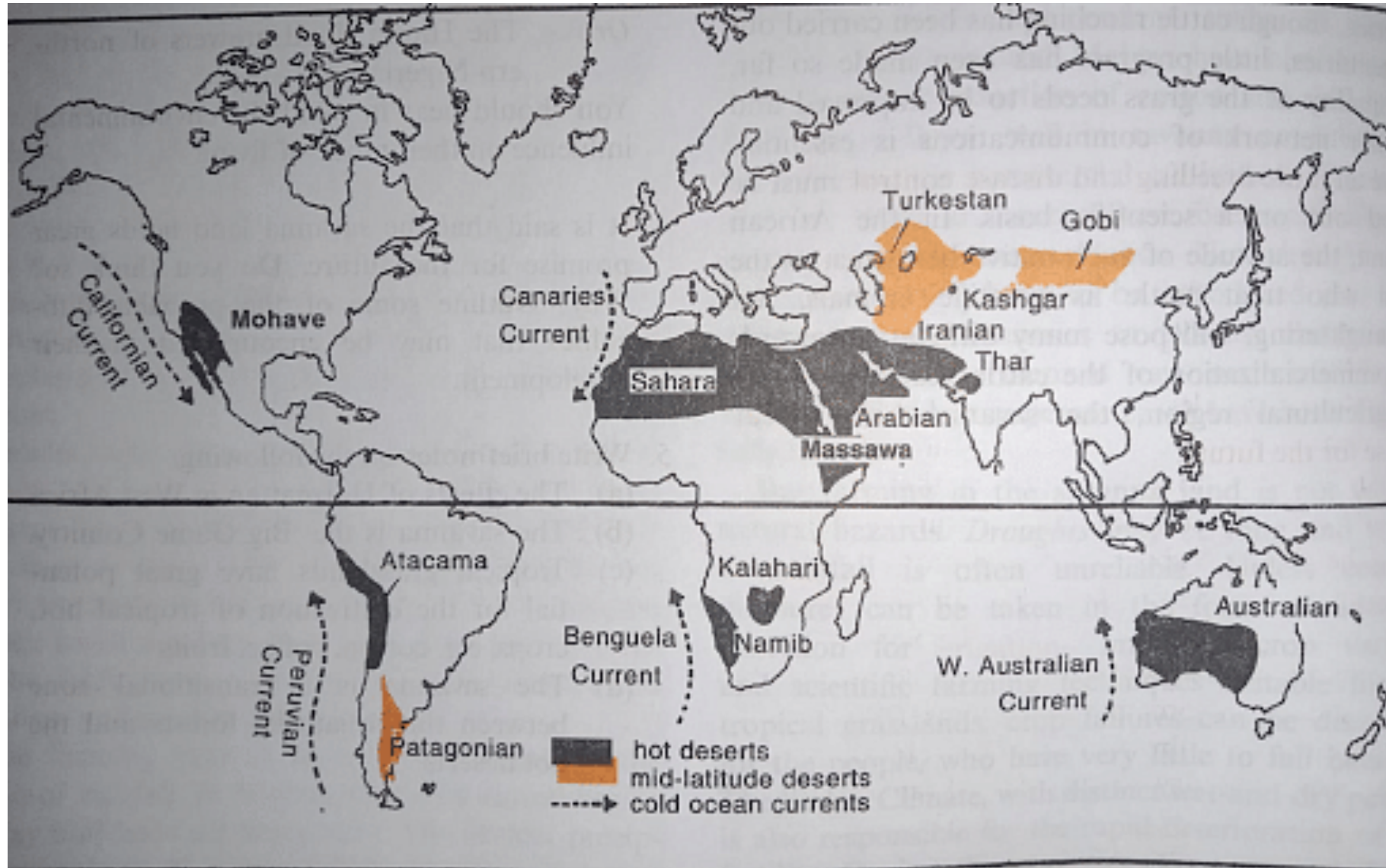


## Mid Latitude Deserts - Continentality - Considerable Distance from Sea and surrounded by Mountain Ranges





# Mid Latitude Deserts – Leeward Side of Continents



**Q. What could be the main reason/reasons of the formation of African and Eurasian desert belt?**

1. It is located in the sub-tropical high pressure cells.
2. It is under the influence of warm ocean currents.

**Which of the statements given above is/are correct in this context?**

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

- The main reason for the formation of African and Eurasian desert belt is that it is located in the subtropical high pressure cells.
- It is under the influence of cold currents, which leads to higher aridity.

Q. The jet aircrafts fly very easily and smoothly in the lower stratosphere. What could be the appropriate explanation?

1. There are no clouds or water vapour in the lower stratosphere.
2. There are no vertical winds in the lower stratosphere.

**Which of the statements given above is/are correct in this context?**

- a) 1 only
- b) 2 only
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Q. The jet aircrafts fly very easily and smoothly in the lower stratosphere. What could be the appropriate explanation?

1. There are no clouds or water vapour in the lower stratosphere.
2. There are no vertical winds in the lower stratosphere.

**Which of the statements given above is/are correct in this context?**

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



- The clouds and water vapour are limited to the troposphere. They are not present in the stratosphere.
- Lower stratosphere, unlike the troposphere, is also free from any vertical winds.

Q.) “Leaf litter decomposes faster than in any other biome and as a result the soil surface is often almost bare. Apart from trees, the vegetation is largely composed of plant forms that reach up into the canopy vicariously, by climbing the trees or growing as epiphytes, rooted on the upper branches of trees.” This is the most likely description of

- a) coniferous forest
- b) dry deciduous forest
- c) mangrove forest
- d) tropical rain forest

Q.) “Leaf litter decomposes faster than in any other biome and as a result the soil surface is often almost bare. Apart from trees, the vegetation is largely composed of plant forms that reach up into the canopy vicariously, by climbing the trees or growing as epiphytes, rooted on the upper branches of trees.” This is the most likely description of

- a) coniferous forest
- b) dry deciduous forest
- c) mangrove forest
- d) tropical rain forest**

- The hot and humid conditions make these rainforests an ideal environment for bacteria and other microorganisms , they quickly decompose matter on the forest floor. In other biomes, such as the deciduous forest, the decomposition of leaf litter adds nutrients to the soil. But in the tropical rainforest, plants grow so fast that they rapidly consume the nutrients from the decomposed leaf litter. As a result, most of the nutrients are contained in the trees and other plants rather than in the soil.
- Epiphytes - these are plants which live on the branches of trees high up in the canopy. They get their nutrients from the air and water, not from the soil.

**Q. In the northern hemisphere, the longest day of the year normally occurs in the :**

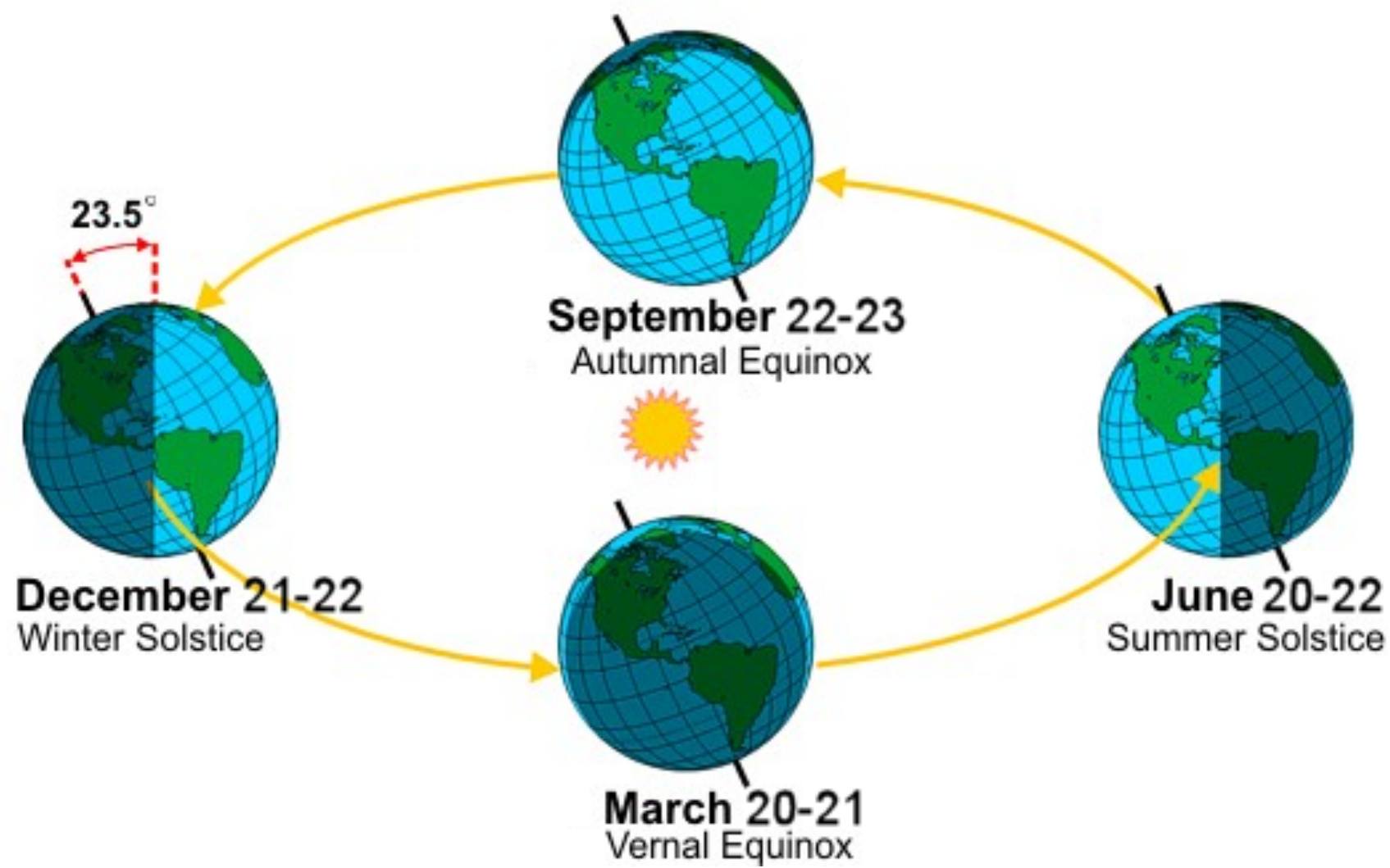
- a) First half of the month of June
- b) Second half of the month of June
- c) First half of the month of July
- d) Second half of the month of July

Q. In the northern hemisphere, the longest day of the year normally occurs in the :

- a) First half of the month of June
- b) Second half of the month of June**
- c) First half of the month of July
- d) Second half of the month of July

**The summer solstice, also known as estival solstice or midsummer, occurs when one of Earth's poles has its maximum tilt toward the Sun**

During the Northern Hemisphere's summer solstice — which always falls around June 21 — the Southern Hemisphere gets its winter solstice.





**Q. Consider the following statements:**

1. High clouds primarily reflect solar radiation and cool the surface of the Earth.
2. Low clouds have a high absorption of infrared radiation emanating from the Earth's surface and thus cause warming effect.

**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

**Q. Consider the following statements:**

1. High clouds primarily reflect solar radiation and cool the surface of the Earth.
2. Low clouds have a high absorption of infrared radiation emanating from the Earth's surface and thus cause warming effect.

**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**

- **Statement 1 is not correct:** Low, thick clouds primarily reflect solar radiation and cool the surface of the Earth.
- **Statement 2 is not correct:** High, thin clouds primarily transmit incoming solar radiation; at the same time, they trap some of the outgoing infrared radiation emitted by the Earth and radiate it back downward, thereby warming the surface of the Earth.

**Q. Consider the following statements:**

1. High clouds primarily reflect solar radiation and cool the surface of the Earth.
2. Low clouds have a high absorption of infrared radiation emanating from the Earth's surface and thus cause warming effect.

**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**

# OCEANOGRAPHY

**Q) Consider the following factors:**

1. Rotation of the Earth
2. Air pressure and wind
3. Density of ocean water
4. Revolution of the Earth

**Which of the above factors influence the ocean currents?**

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

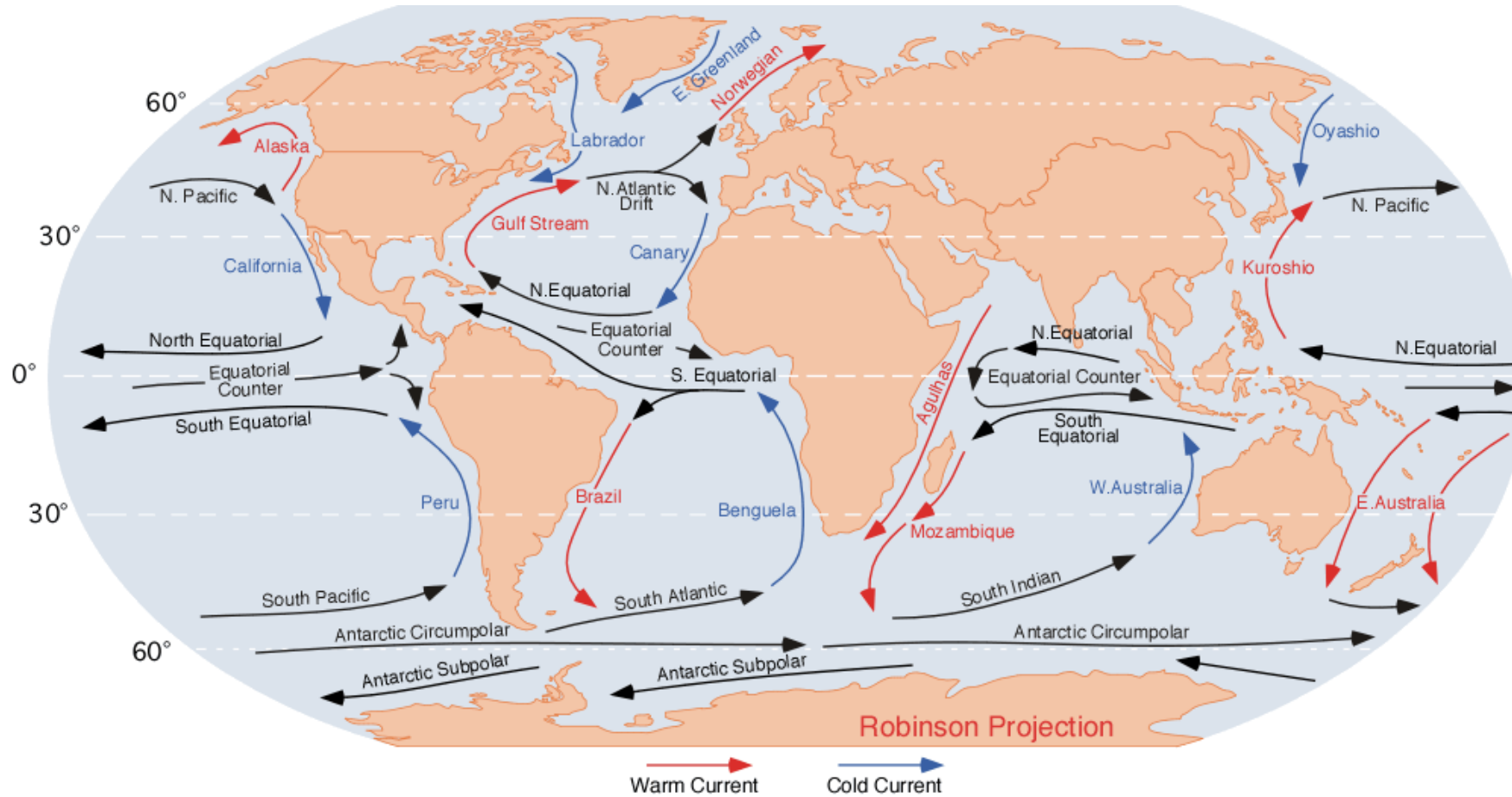
**Q4) Consider the following factors:**

1. Rotation of the Earth
2. Air pressure and wind
3. Density of ocean water
4. Revolution of the Earth

**Which of the above factors influence the ocean currents?**

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

# Ocean Currents





- Factors affecting Ocean Currents
- Let us understand with relevant examples

### I. Salinity difference :

Point - area of high salinity will have a greater density than the area of low salinity.

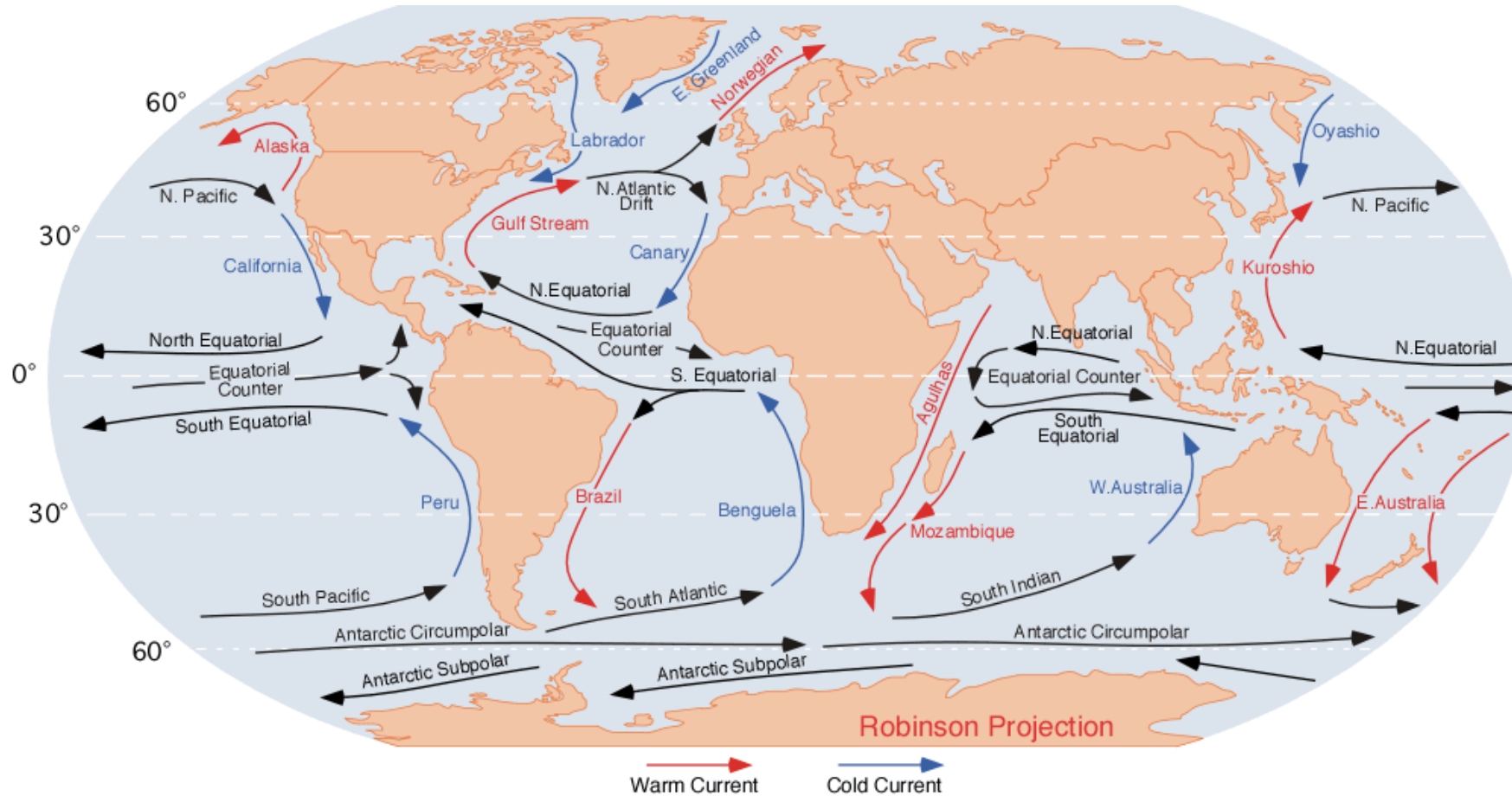
### I. Density :

Point : Denser water tends to sink, while relatively lighter water tends to rise.

### I. Physiography:

Example : Atlantic South Equatorial Current travels westward along the equator until it reaches South America. At Brazil, some of it goes north and some goes south.

# Ocean Currents



- Factors affecting Ocean Currents
- Let us understand with relevant examples

### I. Atmospheric Pressure and Planetary Winds :

Example - Gulf Stream in the Atlantic and the Kuroshio in the Pacific move in northeastern direction under the influence of the westerlies.

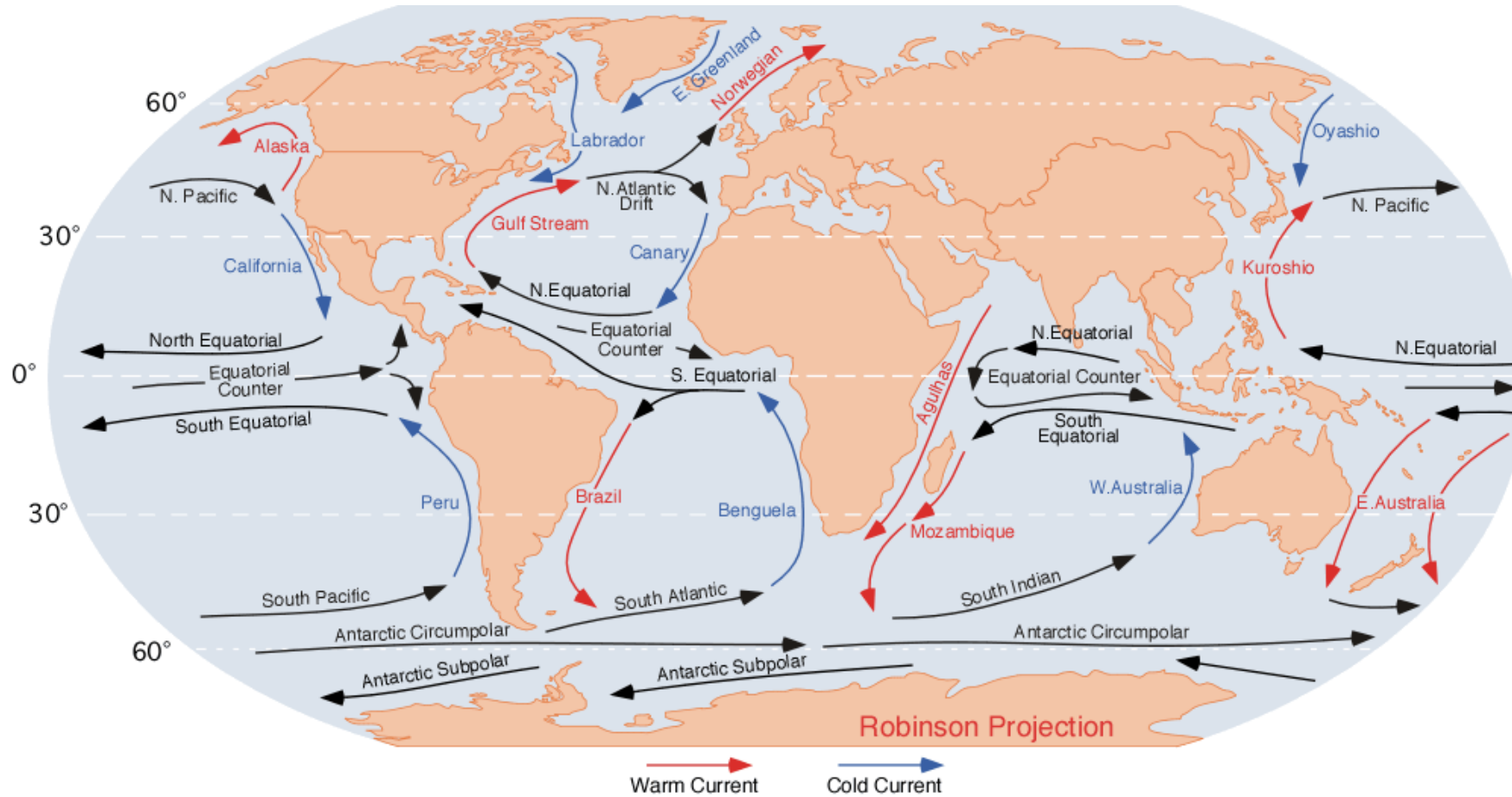
### I. Coriolis Force - Rotation of the Earth :

Point - Clockwise direction in the northern hemisphere and in Anti-Clockwise direction in the southern hemisphere

### I. Temperature difference :

Example : Equator the ocean water is about 8 cm higher in level than in the Middle latitudes.

# Ocean Currents



**Q) Consider the following factors:**

1. Rotation of the Earth
2. Air pressure and wind
3. Density of ocean water
4. Revolution of the Earth

**Which of the above factors influence the ocean currents?**

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- c) 1 and 4
- d) 2, 3 and 4

**Q) The most important fishing grounds of the world are found in the regions where**

- a) Warm and cold atmospheric currents meet
- b) Rivers drain out large amounts of freshwater into the sea
- c) Warm and cold oceanic currents meet
- d) Continental shelf is undulating

Q) The most important fishing grounds of the world are found in the regions where

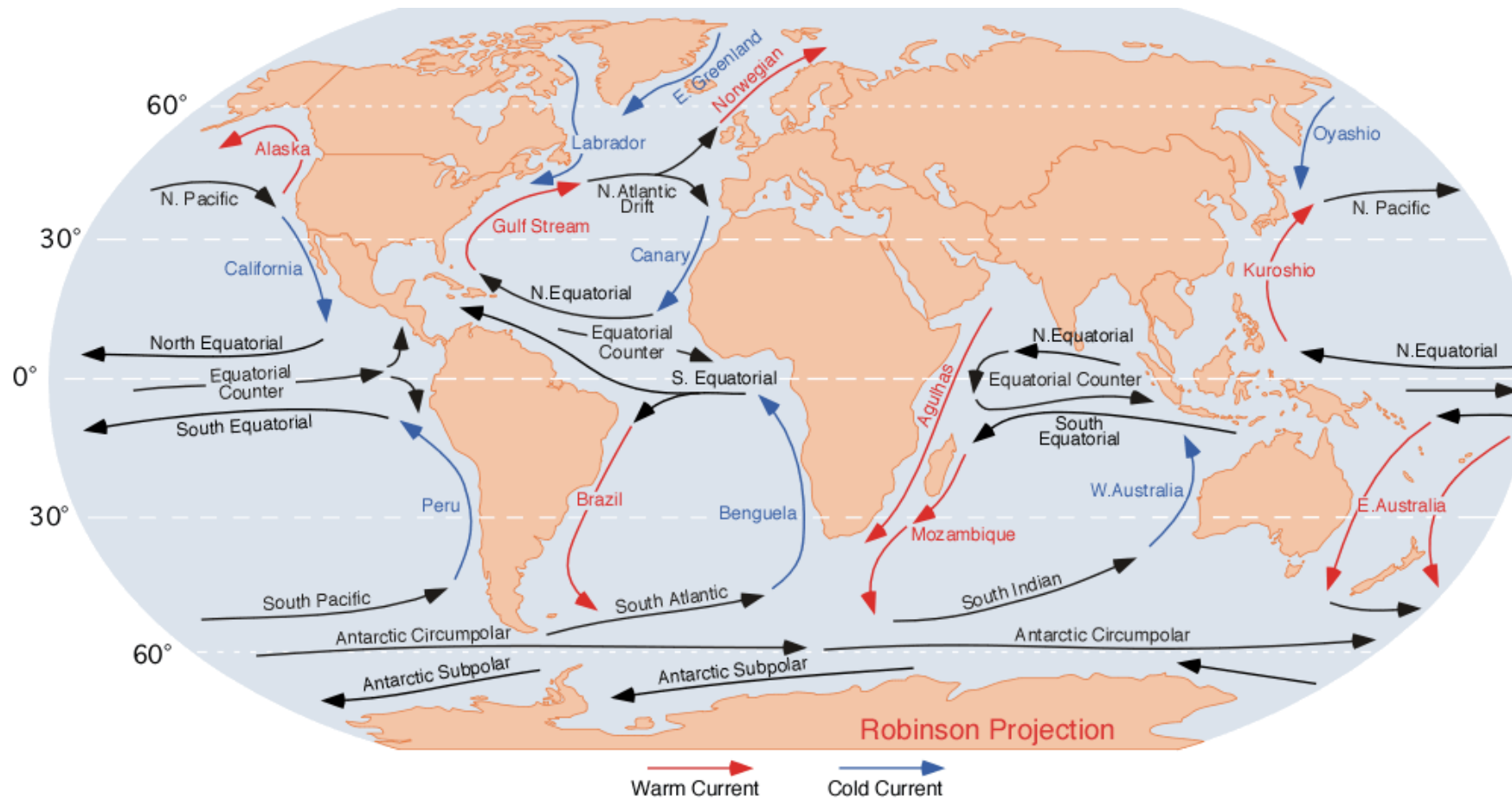
- a) Warm and cold atmospheric currents meet
- b) Rivers drain out large amounts of freshwater into the sea
- c) Warm and cold oceanic currents meet**
- d) Continental shelf is undulating

- Planktons are abundant where warm and cold currents meet. That make these areas important fishing grounds of the world.

- **Note : Best fishing Zones**

- Oyoshio – Kuroshio Current
- Brazilian – Falkland Current
- Labrador – Gulf Stream – New Foundland
- **Still Water** – Gyres – North Atlantic Ocean





- Additional Information :
- Phytoplanktons need both sunlight and nutrients (such as nitrate and phosphate) to be able to photosynthesize.
- Sunlight is only available in the uppermost layers.
- During photosynthesis, the nutrients are quickly used up by phytoplankton so they are not available for long periods in the upper layers under normal circumstances.
- This is indeed the case in tropical waters, and as a result they are very unproductive.
- To escape this problem the seawater needs to be mixed regularly to bring the nutrient rich deep waters up to the sunlight zone where the phytoplankton can grow.
- This is one of the reasons why cold and warm currents convergence zones [mixing happens – the collision of currents causes mixing] and upwelling zones are very productive.
- Furthermore, in surroundings where atmospheric temperatures are often colder than oceanic temperatures, the top layers of the ocean are cooled by the atmosphere.
- This increases the density of the surface waters and causes them to sink and therefore causes mixing [nutrient deficient water sinks and nutrient rich water is upwelled].
- Both of these factors play a role in Icelandic waters, resulting in the very productive ocean environment around Iceland.

Q) The most important fishing grounds of the world are found in the regions where

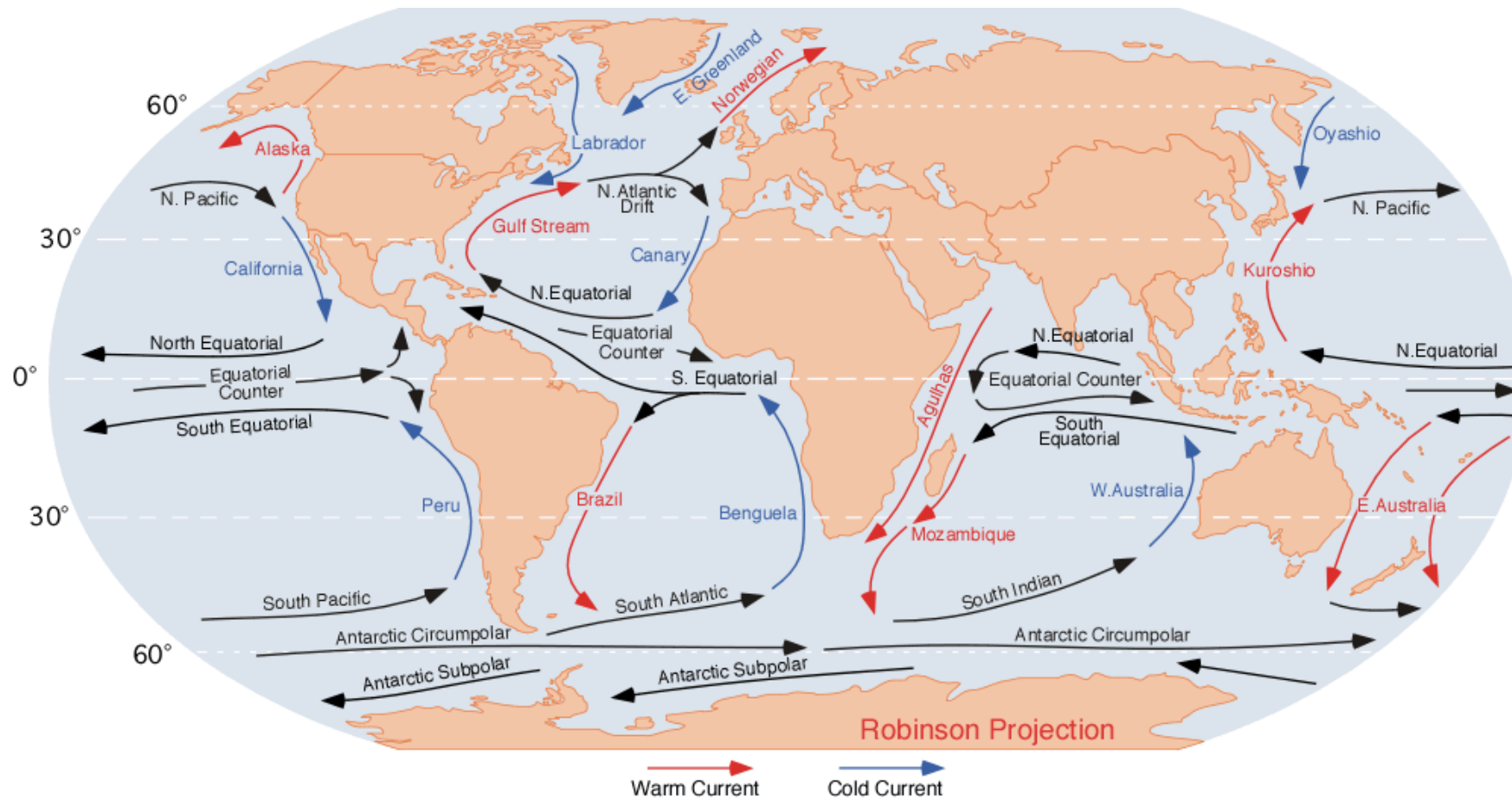
- a) Warm and cold atmospheric currents meet
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**Q) What explains the eastward flow of the equatorial countercurrent?**

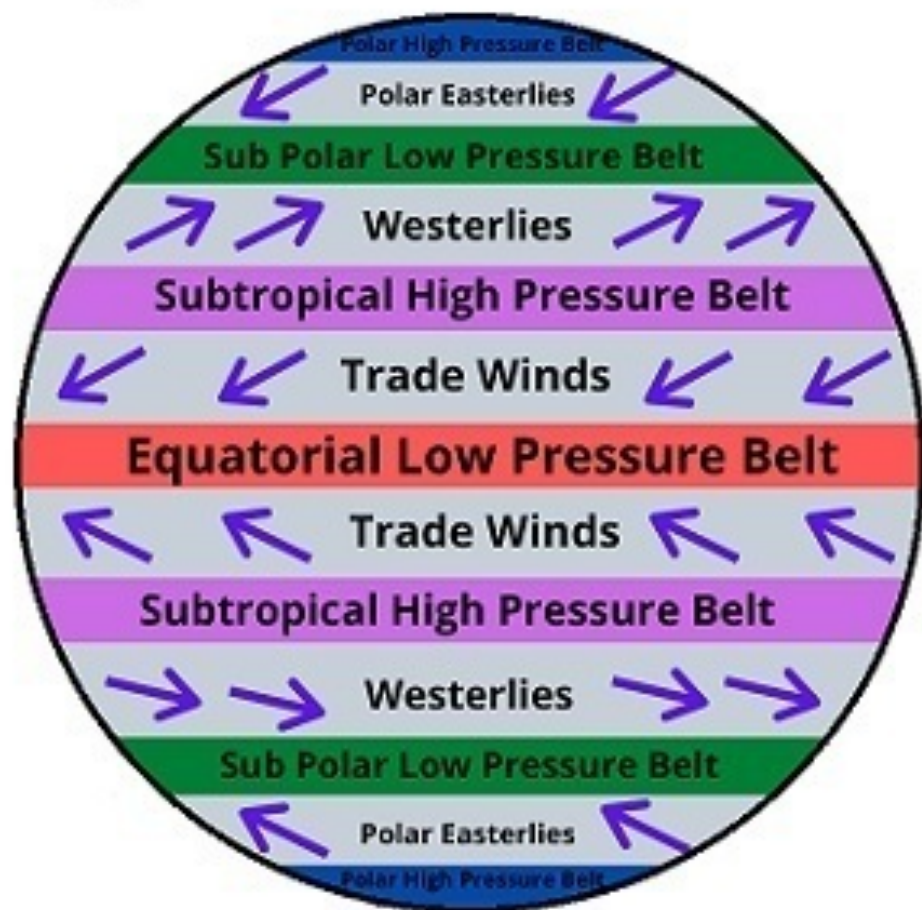
- a) The Earth's rotation on its axis
- b) Convergence of the two equatorial currents
- c) Difference in salinity of water
- d) Occurrence of the belt of calm near the equator

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## Pressure Belts and Planetary Winds



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- 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



**Q) Tides occur in the oceans and seas due to which among the following?**

- 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:**

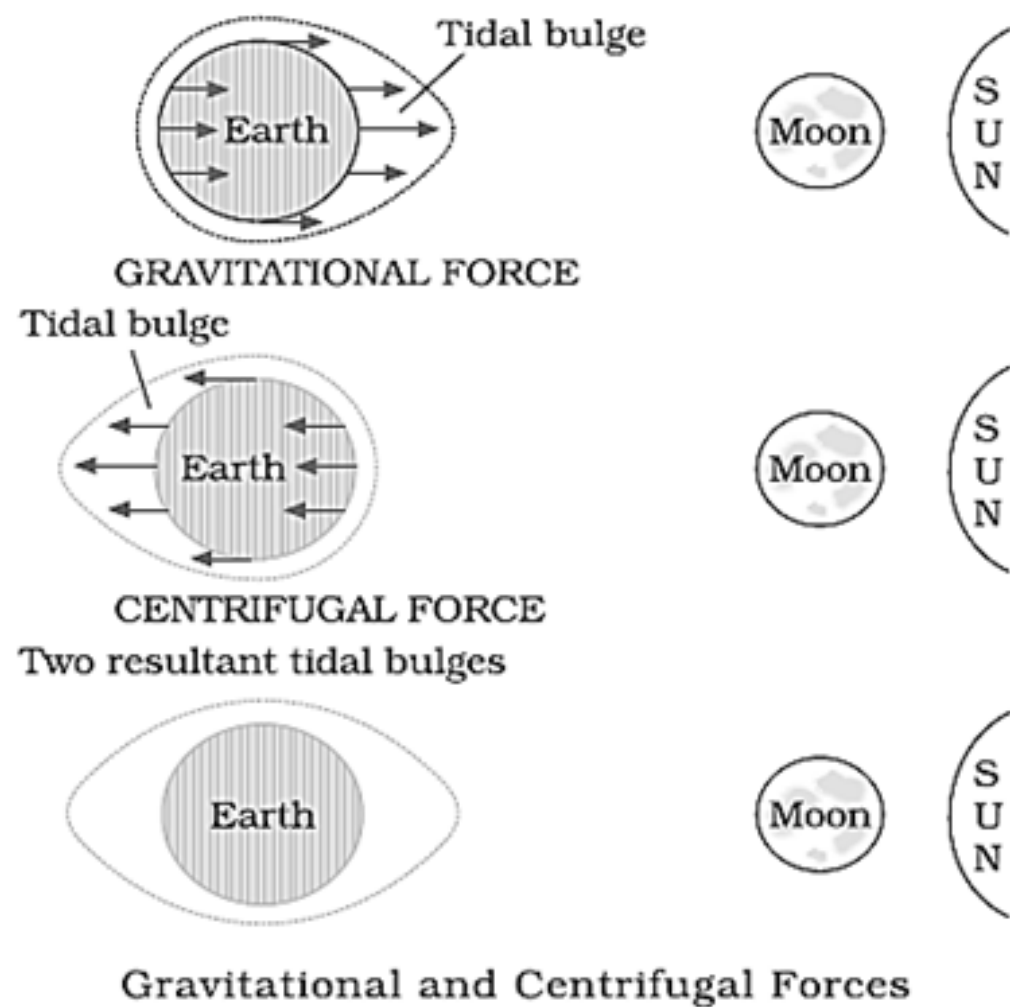
- a) 1 only
- b) 2 and 3 only
- c) 1 and 3 only
- d) 1, 2 and 3

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- 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**



**Figure 14.2 : Relation between gravitational forces and tides**

- The periodical rise and fall of the sea level, once or twice a day ,mainly due to attraction of Sun and Moon.
- Another factor is centrifugal force, which is the force that acts to counter balance the gravity.

## Additional Information :

- Semidiurnal Tide - These are tides occurring twice a day.
- Diurnal Tide - These tides occur once a day.
- Mixed Tide - where a single low tide follows two high tides.

**Q) Tides occur in the oceans and seas due to which among the following?**

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- 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**

**Q) With reference to the water on the planet Earth, consider the following statements:**

- 1) The amount of water in the rivers and lakes is more than the amount of groundwater.**
- 2) The amount of water in polar ice caps and glaciers is more than the amount of groundwater.**

**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

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**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



**Table 13.1 : Water on the Earth's surface**

<i>Reservoir</i>	<i>Volume (Million Cubic km )</i>	<i>Percentage of the Total</i>
Oceans	1,370	97.25
Ice Caps and Glaciers	29	2.05
Groundwater	9.5	0.68
Lakes	0.125	0.01
Soil Moisture	0.065	0.005
Atmosphere	0.013	0.001
Streams and Rivers	0.0017	0.0001
Biosphere	0.0006	0.00004

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**Q. The 2004 Tsunami made people realize that mangroves can serve as a reliable safety hedge against coastal calamities. How do mangroves function as a safety hedge?**

- a) The mangrove swamps separate the human settlements from the sea by a wide zone in which people neither live nor venture out
- b) The mangroves provide both food and medicines which people are in need of after any natural disaster.
- c) The mangrove trees are tall with dense canopies and serve as an excellent shelter during a cyclone or tsunami
- d) The mangrove trees do not get uprooted by storms and tides because of their extensive roots

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- d) The mangrove trees do not get uprooted by storms and tides because of their extensive roots**

- The vast mangrove forests on the seaward side of an estuary act as a barrier for the coastal habitat to check the wind speed during cyclones and high velocity landward winds.



**Q.) Consider the following statements:**

1. In the tropical zone, the western sections of the oceans are warmer than the eastern sections owing to the influence of trade winds.
2. In the temperate zone, westerlies make the eastern sections of oceans warmer than the western sections.

**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

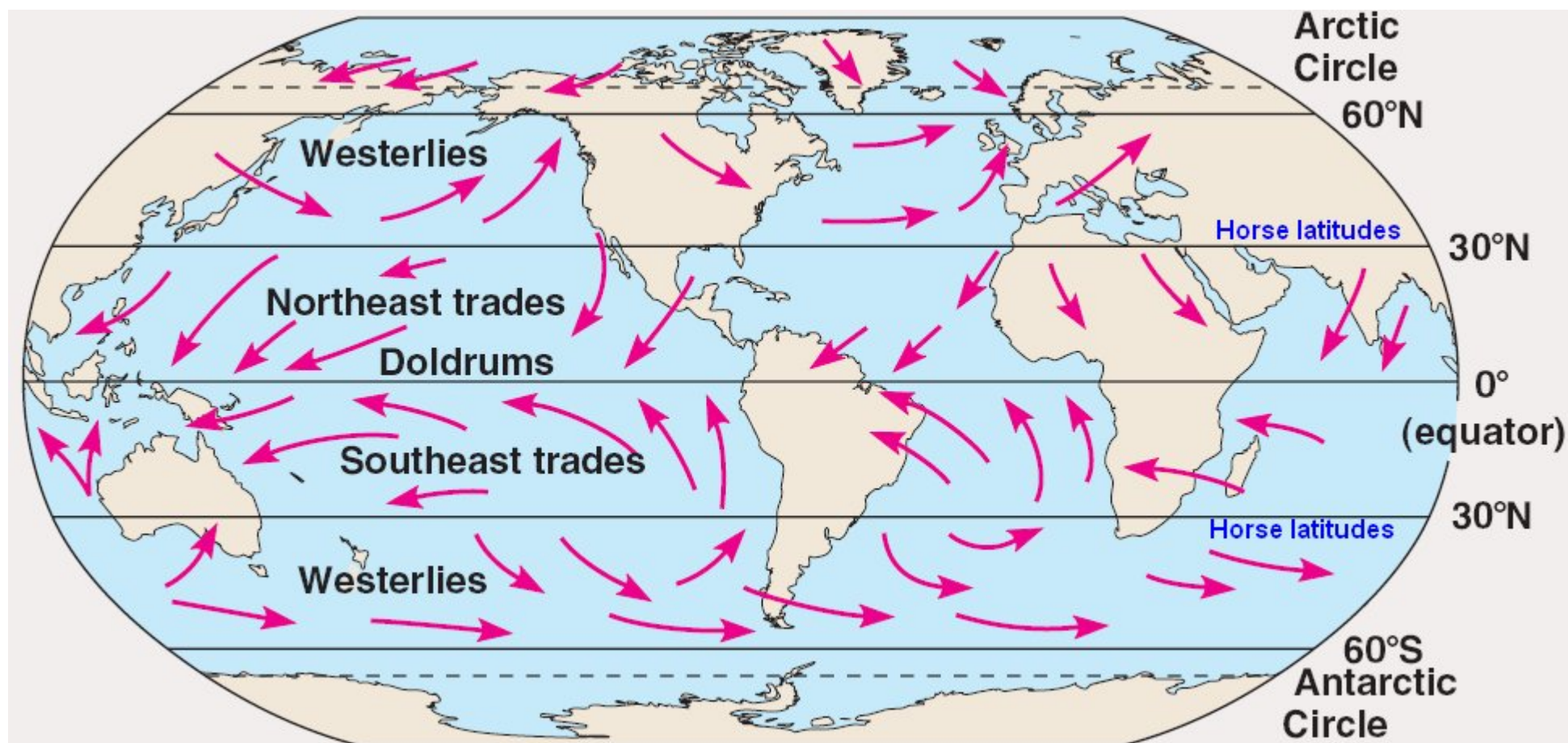
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**Which of the statements given above is/are correct?**

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





- **Statement 1 is correct.** Warmer water is transported westward in the ocean by the Northeast trade winds in the Northern hemisphere of the tropical zone . So, in tropical zones, the western section of ocean is warmer than eastern sections due to trade winds.
- **Statement 2 is correct.** Similarly, the Westerlies play an important role in carrying the warm, equatorial waters and winds to the western coasts of continents (that is eastern section of the Oceans in temperate zone). Thus, in temperate zones, westerlies make the eastern section of the ocean warmer than the western sections.

# **INDIAN GEOGRAPHY**

**Q) Consider the following statements:**

1. The duration of the monsoon decreases from southern India to northern India.
2. The amount of annual rainfall in the northern plains of India decreases from east to west.

**Which of the statements given above is/are correct?**

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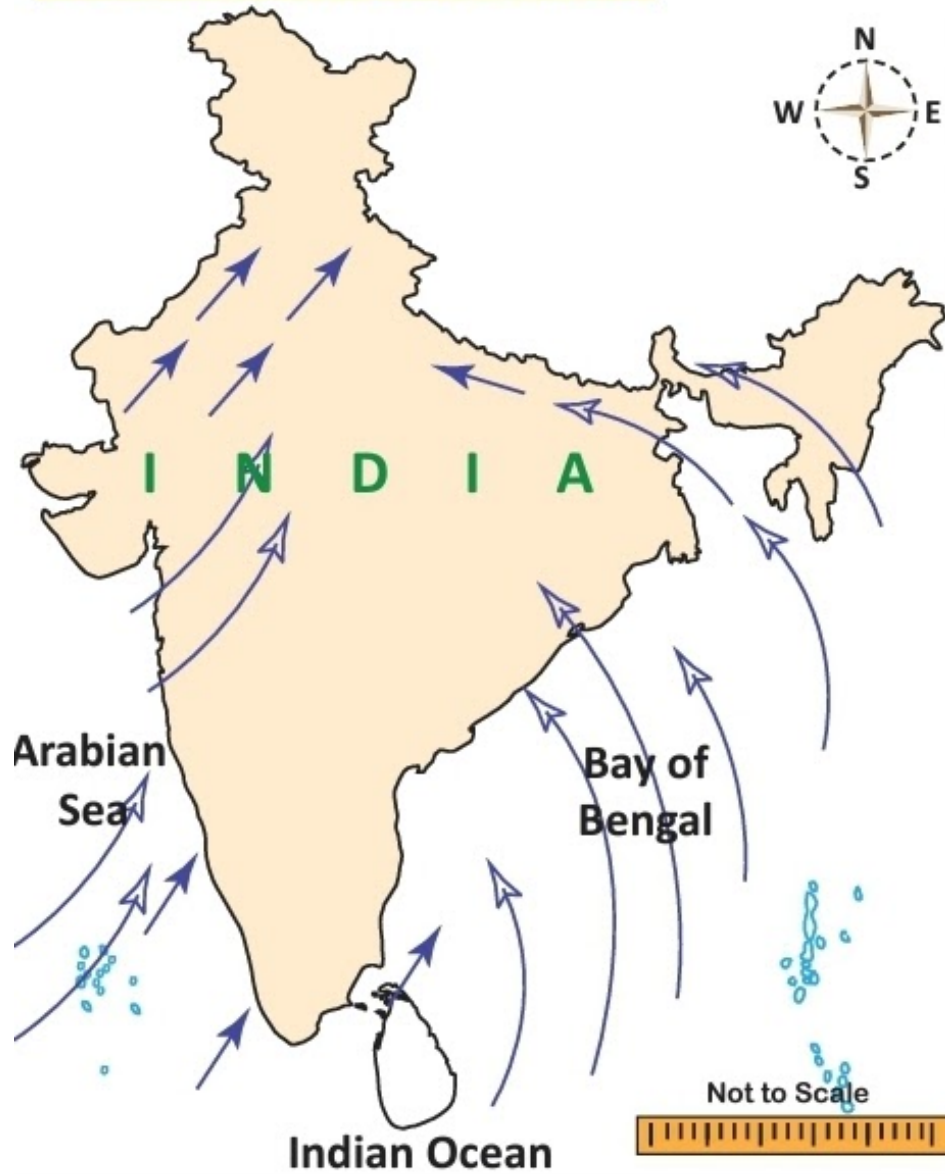
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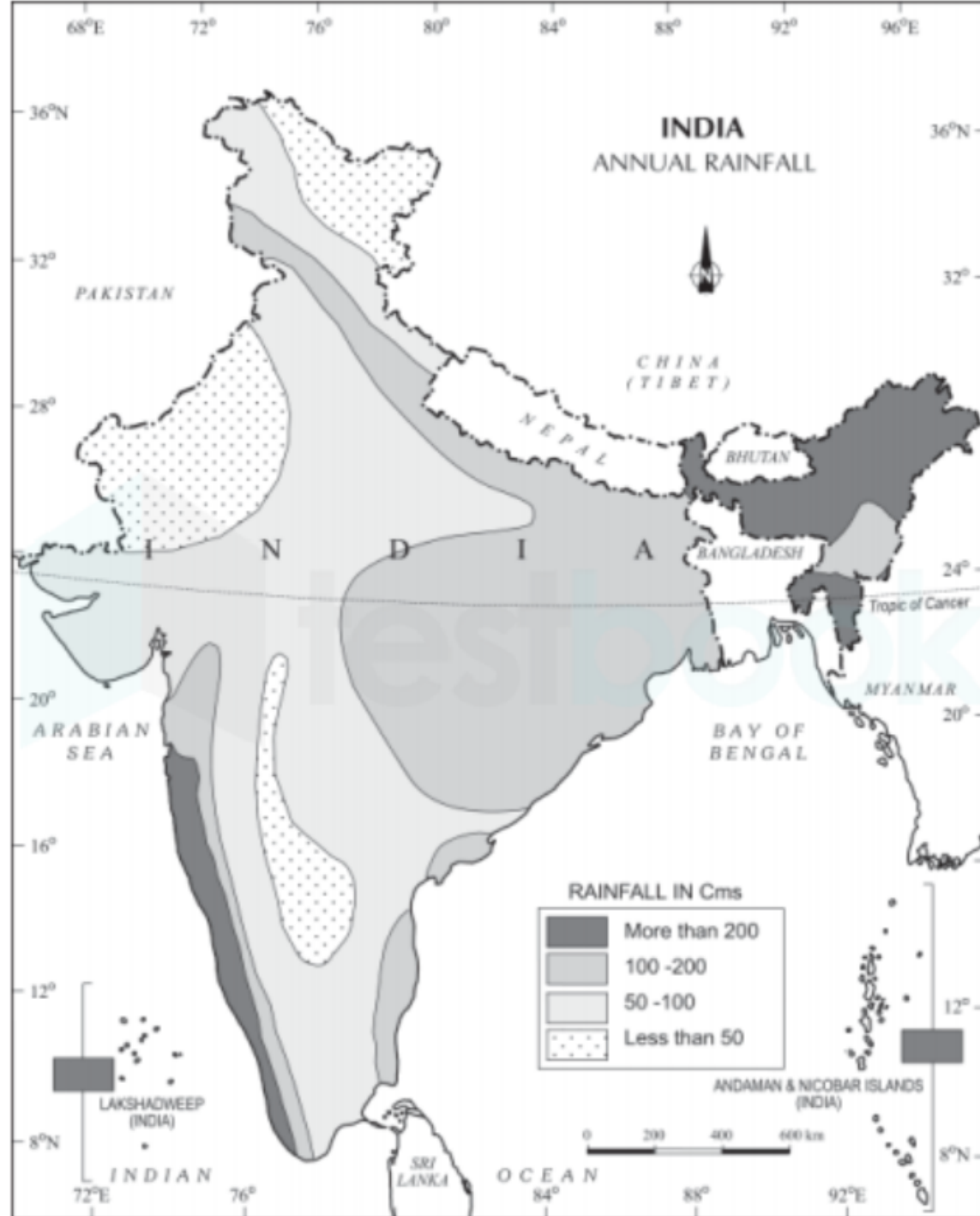
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- c) Both 1 and 2**
- d) Neither 1 nor 2

## South West Monsoon In India



## North East Monsoon In India





The amount of annual rainfall in the northern plains of India decreases from east to west.

**The duration of the monsoon decreases from southern India to northern India.**

**Southern Part of India:**

Southwest Monsoon + Retreating Monsoon

Early Monsoon + Proximity to sea



**Q) Consider the following statements:**

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2. The amount of annual rainfall in the northern plains of India decreases from east to west.

**Which of the statements given above is/are correct?**

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**Q) When you travel in Himalayas, you will see the following:**

1. Deep gorges
2. U-turn river courses
3. Parallel mountain ranges
4. Steep gradients causing land-sliding.

**Which of the above can be said to be the evidence for Himalayas being young fold mountains?**

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

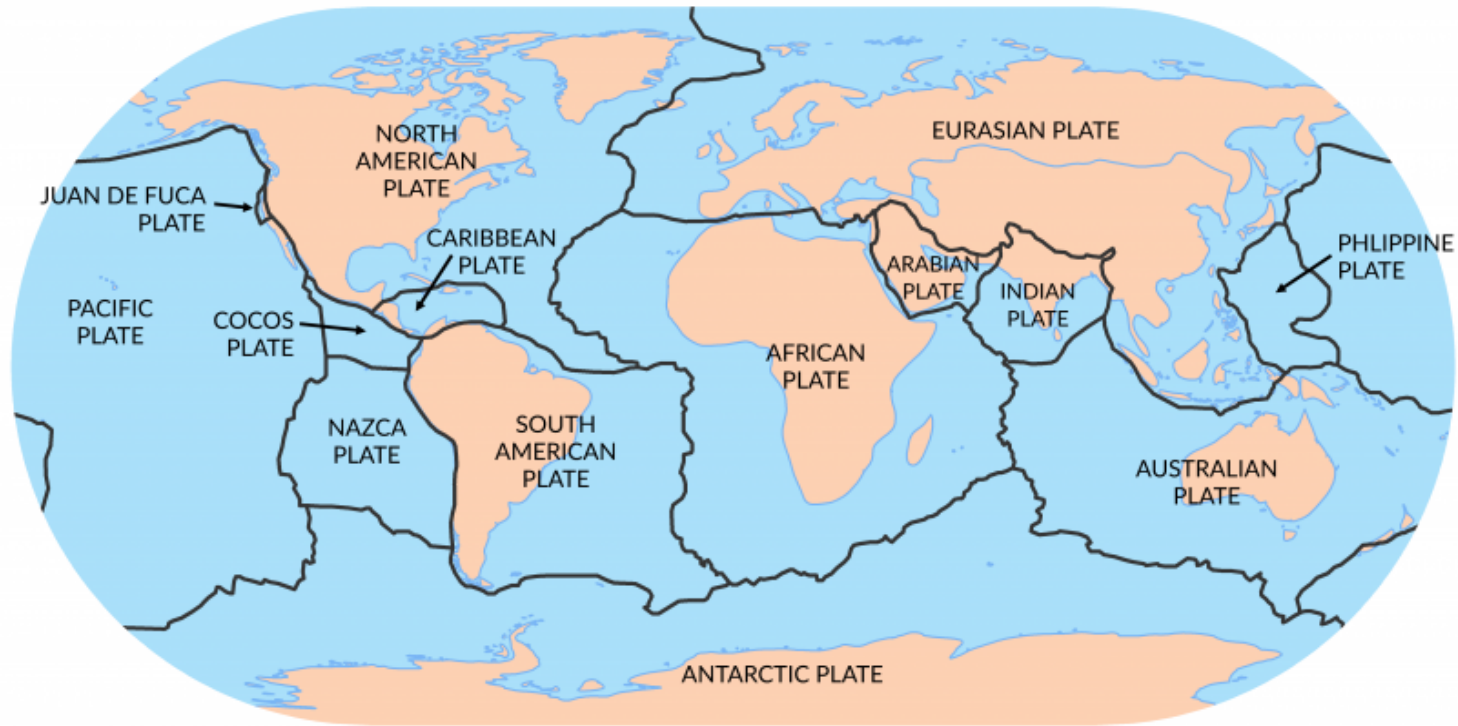
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Which of the above can be said to be the evidence for Himalayas being young fold mountains?

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

# Plate Tectonics



1. Parallel mountain ranges – Himachal, Himadri and Shivaliks
2. U-turn river courses – Rivers shifting their courses .
3. Steep gradients causing land-sliding – Recent Landslide in Chamoli district of Himachal Pradesh
4. Deep gorges- Indus Gorge



Figure 2.2 : Relief

**Q6) When you travel in Himalayas, you will see the following:**

1. Deep gorges
2. U-turn river courses
3. Parallel mountain ranges
4. Steep gradients causing land-sliding.

**Which of the above can be said to be the evidence for Himalayas being young fold mountains?**

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

**Q) Which of the following statements regarding laterite soils of India are correct?**

- 1) They are generally red in colour.
- 2) They are rich in nitrogen and potash.
- 3) They are well-developed in Rajasthan and UP.
- 4) Tapioca and cashew nuts grow well on these soils.

**Select the correct answer using the codes given below:**

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



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

- Laterite has been derived from the Latin word 'Later' which means brick. The laterite soils develop in areas with high temperature and high rainfall. These are the result of intense leaching due to tropical rains
- These soils are poor in organic matter, nitrogen, phosphate and calcium, while iron oxide and potash are in excess. Hence, laterites are not suitable for cultivation; however, application of manures and fertilisers are required for making the soils fertile for cultivation.
- Red laterite soils in Tamil Nadu, Andhra Pradesh and Kerala are more suitable for tree crops like cashewnut.
- Laterite soils are widely cut as bricks for use in house construction. These soils have mainly developed in the higher areas of the Peninsular plateau. The laterite soils are commonly found in Karnataka, Kerala, Tamil Nadu, Madhya Pradesh and the hilly areas of Odisha and Assam



**Q) Which of the following statements regarding laterite soils of India are correct?**

- 1) They are generally red in colour.
- 2) They are rich in nitrogen and potash.
- 3) They are well-developed in Rajasthan and UP.
- 4) Tapioca and cashew nuts grow well on these soils.

**Select the correct answer using the codes given below:**

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

**Q) The Narmada river flows to the west, while most other large peninsular rivers flow to the east. Why?**

- 1) It occupies a linear rift valley.
- 2) It flows between the Vindhya and the Satpuras.
- 3) The land slopes to the west from Central India.

**Select the correct answer using the codes given below:**

- a) 1 only
- b) 2 and 3
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- d) None

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**a) 1 only**

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c) 1 and 3

d) None

## **Note :**

- Block mountains, also called fault block mountains are the mountains formed from the cracks/faults evolved from the earth's crust which causes part of the earth to rise and others to be depressed, forming block mountains.

**Note** : The slopes of central highlands are from southwest to northeast.





- The Narmada and the Tapi flow through the rift valley.
- The Narmada originates in eastern Madhya Pradesh and flows west across the state, through a narrow valley between the Vindhya Range and spurs of the Satpura Range.
- The land slopes to the east from Central India



## Rivers that flow in rift valley

- Narmada
- Tapi
- Mahi
- Damodar

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**Select the correct answer using the codes given below:**

**a) 1 only**

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d) None

**Q) A particular State in India has the following characteristics:- 2012 – Latest Data might differ**

- 1. It is located on the same latitude which passes through northern Rajasthan.**
- 2. It has over 80% of its area under forest cover**
- 3. Over 12% of forest cover constitutes Protected Area Network in this State.**

**Which one among the following States has all the above characteristics?**

- a) Arunachal Pradesh
- b) Assam
- c) Himachal Pradesh
- d) Uttarakhand

**Q3) A particular State in India has the following characteristics: -( 2012 ) – Latest Data might differ**

1. It is located on the same latitude which passes through northern Rajasthan.
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3. Over 12% of forest cover constitutes Protected Area Network in this State.

**Which one among the following States has all the above characteristics?**

**a) Arunachal Pradesh**

b) Assam

c) Himachal Pradesh

d) Uttarakhand

## **ISFR -2021**

- **The top five states in terms of increase in forest cover - Andhra Pradesh>Telangana>Odisha>Karnataka>Jharkhand.**

**Largest forest cover in India:** Madhya Pradesh > Arunachal Pradesh > Chhattisgarh > Odisha > Maharashtra



**Q) Consider the following statements:**

- 1) Natural gas occurs in the Gondwana beds.
- 2) Mica occurs in abundance in Kodarma.
- 3) Dharwars are famous for petroleum.

**Which of the statements given above is/are correct?**

- a) 1 and 2
- b) 2 only
- c) 2 and 3
- d) None



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**Which of the statements given above is/are correct?**

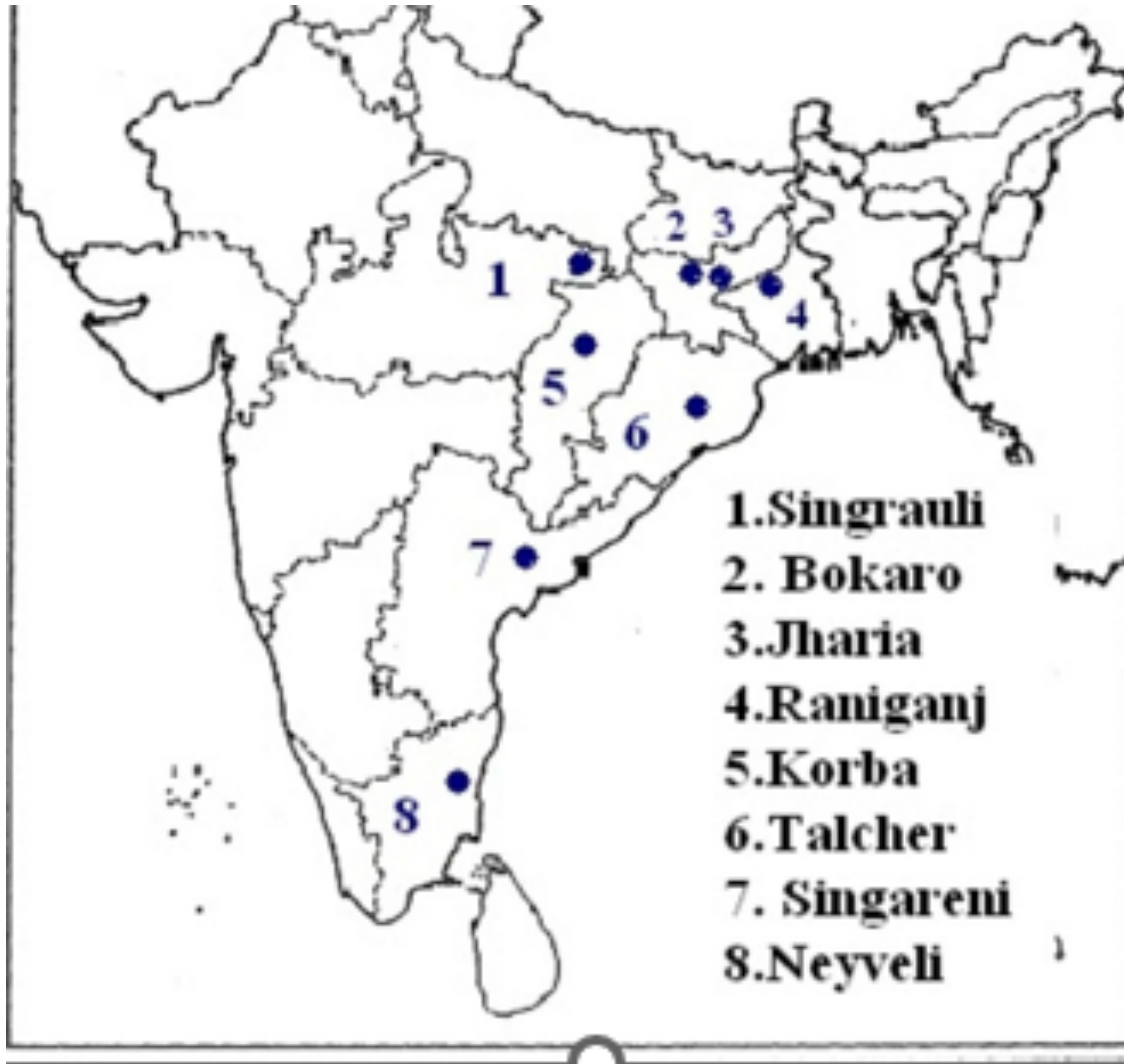
- a) 1 and 2
- b) 2 only**
- c) 2 and 3
- d) None

- Gondwana is famous for Coal Fields not Natural Gas. Coal formed about 350 million years ago in the Carboniferous age is called Gondwana Coal.
- Dharwar – Iron, Manganese etc
- Mica – Kodarma Mines , Jharkhand

- **Note : Distribution of Coal in India**

- Gondwana coal fields [250 million years old]
- Tertiary coal fields [15 – 60 million years old]

## Additional Information - Coal Mines in India



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- 1) Natural gas occurs in the Gondwana beds.
- 2) Mica occurs in abundance in Kodarma.
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**Which of the statements given above is/are correct?**

- a) 1 and 2
- b) 2 only**
- c) 2 and 3
- d) None

**Q) Consider the following pairs:**

**Tribe : State**

- 1) Limboo (Limbu) : Sikkim
- 2) Karbi : Himachal Pradesh
- 3) Dongaria Kondh : Odisha
- 4) Bonda : Tamil Nadu

**Which of the above pairs are correctly matched?**

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

**Q23) Consider the following pairs:**

**Tribe : State**

1) Limboo (Limbu) : Sikkim

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**Which of the above pairs are correctly matched?**

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## **Tribe : State**

1) Limboo (Limbu) : Sikkim

2) Karbi : Assam

3) Dongaria Kondh : Odisha

4) Bonda : Odisha

**Table No. 1A: State-wise major tribes of India**

SI_No.	States/UTs	Major Tribes
1	Andaman and Nicobar Islands	Jarawa , Oraons, Onges, Sentinelese, Shompens
2	Andhra Pradesh	Andh, Sadhu Andh, Bhagata, Bhil, Chenchus (Chenchawar), Gadabas, Gond, Goundu, Jatapus, Kammara, Kattunayakan, Kolawar, Kolam, Konda, Manna Dhora, Pardhan, Rona, Savaras, Dabba Yerukula, Nakkala, Dhulia, Thoti, Sugalis.
3	Arunachal Pradesh	Apatanis, Abor, Dafla, Galong, Momba, Sherdukpen, Singpho.
4	Assam	Chakma, Chutiya, Dimasa, Hajong, Garos, Khasis, Gangte.
5	Bihar	Asur, Baiga, Birhor, Birjia, Chero, Gond, Parhaiya, Santhals, Savar.
6	Chhattisgarh	Agariya, Bhaina, Bhattra, Biar, Khond, Mawasi, Nagasia.
7	Goa	Dhodia, Dubia, Naikda, Siddi, Varli.
8	Gujarat	Barda, Bamcha, Bhil, Charan, Dhodia, Gamta, Paradhi, Patelia.
9	Himachal Pradesh	Gaddis, Gujjars, Khas, Lamba, Lahaulas, Pangwala, Swangla.
10	Jammu and Kashmir	Bakarwal, Balti, Beda, Gaddi, Garra, Mon, Purigpa, Sippi.
11	Jharkhand	Birhors, Bhumij, Gonds, Kharia, Mundas, Santhals, Savar.
12	Karnataka	Adiyan, Barda, Gond, Bhil, Iruliga, Koraga, Patelia, Yerava.
13	Kerala	Adiyan, Arandan, Eravallan, Kurumbas, Malai arayan, Moplahs, Uralis.
14	Madhya Pradesh	Baigas, Bhils, Bharia, Birhors, Gonds,Katkari, kharia, Khond, Kol, Murias.
15	Maharashtra	Bhaina, Bhunjia, Dhodia, Katkari, Khond, Rathawa, Warlis.
16	Manipur	Aimol, Angami, Chiru, Kuki, Maram, Monsang, Paite, Purum, Thadou.
17	Meghalaya	Chakma, Garos, Hajong, Jaintias Khasis, Lakher, Pawai, Raba.
18	Mizoram	Chakma, Dimasa, Khasi, Kuki, Lakher, Pawai, Raba, Synteng.
19	Nagaland	Angami, Garo, Kachari, Kuki, Mikir, Nagas, Sema.
20	Odisha	Gadaba, Ghara, Kharia, Khond, Matya, Oraons, Rajuar, Santhals.
21	Rajasthan	Bhils, Damaria, Dhanka, Meenas(Minas), Patelia, Sahariya.
22	Sikkim	Bhutia, Khas, Lepchas.
23	Tamil Nadu	Adiyan, Aranadan, Eravallan, Irular, Kadar, Kanikar, Kotas, Todas
24	Telangana	Chenchus.
25	Tripura	Bhil, Bhutia, Chaimal, Chakma, Halam, Khasia, Lushai, Mizel, Namte.
26	Uttarakhand	Bhotias, Buksa, Jannsari, Khas, Raji, Tharu.
27	Uttar Pradesh	Bhotia, Buksa, Jaunsari, Kol, Raji, Tharu.
28	West Bengal	Asur, Khond, Hajong, Ho, Parhaiya, Rabha, Santhals, Savar.

**Source:** Indian Census



Q) Which one among the following industries is the maximum consumer of water in India?

- a) Engineers
- b) Paper and pulp
- c) Textiles
- d) Thermal power

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- d) Thermal power**

- Apart from agriculture ,thermal power plants are the largest consumers of water in India.
- Thermal power plants in India use water for cooling purposes and the disposal of fly ash, a byproduct in combustion processes.

**Q) If you travel through the Himalayas, you are likely to see which of the following plants naturally growing there ?**

- 1) Oak
- 2) Rhododendron
- 3) Sandalwood

**Select the correct answer using the code given below:**

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

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- **Montane Forest+ Himalayan Forest**

- On the higher slope, temperate conifer trees like pine, fir, and oak grow. At the higher elevation of the Himalayas, rhododendrons and junipers are found. They can be seen while traveling through the Himalayas as they are part of the natural vegetation of the region.

- **Deciduous Forest**

- Sandalwood is found in tropical deciduous forests or monsoon forests which are found in Western Ghats, Deccan plateau, northern plains and foot hills of Himalayas. . Thus, sandalwood grows naturally in Himalaya foothills and not in the Himalayas.

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**Q) With reference to 'Changpa' community of India, consider the following statements :**

- 1) They live mainly in the State of Uttarakhand.
- 2) They rear the Pashmina goats that yield a fine wool.
- 3) They are kept in the category of Scheduled Tribes.

**Which of the statements given above is/are correct ?**

- a) 1 only
- b) 2 and 3 only
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## Changpa Community



- Changtang, a high plateau that stretches across the cold desert of Ladakh and also in some parts of Jammu and Kashmir.
- Livelihood through the rearing of Pashmina goats and also own yaks and sheeps.
- 1989 – Scheduled Tribes

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Q) In the context of food and nutritional security of India, enhancing the 'Seed Replacement Rates' of various crops helps in achieving the food production targets of the future. But what is/are the constraint/constraints in its wider/greater implementation ?

- 1) There is no National Seeds Policy in place.
- 2) There is no participation of private sector seed companies in the supply of quality seeds of vegetables and planting materials of horticultural crops.
- 3) There is a demand-supply gap regarding quality seeds in case of low value and high volume crops.

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- Seed Replacement Rate is the percentage of area sown out of the total area of crop planted in the season by using certified/quality seeds other than the farm saved seed.
- India has a National Seeds Policy 2002. National Seed Policy was launched in 2002 for intellectual property protection to new varieties, planned development; protection of the interest of farmers and encourage conservation of agro-biodiversity.
- Private companies are operating in supplying seeds- Hybrid Seeds

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**Q) Consider the following pairs :**

**Region production of : Well-known for the**

- 1) Kinnaur : Areca nut
- 2) Mewat : Mango
- 3) Coromandel : Soya bean

**Which of the above pairs is/are correctly matched ?**

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**Which of the above pairs is/are correctly matched ?**

- a) 1 and 2 only
- b) 3 only
- c) 1, 2 and 3
- d) None**

- Arecanut - Southern region
- Mango- Central and South India
- Soyabean - Central India.

**Q) Consider the following towns of India :**

- 1) Bhadrachalam
- 2) Chanderi
- 3) Kancheepuram
- 4) Karnal

**Which of the above are famous for the production of traditional sarees/fabric?**

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

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- 1) Chanderi – Chanderi Sarees - Madhya Pradesh
- 2) Kancheepuram - Silk Saree – Tamil Nadu

**Q) Consider the following pairs:**

National Highway Cities connected

- 1) NH4 : Chennai and Hyderabad
- 2) NH6 : Mumbai and Kolkata
- 3) NH15: Ahmedabad and Jodhpur

**Which of the above pairs is/are correctly matched?**

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- c) 1, 2 and 3
- d) None**



- NH4 - Bengaluru-Chennai
- NH6 - Surat-Kolkata
- NH15 - Samakhiali in Gujarat with Pathankot in Punjab

**Q) Which one of the following pairs of islands is separated from each other by the 'Ten Degree Channel'?**

- a) Andaman and Nicobar
- b) Nicobar and Sumatra
- c) Maldives and Lakshadweep
- d) Sumatra and Java

Q) Which one of the following pairs of islands is separated from each other by the 'Ten Degree Channel'?

- a) **Andman and Nicobar**
- b) Nicobar and Sumatra
- c) Maldives and Lakshadweep
- d) Sumatra and Java

- The entire group of island is divided into two broad categories – the Andaman in the north and the Nicobar in the south. They are separated by a water body which is called the Ten degree channel.



# ISLANDS

Lakshdweep (Coral island)



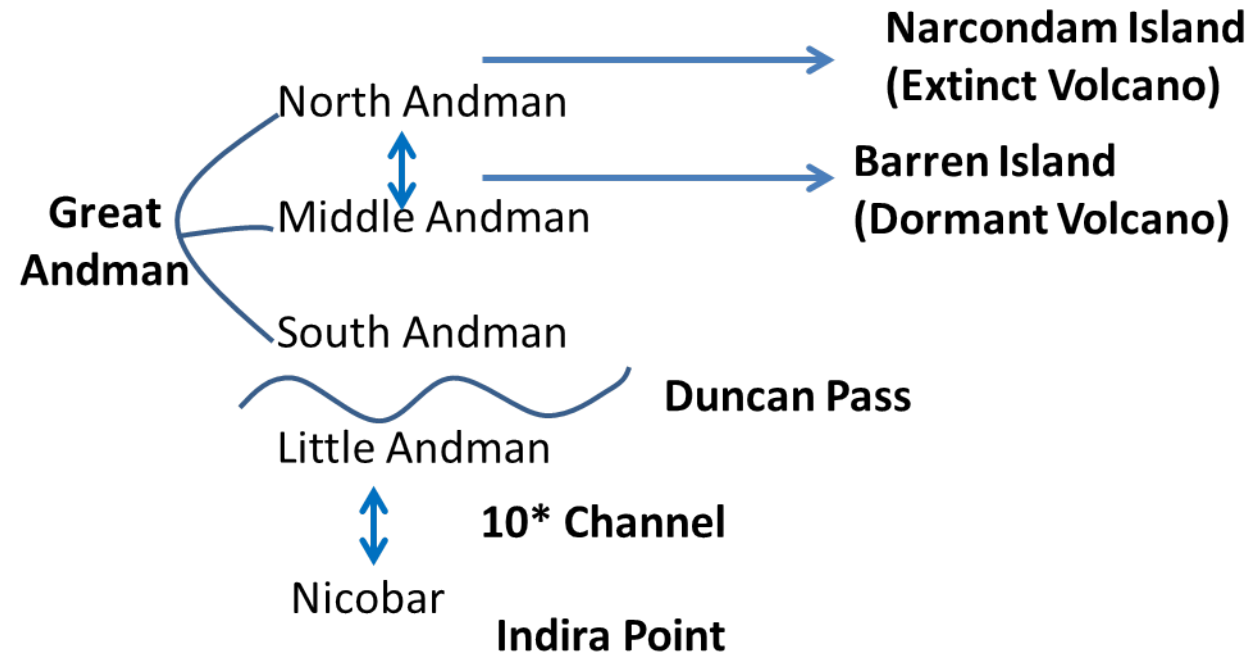
**9\* Channel**

Minicoy (Coral Islands)



**8\* Channel**

Maldivees



- **Note :**

- The Eight Degree Channel separates the islands of Minicoy and Maldives, the Nine Degree Channel separates the island of Minicoy from the main Lakshadweep archipelago and the Ten Degree Channel separates the Andaman Islands and the Nicobar Islands from each other in the Bay of Bengal.

**Q) In India, the problem of soil erosion is associated with which of the following?**

- 1) Terrace cultivation
- 2) Deforestation
- 3) Tropical climate

**Select the correct answer using the code given below:**

- a) 1 and 2 only
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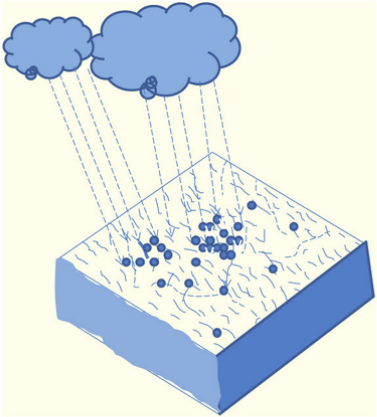


# Terrace Cultivation

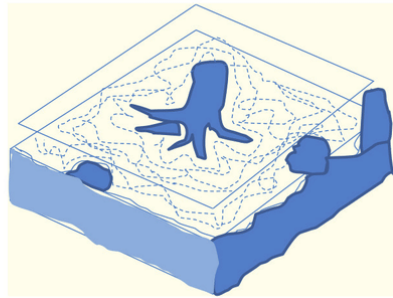


- Terrace cultivation is for preventing soil erosion on hill slopes.
- Tropical climate has nothing to do with soil erosion.
- Deforestation is one of the leading causes of Soil Erosion.

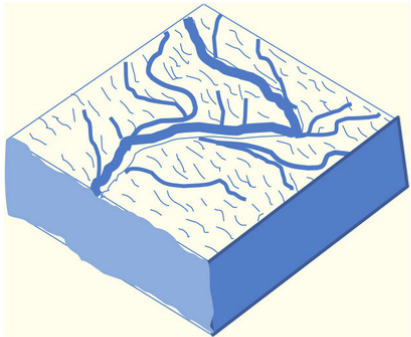
# Additional Information - Types of Soil Erosion



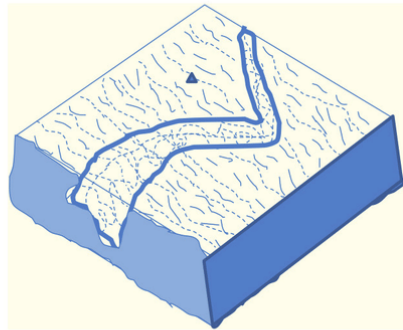
1. Splash Erosion



2. Sheet Erosion



3. Rill Erosion



4. Gully Erosion

**Q) Consider the following rivers :**

- 1) Barak
- 2) Lohit
- 3) Subansiri

**Which of the above flows/flow through Arunachal Pradesh?**

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

**Q47) Consider the following rivers :**

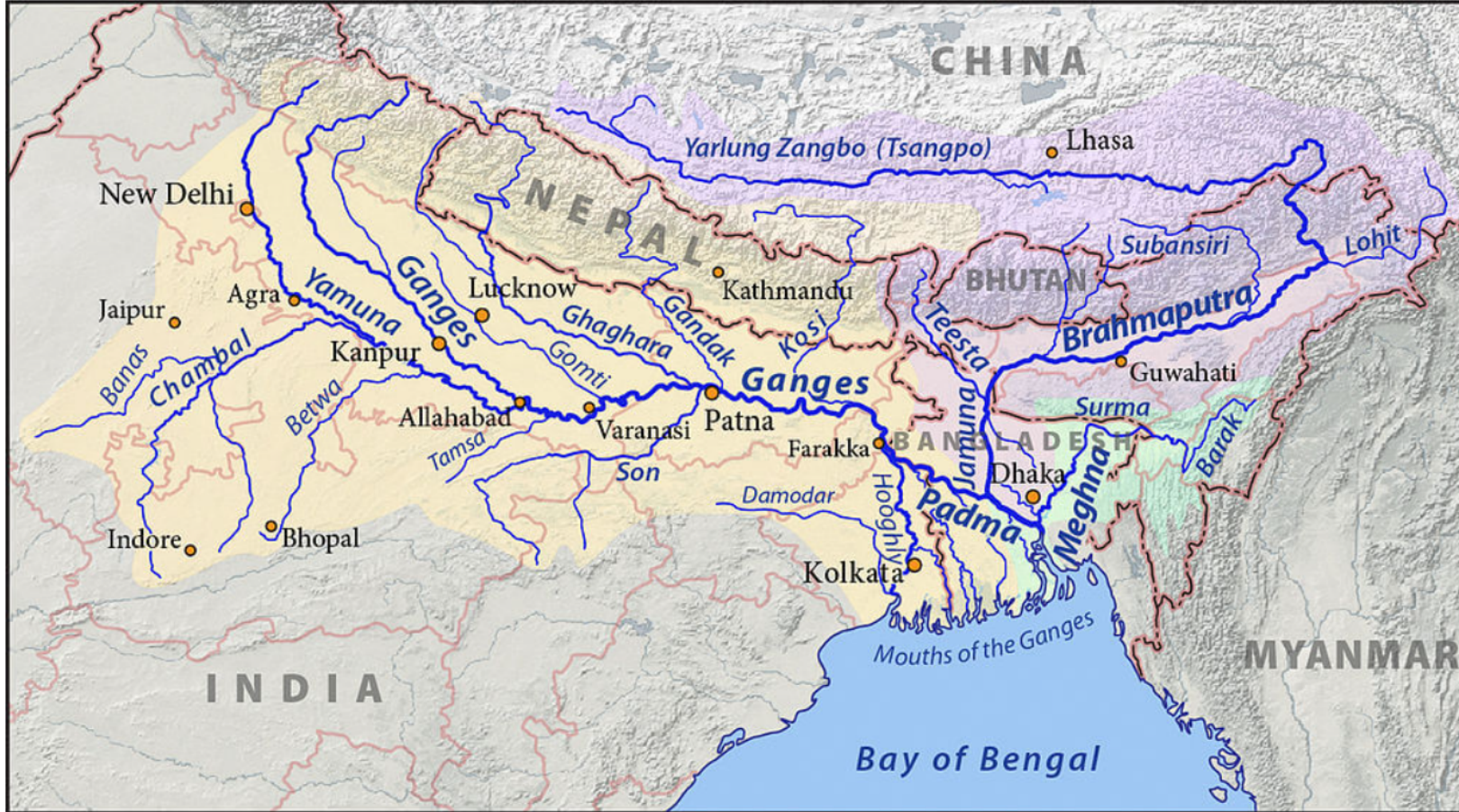
- 1) Barak
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**Which of the above flows/flow through Arunachal Pradesh?**

- a) 1 only
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- c) 1 and 3 only
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Barak River - Barak rises in the Manipur hills and enters the plains near Lakhipur, Assam .The river enters Bangladesh as Surma and Kushiyara. Later, the river is called the Meghna and receives the combined flow of the Ganga and Brahmaputra.



**Q) Consider the following pairs :**

**Hills : Region**

- 1) Cardamom Hills : Coromandel Coast
- 2) Kaimur Hills : Konkan Coast
- 3) Maadeo Hills : Central India
- 4) Mikir Hills : North-East India

**Which of the above pairs are correctly matched?**

- a) 1 and 2
- b) 2 and 3
- c) 3 and 4
- d) 2 and 4

**Q48) Consider the following pairs :**

**Hills : Region**

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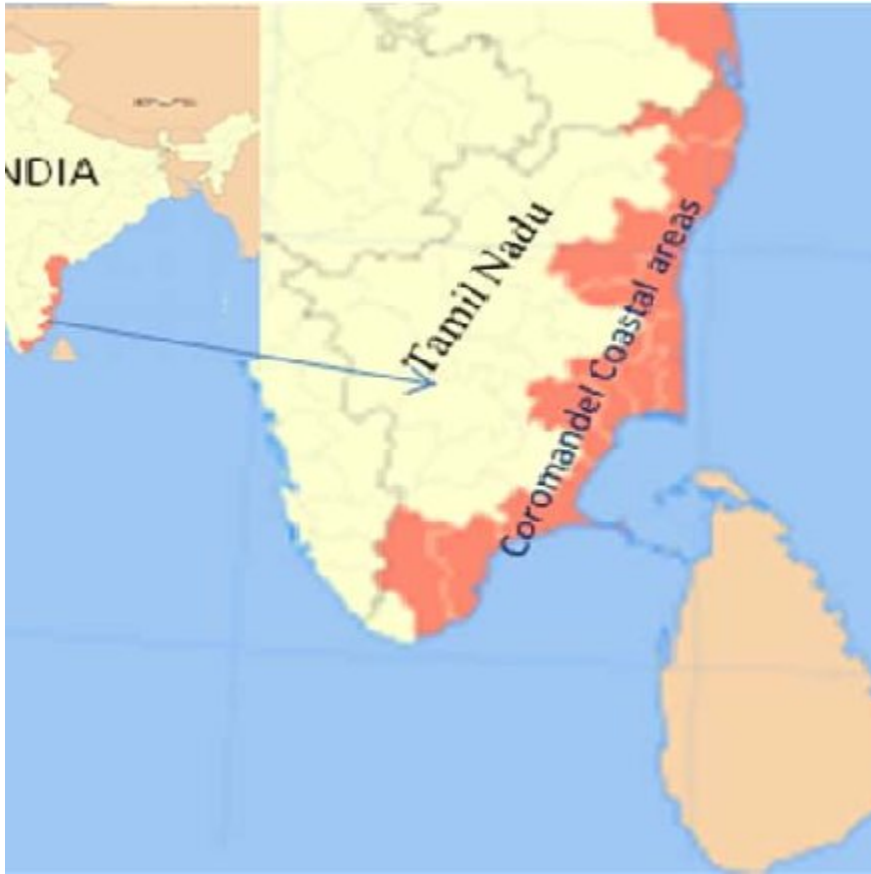
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- 1) Cardamom Hills : Coromandel Coast
- 2) Kaimur Hills : Konkan Coast
- 3) Maadeo Hills : Central India
- 4) Mikir Hills : North-East India

## Cardamom Hills : Coromandel Coast - Incorrect



## Kaimur Hills - Konkan Coast - Incorrect



## Maadeo Hills : Central India- Correct



# Mikir Hills : North-East India- Correct



**Q) What are the benefits of implementing the 'Integrated Watershed Development Programme?**

- 1) Prevention of soil runoff
- 2) Linking the country's perennial rivers with seasonal rivers
- 3) Rainwater harvesting and recharge of groundwater table
- 4) Regeneration of natural vegetation

**Select the correct answer using the code given below:**

- a) 1 and 2 only
- b) 2, 3 and 4 only
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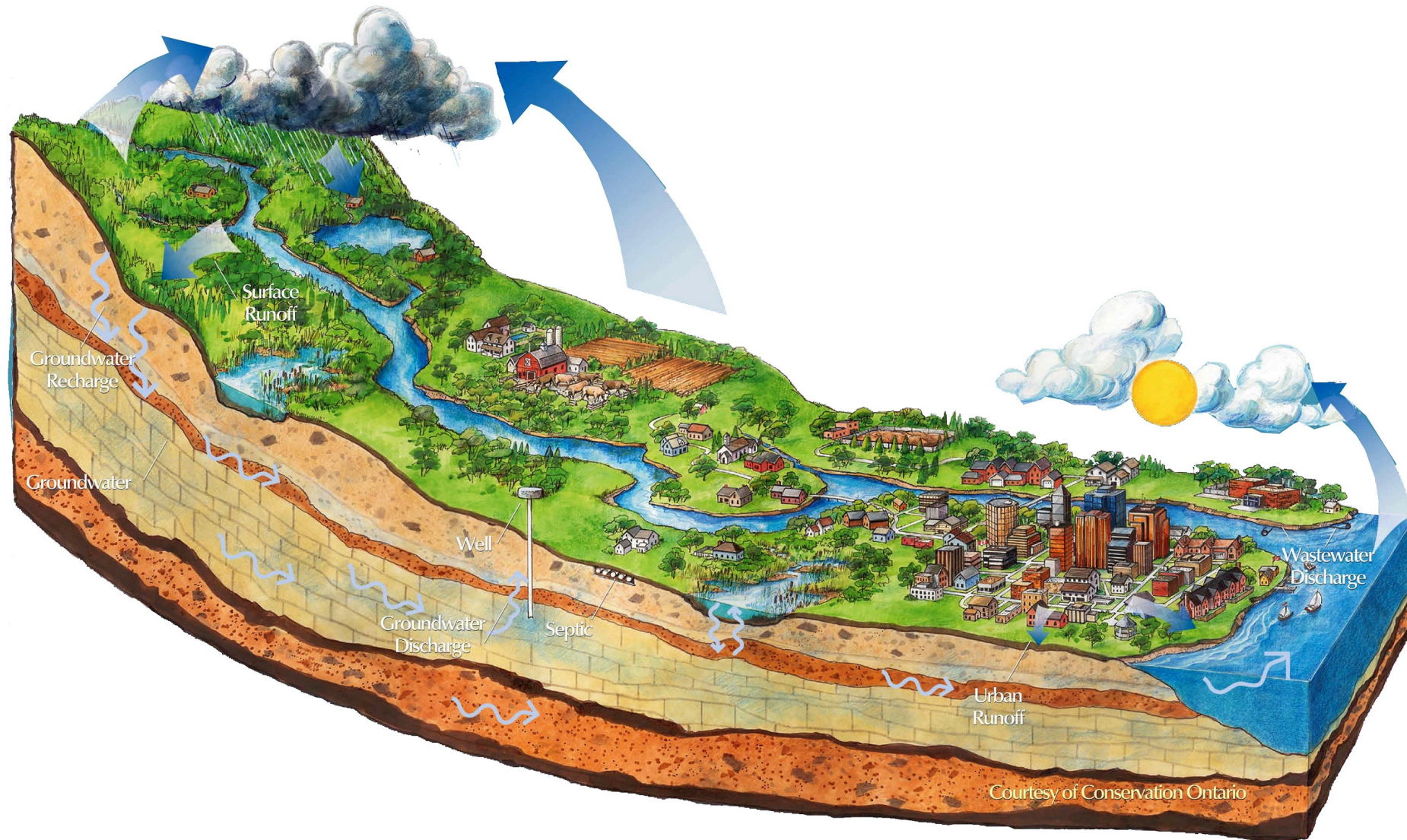
**Q51) What are the benefits of implementing the 'Integrated Watershed Development Programme?**

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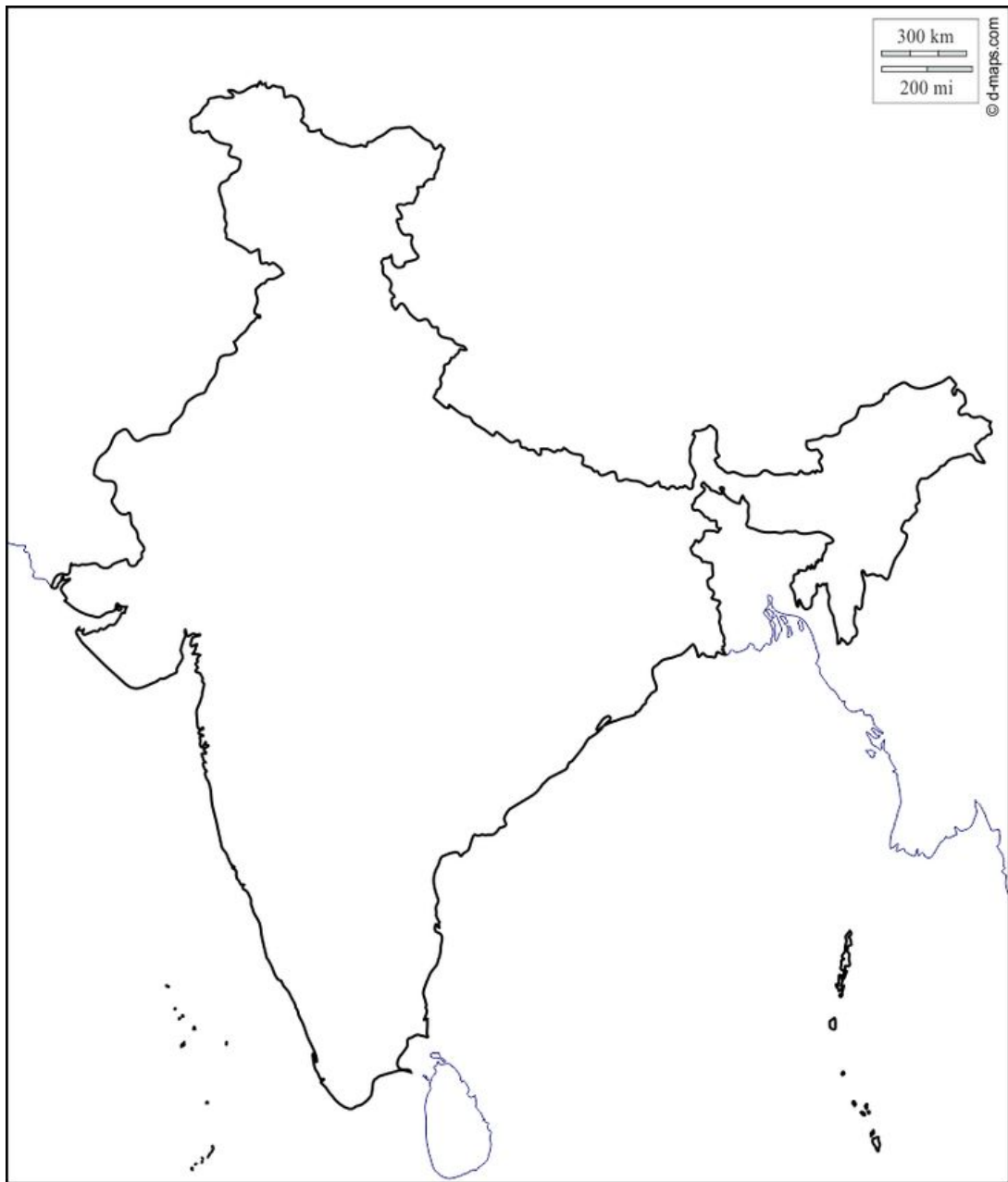
- Integrated watershed development programme no where mentions interlinking of rivers.
- It envisages restoring the ecological balance by harnessing, conserving and developing degraded natural resources such as soil, vegetative cover & water through watershed management initiatives.
- The outcomes of IWMP are prevention of soil run-off, regeneration of natural vegetation, rain water harvesting and recharging of the ground water table.

**Q) Which one of the following pairs of States of India indicates the easternmost and westernmost State ?**

- a) Assam and Rajasthan
- b) Arunachal Pradesh and Rajasthan
- c) Assam and Gujarat
- d) Arunachal Pradesh and Gujarat

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- c) Assam and Gujarat
- d) Arunachal Pradesh and Gujarat**



- The mainland of India, extends from Kashmir in the north to Kanniyakumari in the south and Arunachal Pradesh in the east to Gujarat in the west.

**Q) Which of the following have coral reefs ?**

- 1) Andaman and Nicobar Islands
- 2) Gulf of Kachchh
- 3) Gulf of Mannar
- 4) Sunderbans

**Select the correct answer using the code given below:**

- a) 1, 2 and 3 only
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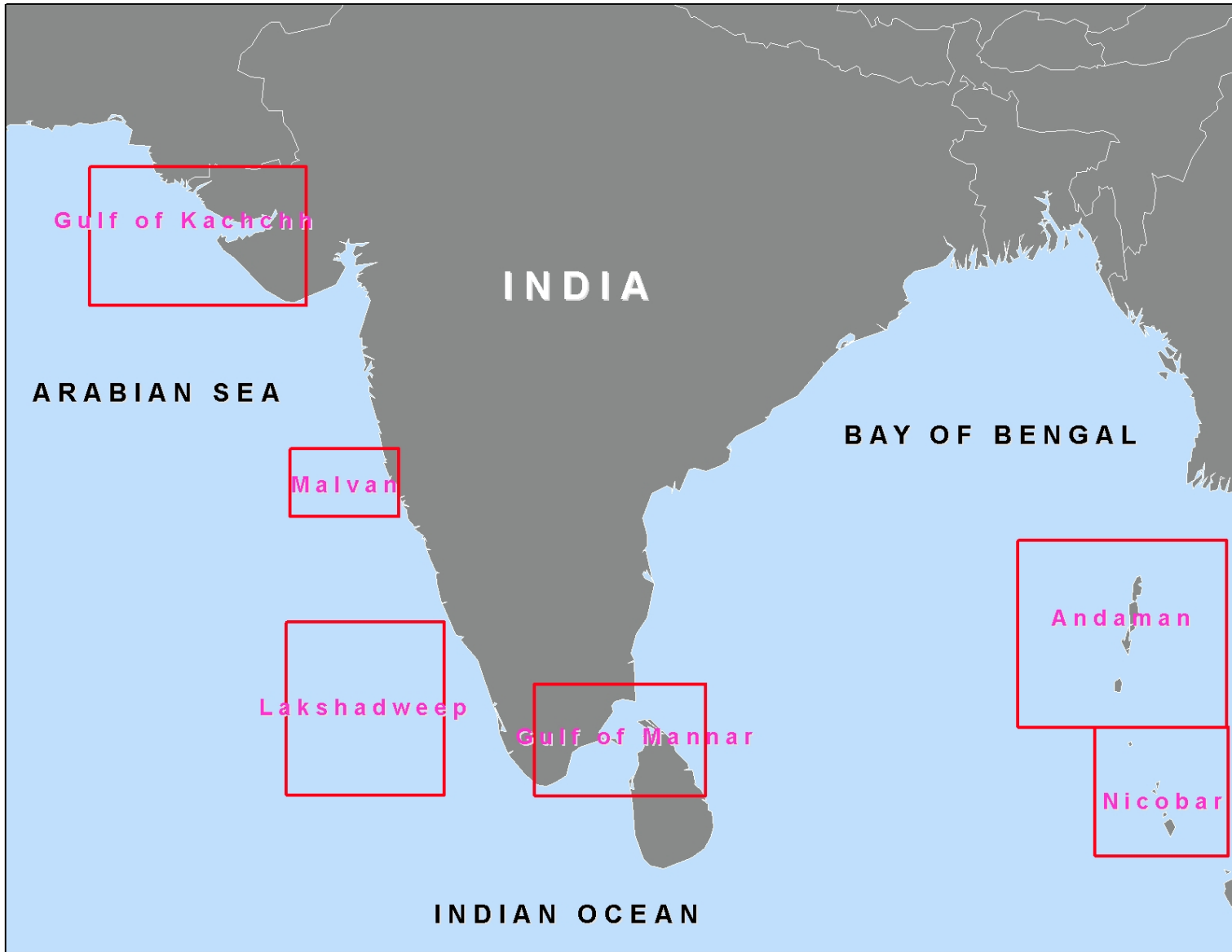
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c) 1 and 3 only

d) 1, 2, 3 and 4





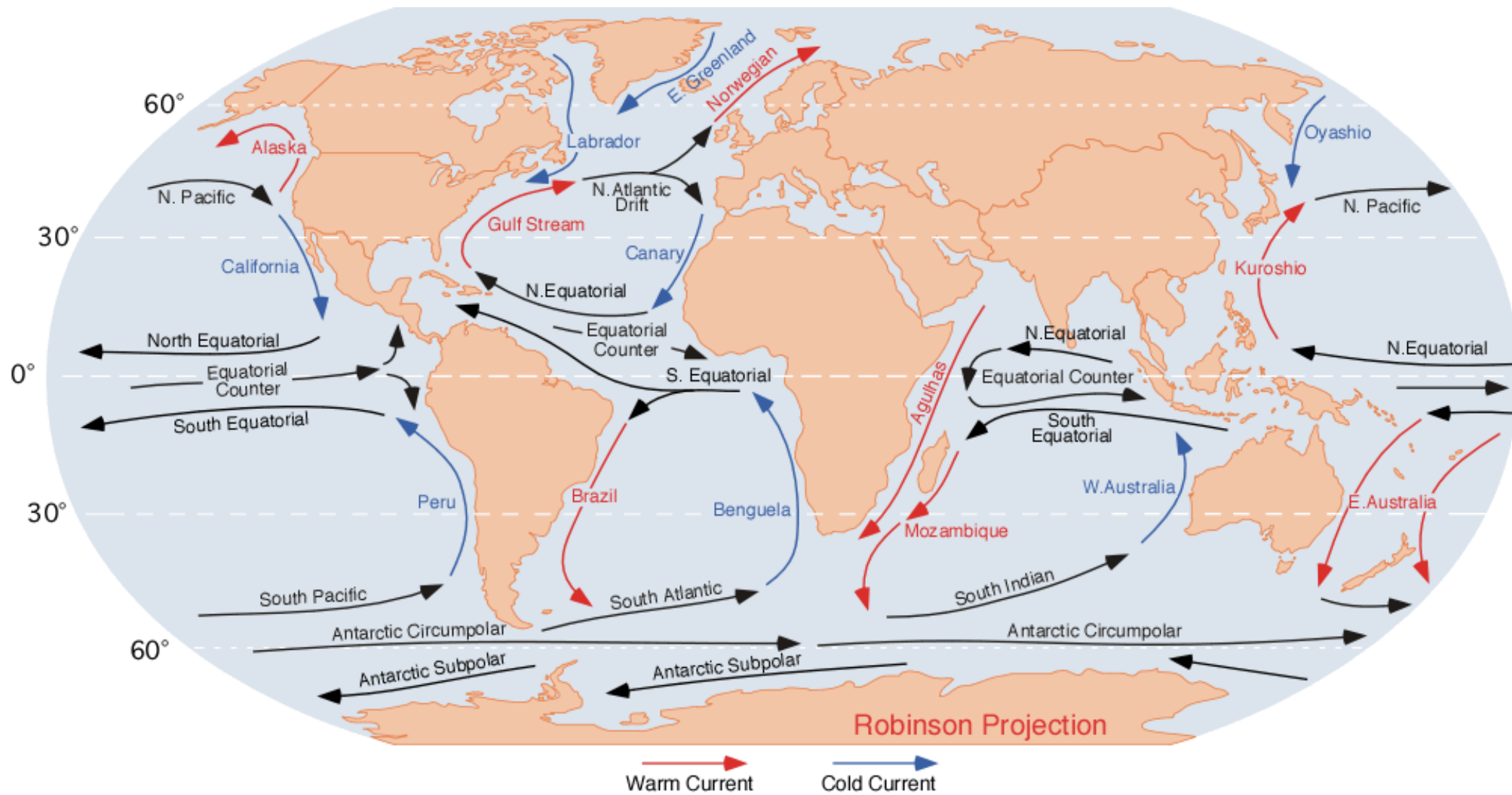
## Additional Information - Ideal Conditions of Coral Reefs

- **Stable climatic conditions + Perpetually warm waters:**  
tropical waters [30°N and 30°S latitudes, The temperature of water is around 20°C]
- **Shallow water:** Coral require fairly good amount of sunlight to survive.
- **Clear salt water + Little or no pollution**
- **Abundant Plankton:** Adequate supply of oxygen and microscopic marine food, called plankton [phytoplankton], is essential for growth. **As the plankton is more abundant on the seaward side, corals grow rapidly on the seaward side.**

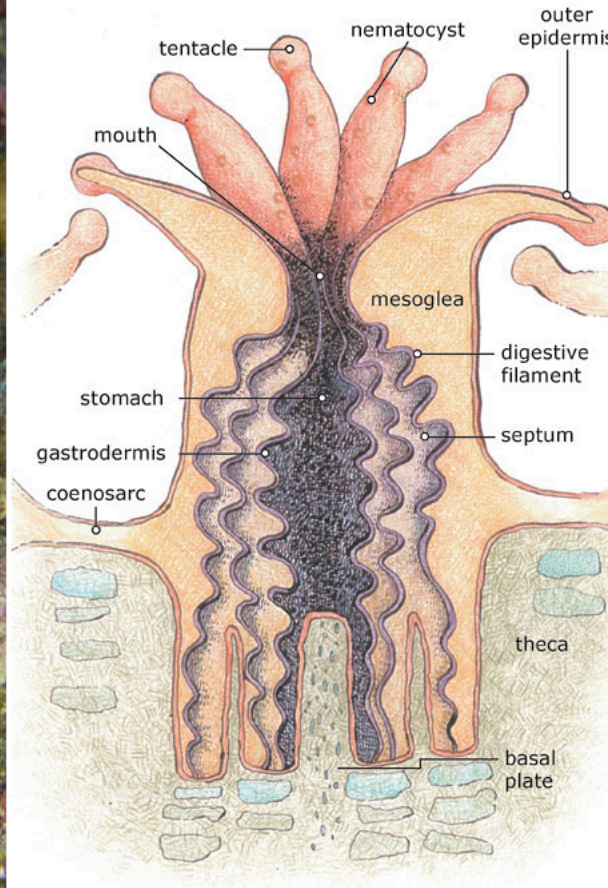
## Additional Information

Explain why coral reefs are absent on west coast of tropical continents?

Because of Cold Ocean Currents



# Tentacles



**Q) Which of the following have coral reefs ?**

- 1) Andaman and Nicobar Islands
- 2) Gulf of Kachchh
- 3) Gulf of Mannar
- 4) Sunderbans

**Select the correct answer using the code given below:**

**a) 1, 2 and 3 only**

b) 2 and 4 only

c) 1 and 3 only

d) 1, 2, 3 and 4

**Q) Consider the following pairs:**

**Place of Pilgrimage - Location**

- 1) Srisailem - Nallamala Hills
- 2) Omakareswar - Satmala Hills
- 3) **Pushkar - Mahadeo Hills**

**Which of the above pairs is/are correctly matched ?**

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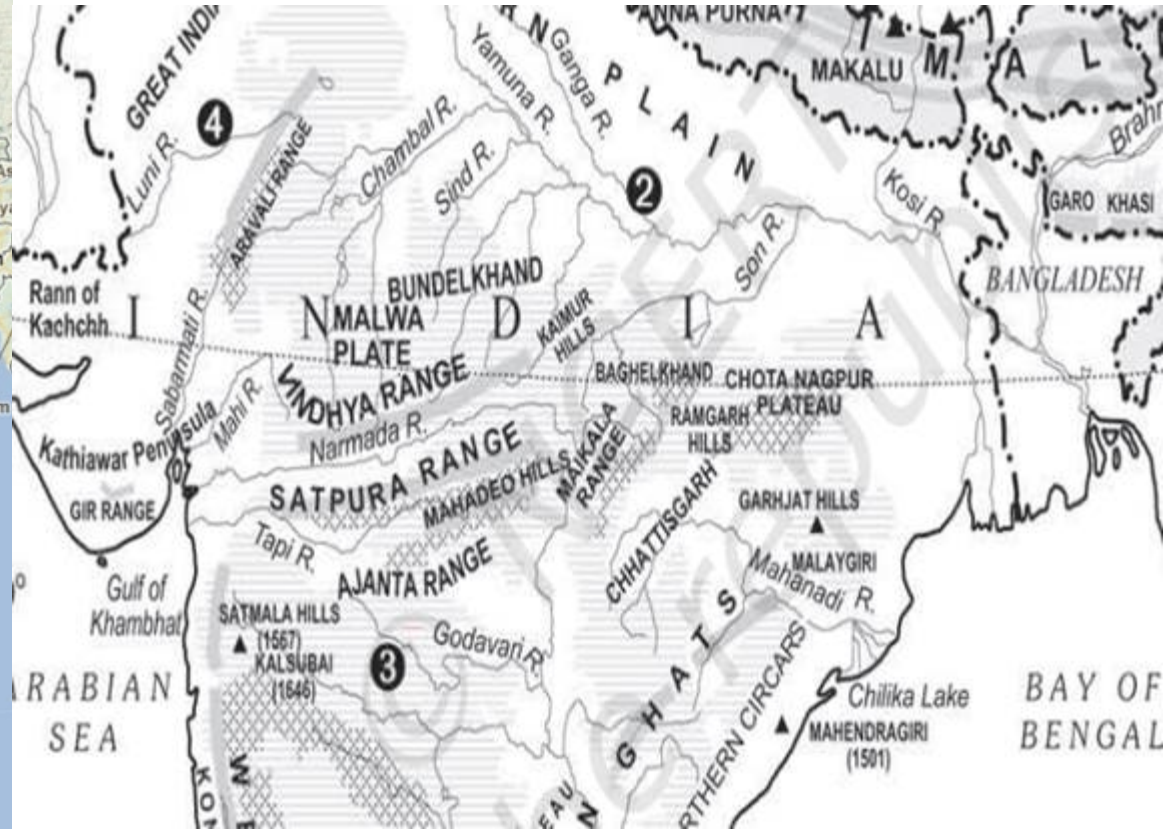
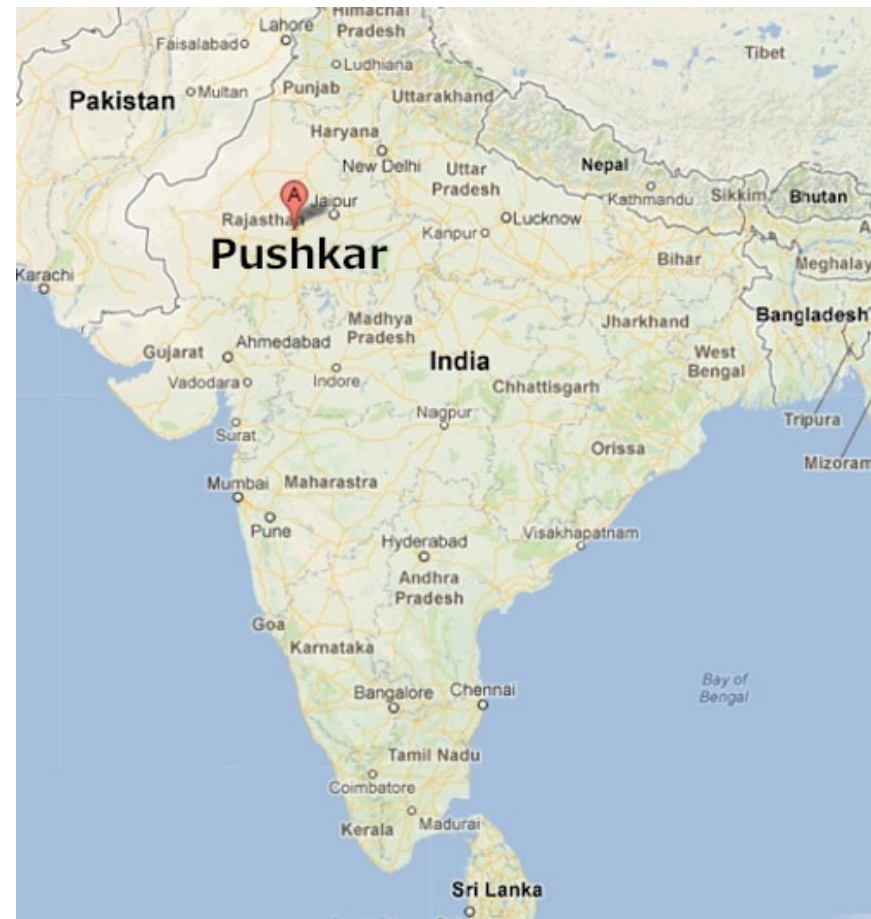
b) 2 and 3 only

c) 1 and 3 only

d) 1, 2 and 3



# Pushkar - Mahadeo Hills ?





- Srisaillam - Nallamala Hills (Andhra Pradesh).
- Omkareshwar - Mandhata hills

**Giveway** - The Pushkar valley - Aravalli hills.

**Q) Consider the following rivers:**

- 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

**Q) Consider the following rivers:**

1) Vamsadhara

2) **Indravati**

3) **Pranahita**

4) Pennar

**Which of the above are tributaries of Godavari?**

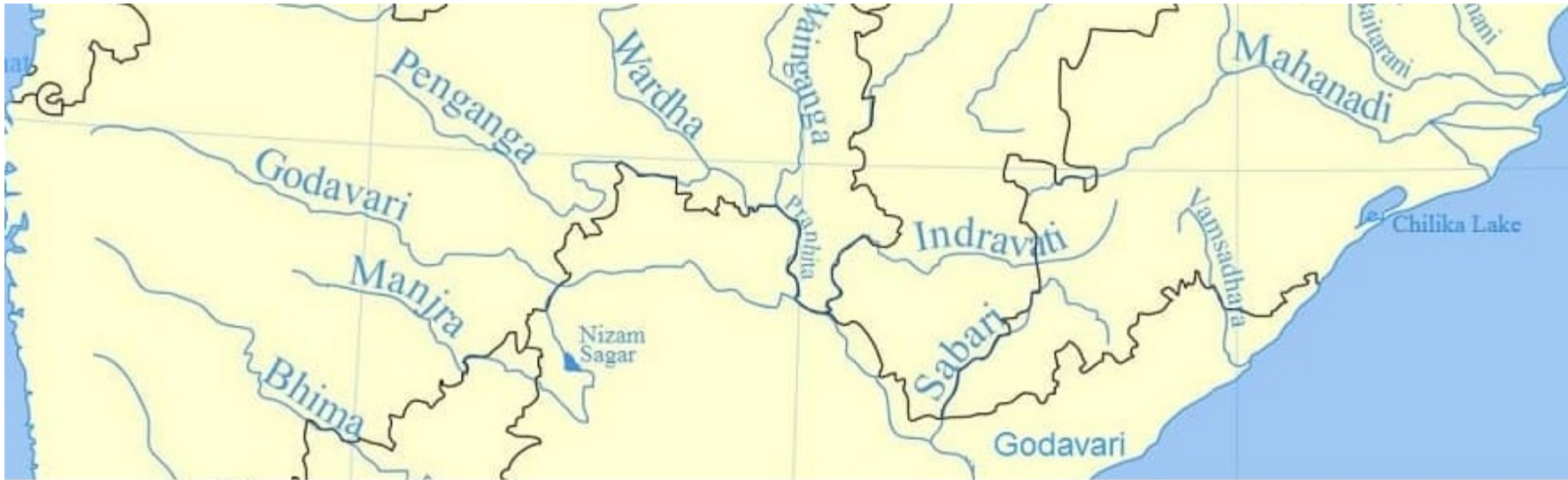
a) 1, 2 and 3

b) 2, 3 and 4

c) 1, 2 and 4

**d) 2 and 3 only**

- The Penganga, the Indravati, the Pranhita, and the Manjra are principal tributaries of the Godavari.



**Godavari River**

Q) In a particular region in India, the local people train the roots of living trees into robust bridges across the streams. As the time passes, these bridges become stronger. These unique 'living root bridges' are found in

- a) Meghalaya
- b) Himachal Pradesh
- c) Jharkhand
- d) Tamil Nadu

Q) In a particular region in India, the local people train the roots of living trees into robust bridges across the streams. As the time passes, these bridges become stronger. These unique 'living root bridges' are found in

a) Meghalaya

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c) Jharkhand

d) Tamil Nadu



- Meghalaya's double-decker and single-decker root bridges are unique in the world and are a sight to behold.
- The bridges are tangles of massive thick roots, which have been intermingled to form a bridge that can hold several people at a time.
- Khasi people have been trained to grow these bridges across the raised banks of streams to form a solid bridge, made from roots.

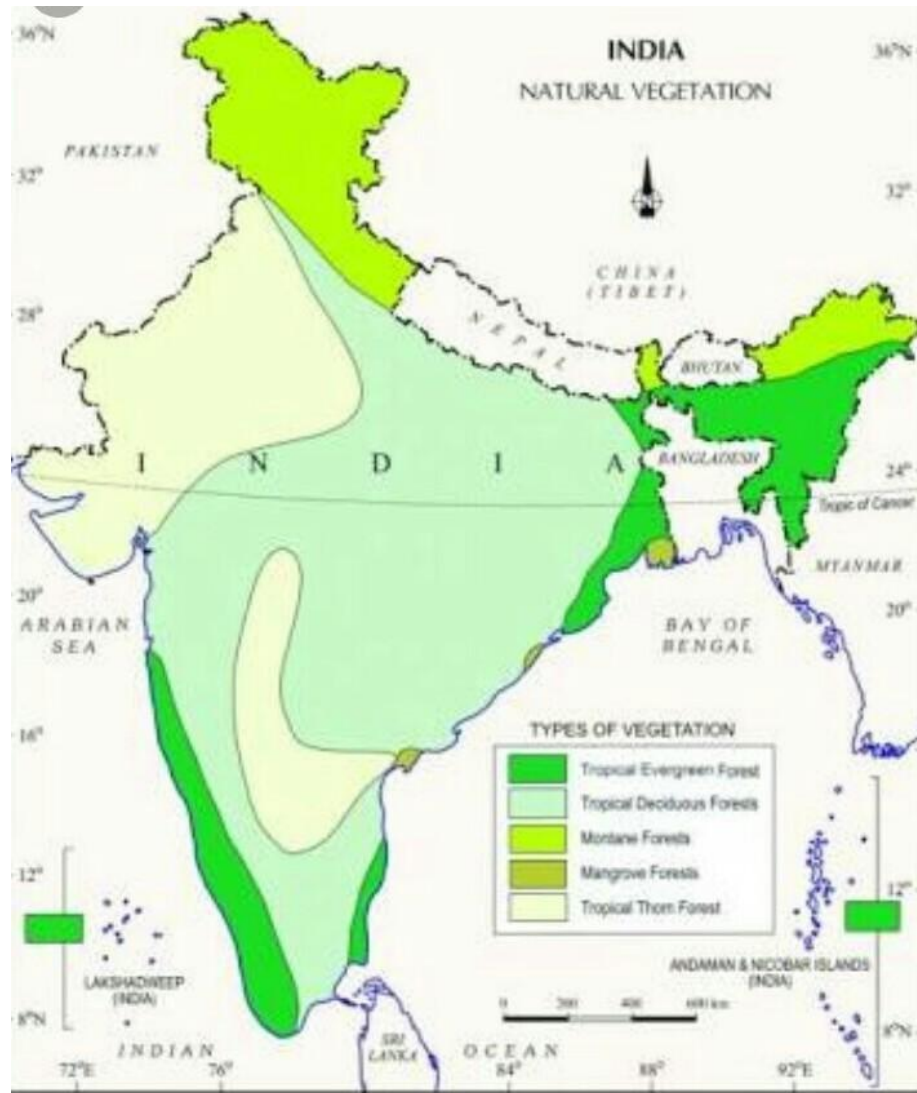


**Q) In India, in which one of the following types of forests is teak a dominant tree species?**

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

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- The Moist deciduous forests are more pronounced in the regions which record rainfall between 100-200 cm.
- These forests are found in the northeastern states along the foothills of 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 these forests.

**Q) Consider the following pairs:**

**Famous Place : Region**

- 1) Bodhgaya : Baghelkhand
- 2) Khajuraho : Bundelkhand
- 3) Shirdi : Vidarbha
- 4) Nasik (Nashik) : Malwa**
- 5) Tirupati : Rayalaseema

**Which of the pairs given above are correctly matched?**

- a) 1, 2 and 4
- b) 2, 3, 4 and 5
- c) 2 and 5 only
- d) 1, 3, 4 and 5

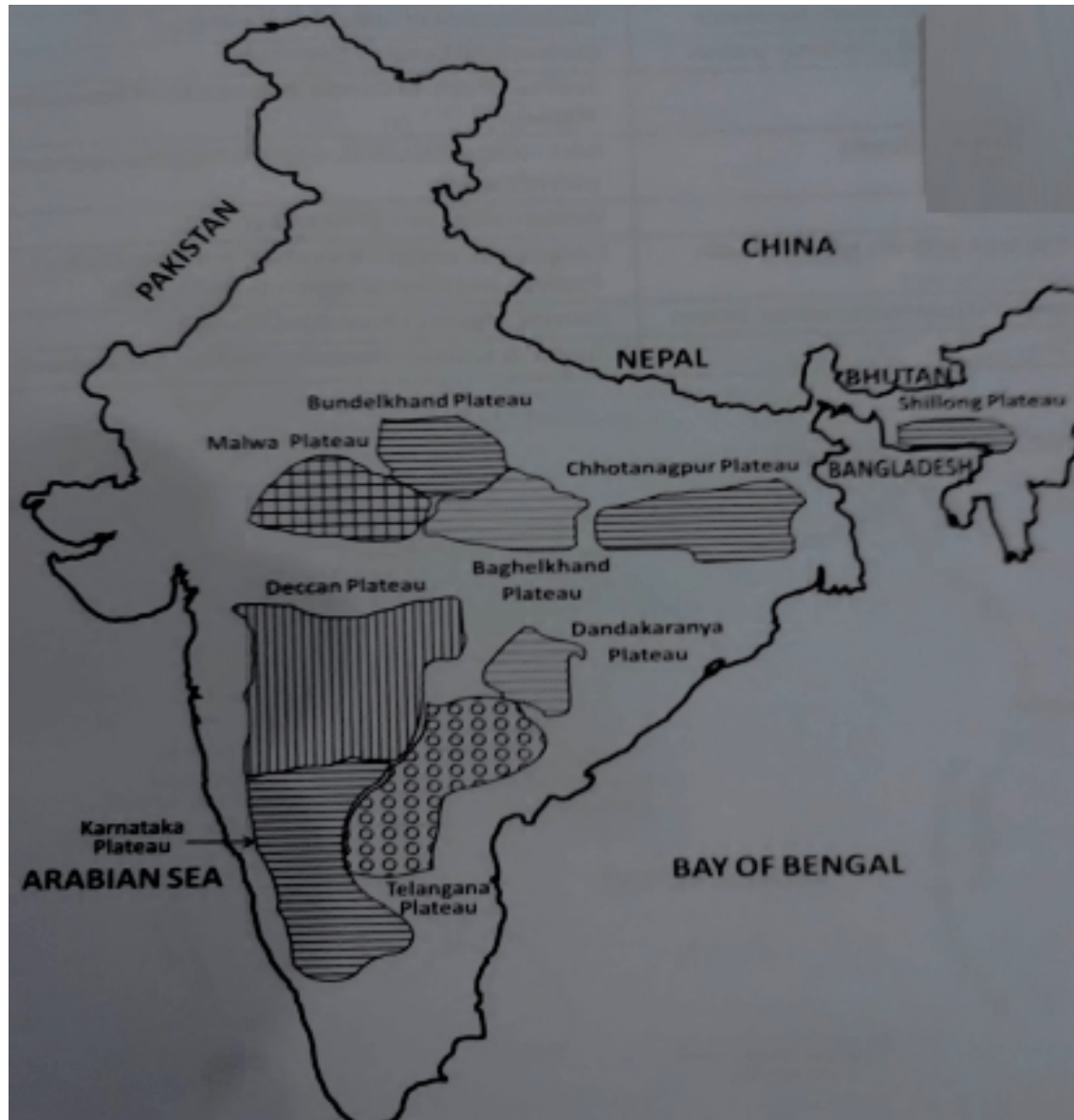
**Q66) Consider the following pairs:**

**Famous Place : Region**

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- 4) Nasik (Nashik) : Malwa
- 5) Tirupati : Rayalaseema

**Which of the pairs given above are correctly matched?**

- a) 1, 2 and 4
- b) 2, 3, 4 and 5
- c) 2 and 5 only**
- d) 1, 3, 4 and 5



**Q) Consider the following pairs:**

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**Which of the pairs given above are correctly matched?**

- a) 1, 2 and 4
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**Q) 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

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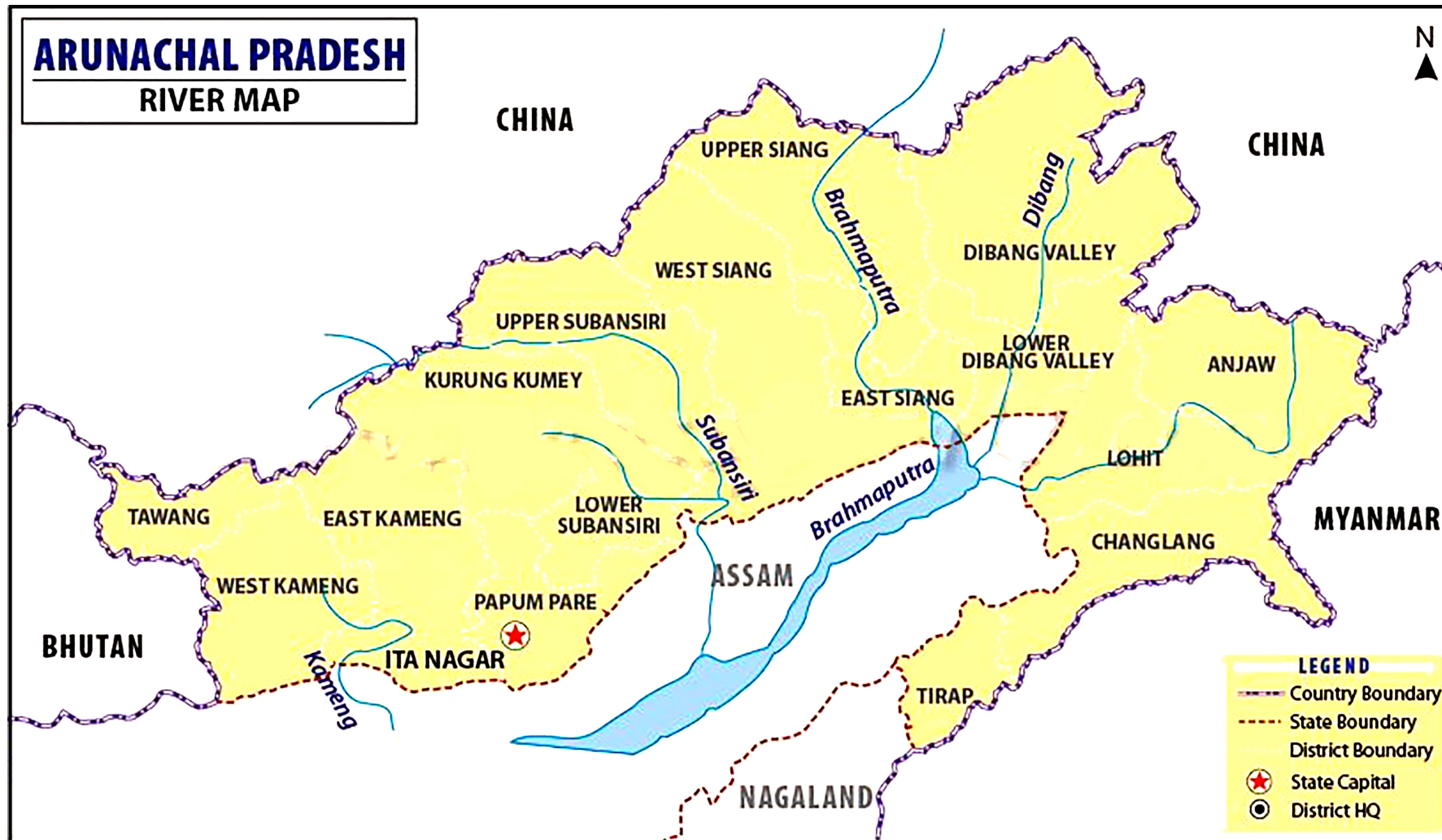
- All the given rivers Dibang, Kameng and Lohit are the tributaries of Brahmaputra.

**Note :** The principal tributaries of the Brahmaputra River joining from the **right** are Kameng, Subansiri, Manas, Sankosh and Teesta whereas Lohit, Dibang, Burhidihing, Desang, Dikhow, Dhansiri **join it from the left.**



# ARUNACHAL PRADESH

## RIVER MAP



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- 1) Dibang
- 2) Kameng
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**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**

**Q) 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

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## Prospective basins for phase 1 shale oil and gas exploration





**Q) 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
- c) 2 and 3 only
- d) 1 and 3 only

**Q70) Consider the following statements:**

- 1) In India, the Himalayas are spread over five states only.
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- 3) Pulicat Lake is spread over two States only.

**Which of the statements given above is/are correct?**

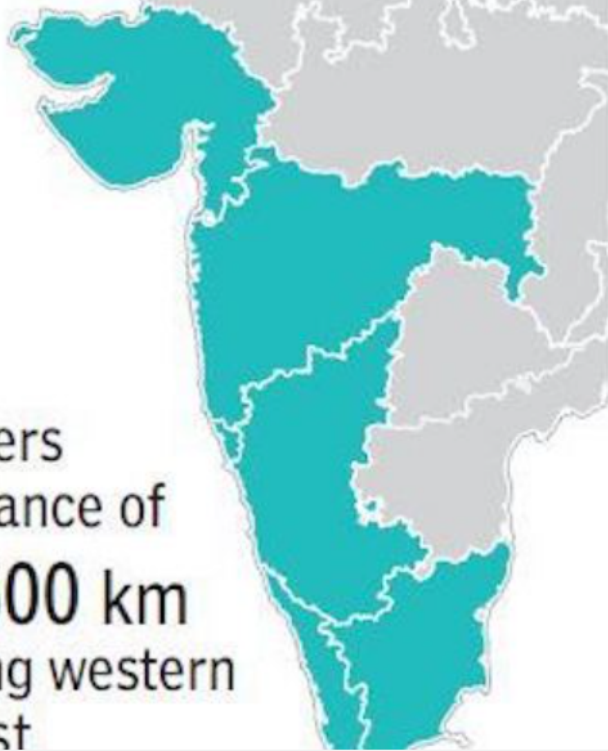
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# GHATS:

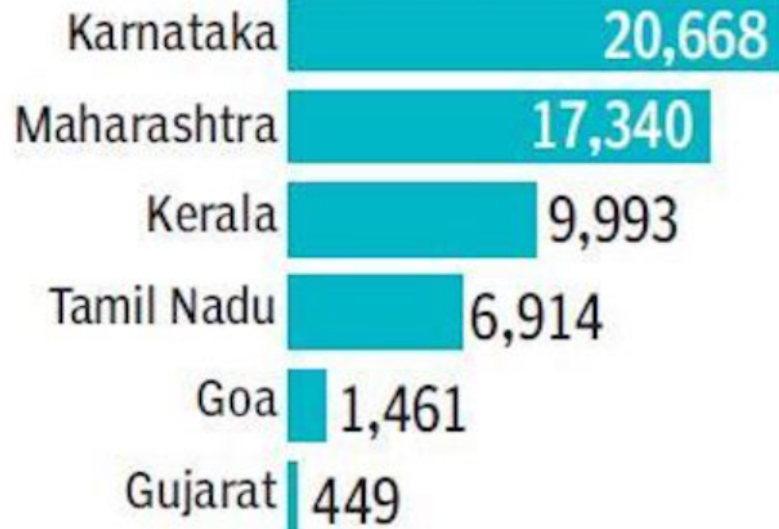
SPREAD OVER SIX STATES

Gujarat, Maharashtra,  
Goa, Karnataka, Tamil  
Nadu and Kerala

Covers  
distance of  
**1,500 km**  
along western  
coast



State & Area (in sq km)



NOTIFIED THRICE, BUT  
REMAIN ON PAPER

First **March 10, 2014**

Second **September 4, 2015**

Third **February 27, 2017**



- the Himalayas are spread over Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Sikkim, Assam, West Bengal, Arunachal Pradesh. Some extensions of Shiwaliks are also present in Punjab and Haryana.
- Western Ghats are spread over six states - Gujarat, Maharashtra, Goa, Karnataka, Kerala, Tamil Nadu.
- Pulicat -lies on the border of Andhra Pradesh and Tamil Nadu.

- Note : Western Ghat Committees :
- Gadgil Report and Kasturirangan Committee on Western Ghats

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- d) 1 and 3 only

**Q) 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 characterized 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**
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- c) Both 1 and 2**
- d) Neither 1 nor 2**

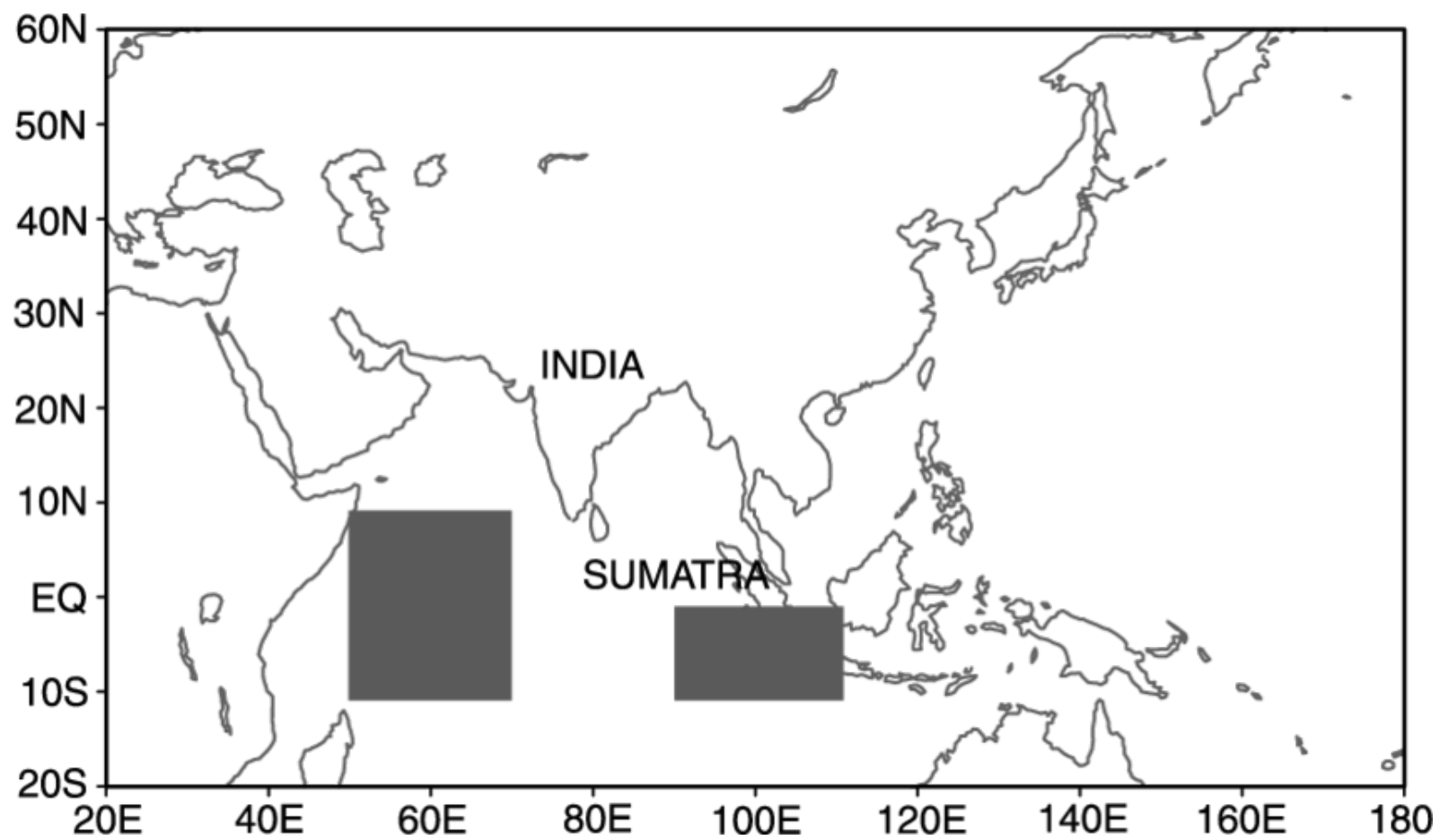
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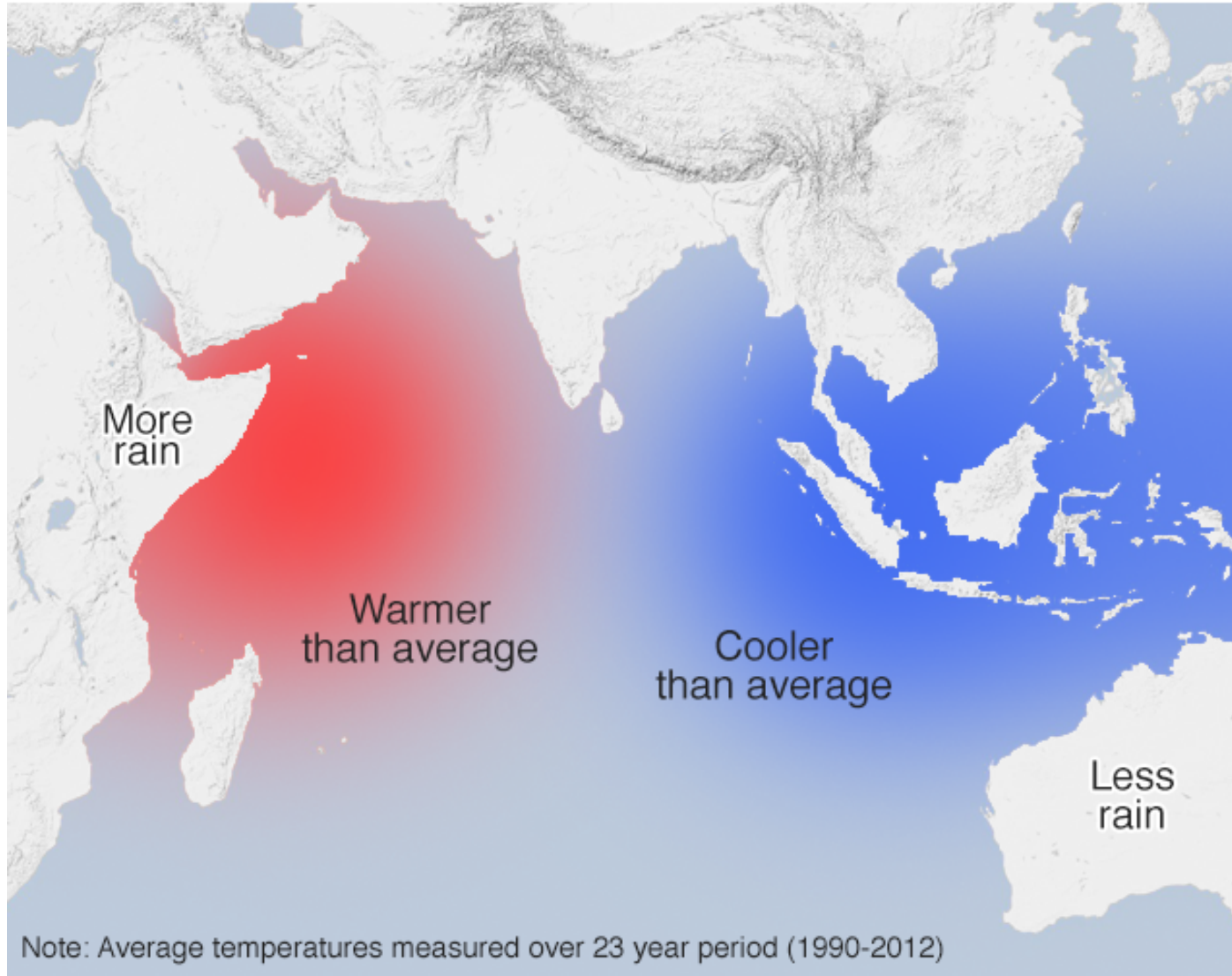




- The Indian Ocean Dipole is an irregular oscillation of sea-surface temperatures in which the western Indian Ocean becomes alternately warmer and then colder than the eastern part of the ocean.
- An IOD can either aggravate or weaken the impact of El Nino on Indian monsoon.

Note - Positive IOD events are often associated with El Niño and negative events with La Niña

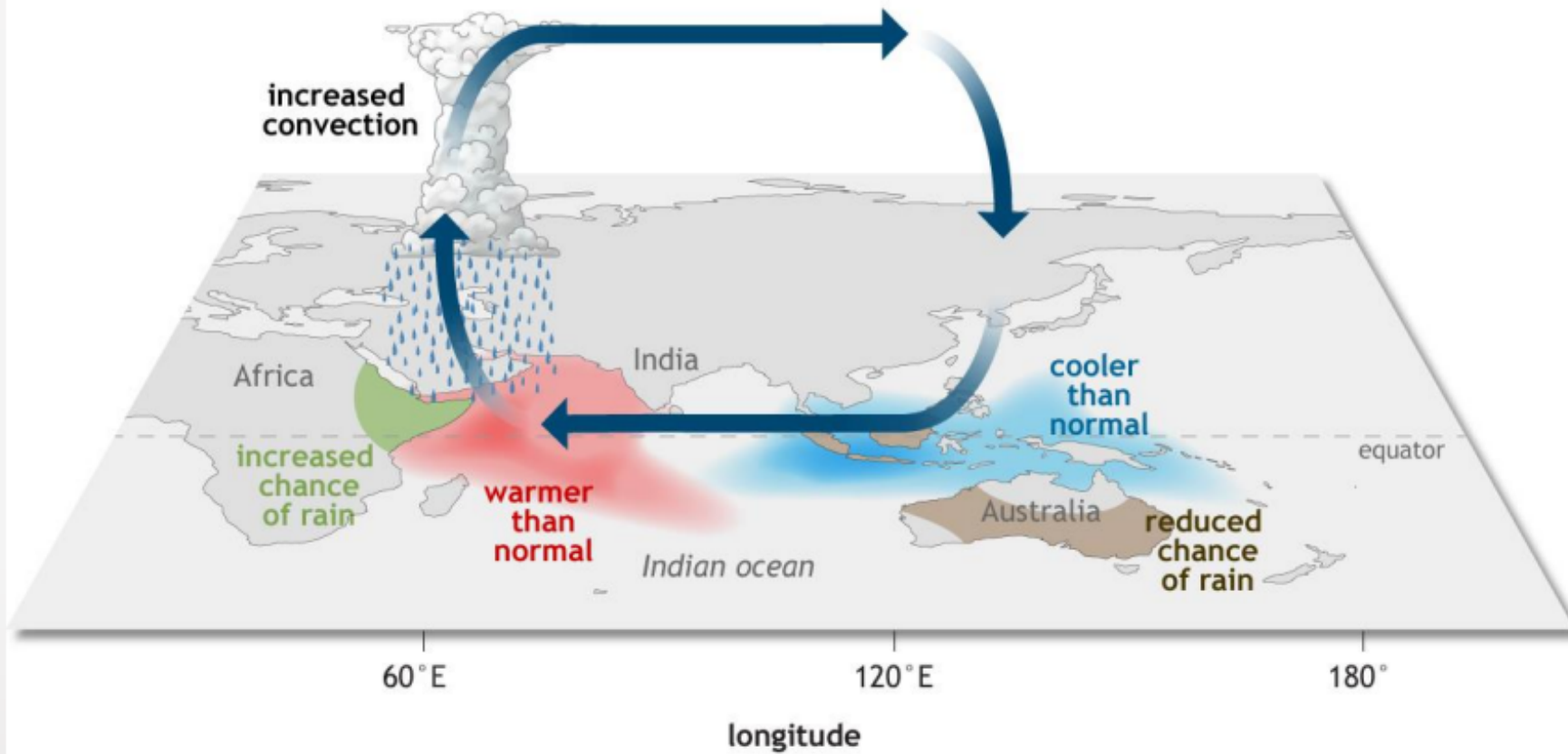
## A positive Indian Ocean Dipole means a wetter west and drier east



Source: Australian Bureau of Meteorology

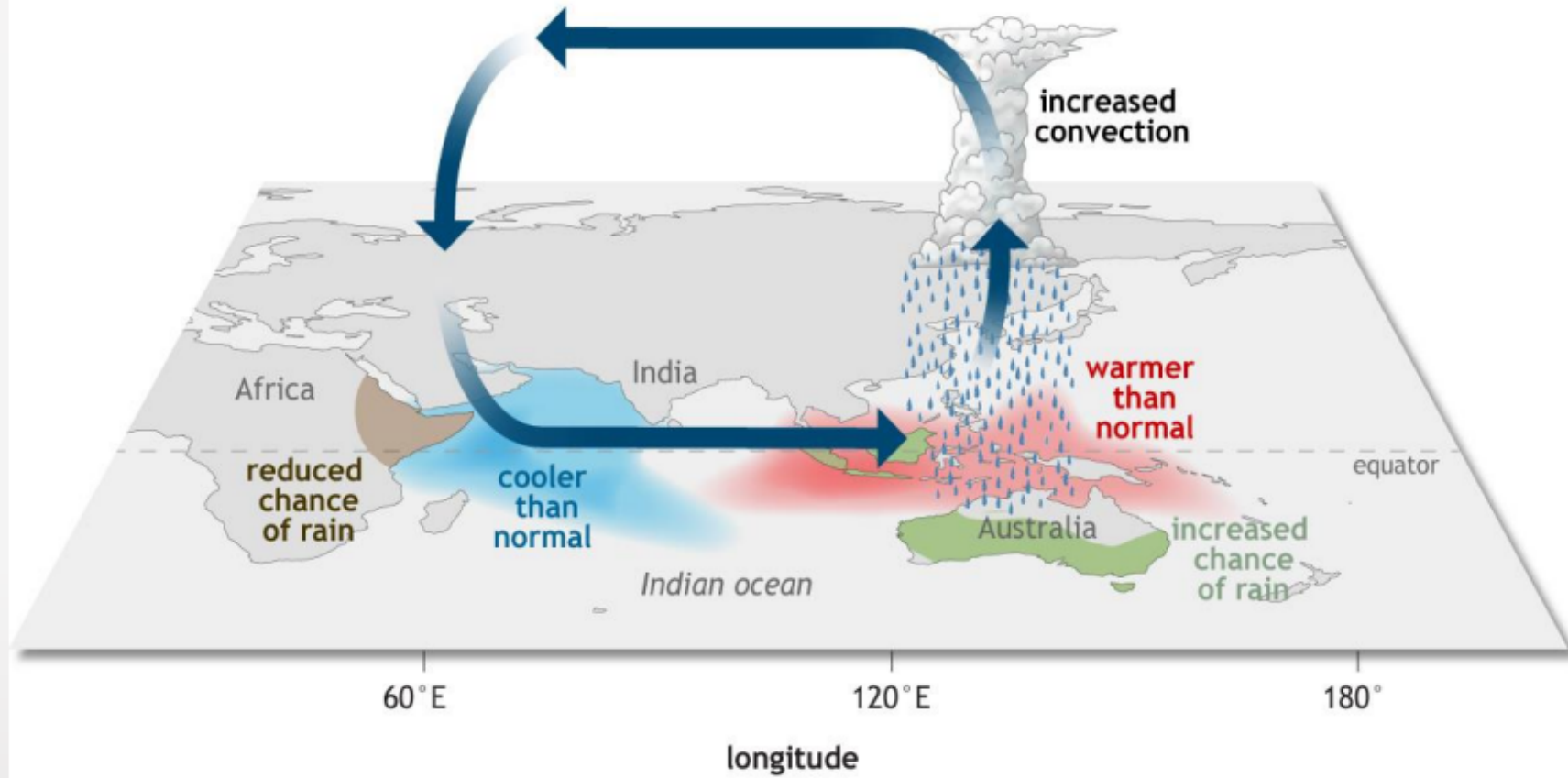
# INDIAN OCEAN DIPOLE

Positive phase



# INDIAN OCEAN DIPOLE

Negative phase



Q) Which of the following is geographically closest to Great Nicobar?

- a) Sumatra
- b) Borneo
- c) Java
- d) Sri Lanka

Q) Which of the following is geographically closest to Great Nicobar?

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b) Borneo

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# Additional Information

Indian Ocean to Pacific Ocean maritime chokepoints



Q) Which of the following is geographically closest to Great Nicobar?

a) Sumatra

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**Q) 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.

**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

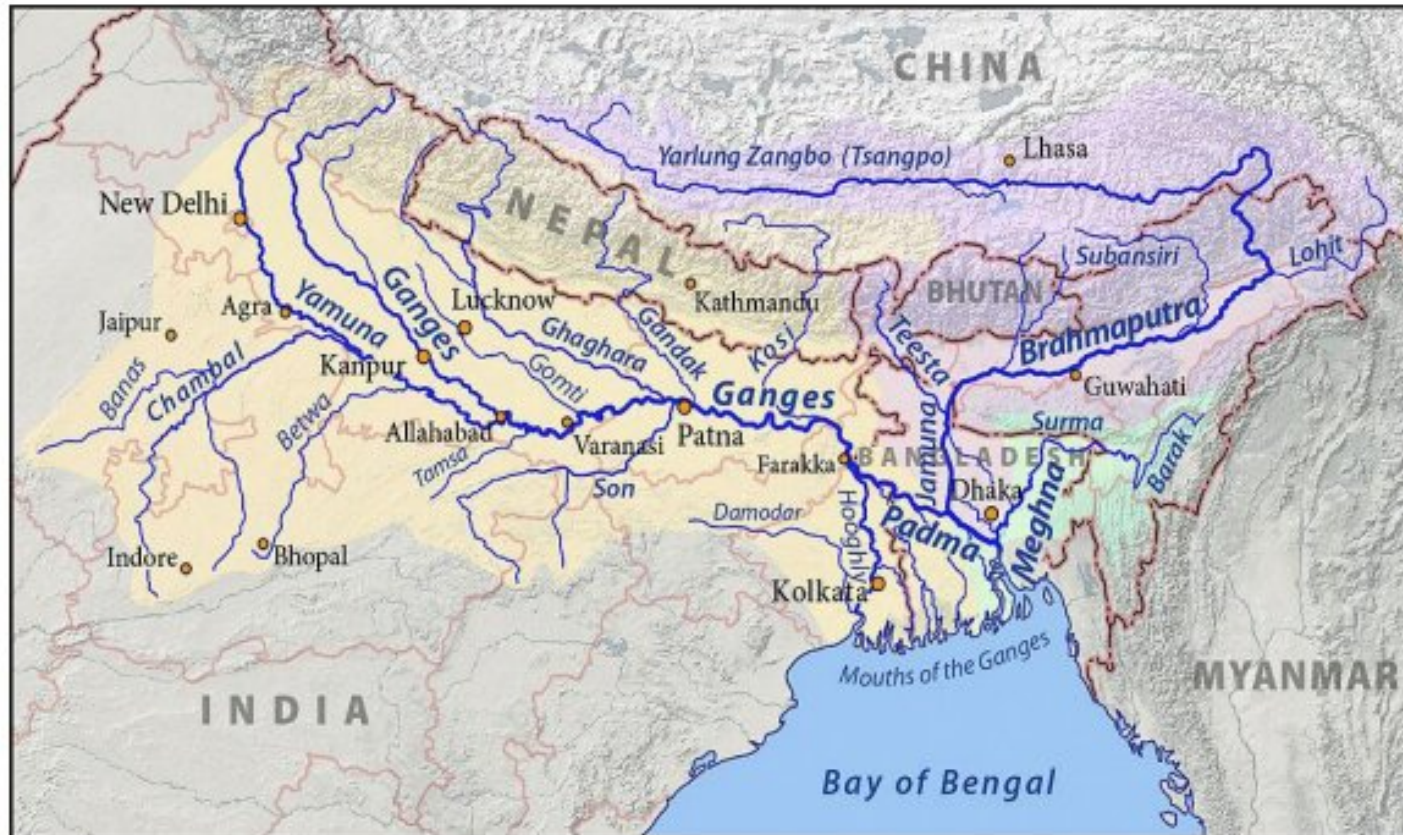
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## The Ganges-Brahmaputra Basin



- The Teesta River originates from the Pahunri glacier and flows southward through the Sikkim Himalaya.
- Just before the Teesta Bridge, where the roads from Kalimpong and Darjeeling join, the river is met by its main tributary, the Rangeet River..
- It does not flow directly into the Bay of Bengal.

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Q) If you travel by road from Kohima to Kottayam, what is the minimum number of States within India through which you can travel, including the origin and the destination?

- a) 6
- b) 7
- c) 8
- d) 9



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a) 6

**b) 7**

c) 8

d) 9



- Kohima (Nagaland) to Kottayam (Kerala) passes -  
Nagaland-Assam-West Bengal -Odisha-Andhra  
Pradesh-Tamil Nadu-Kerala

Q) From the ecological point of view, which one of the following assumes importance in being a good link between the Eastern Ghats and the Western Ghats?

- a) Sathyamangalam Tiger Reserve
- b) Nallamala Forest
- c) Nagarhole National Park
- d) Seshachalam Biosphere Reserve

Q) From the ecological point of view, which one of the following assumes importance in being a good link between the Eastern Ghats and the Western Ghats?

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b) Nallamala Forest

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d) Seshachalam Biosphere Reserve

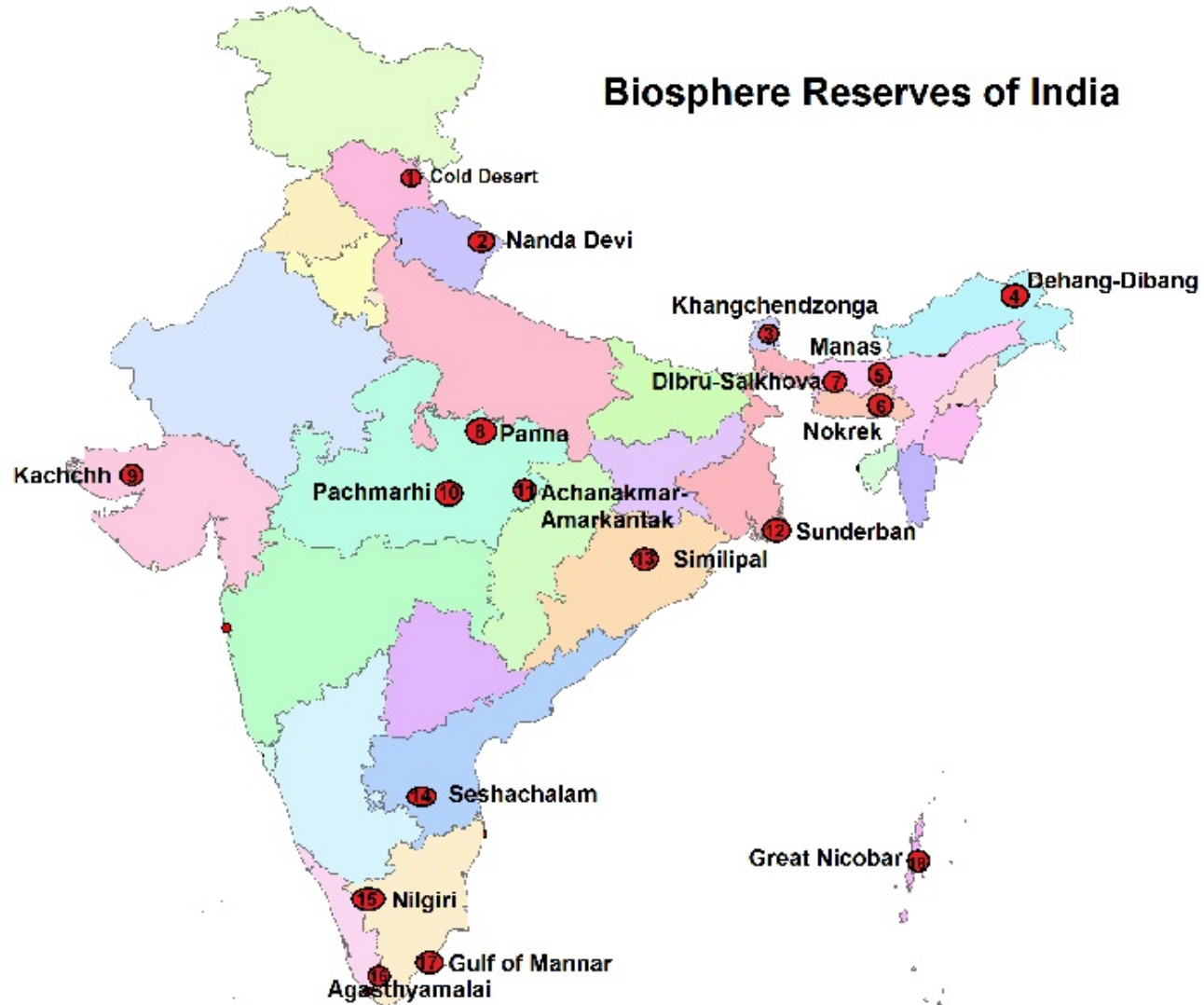
- Sathyamangalam forest range is a significant wildlife corridor in the Nilgiri Biosphere Reserve between the Western Ghats and the rest of the Eastern Ghats.
- **Note :**
- Nallamala Forest : Andhra Pradesh
- Nagarhole National Park : Karnataka ( Western Ghats)
- Seshachalam Biosphere Reserve : Andhra Pradesh ( Eastern Ghats)

# Sathyamangalam + Nagarhole



# Seshachalam

## Biosphere Reserves of India





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- **Note :**
- Nallamala Forest : Andhra Pradesh
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Q) At one of the place in India, if you stand on the seashore and watch the sea, 'you will find that the sea water recedes from the shore line a few kilometres and comes back to the shore, twice a day, and you can actually walk on the sea floor when the water recedes. This unique phenomenon is seen at

- a) Bhavnagar
- b) Bheemunipatnam
- c) Chandipur
- d) Nagapattinam

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- a) Bhavnagar
- b) Bheemunipatnam
- c) Chandipur**
- d) Nagapattinam

- Chandipur – Odisha .
- This beach is unique in the whole world no where on earth you can find a beach where the sea water retreats inside the sea from 1km to 5Km every day and it again comes back to the shore slowly during high tide. This happens twice every day.

**Note :**

The Chandipur beach is also known for its proximity to the Defence Research and Development Organisation's (DRDO) Integrated Test Range

**Q) Consider the following statements:**

- 1) In India, State Governments do not have the power to auction noncoal 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

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- Unlike coal, the auction of mining licences of non-coal minerals is conducted by the respective state governments- January 2015
- In Rajasthan, Iron-Ore deposits are located in the district of Jaipur, Udaipur, Jhunjhunu, Sikar, Bhilwara, Alwar, Bharatpur, Dausa and Banswara.
- India has gold deposits spread across several states including Andhra Pradesh, Chhattisgarh, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Tamil Nadu and Rajasthan.

Note : Jharkhand is one of the most mineral-rich states in India. Jharkhand has gold mines like Rungta mines.

There are known deposits of gold bearing quartz rocks in the Rayalaseema region of AP, including Anantapur, Chittoor and Kurnool while in Jharkhand gold mines are in Eastern Singhbhum district

## Additional Information - Gold Fields in India

- Gold fields in the country- Kolar Gold Field, Kolar district, Hutti Gold Field in Raichur district (both in Karnataka) and Ramgiri Gold Field in Anantpur district (Andhra Pradesh).



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**Q) Which one of the following is an artificial lake?**

- a) Kodaikanal (Tamil Nadu)
- b) Kolleru (Andhra Pradesh)
- c) Nainital (Uttarakhand)
- d) Renuka (Himachal Pradesh)

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- a) **Kodaikanal (Tamil Nadu)**
- b) Kolleru (Andhra Pradesh)
- c) Nainital (Uttarakhand)
- d) Renuka (Himachal Pradesh)

- Kodaikanal Lake- a manmade lake - Tamilnadu, India.
- **Note :**
- Largest Artificial Lake in India – Govind Vallabh Pant Sagar.
- Dhebar Lake is India's second-largest artificial lake
- Bhojtal Lake – Madhya Pradesh
- Gobind Sagar Lake – Himachal Pradesh
- Jaisamand Lake (Dhebar Lake ) - Rajasthan
- Hussain Sagar Lake –Telangana – Tamil Nadu

**Q) Consider the following statements:**

- 1) The Barren Island volcano is an active volcano located in the Indian territory.
- 2) Barren Island lies about 140 km east of Great Nicobar.
- 3) The last time the Barren Island volcano erupted was in 1991 and it has remained inactive since then.

**Which of the statements given above is/are correct?**

- a) 1 only
- b) 2 and 3
- c) 3 only
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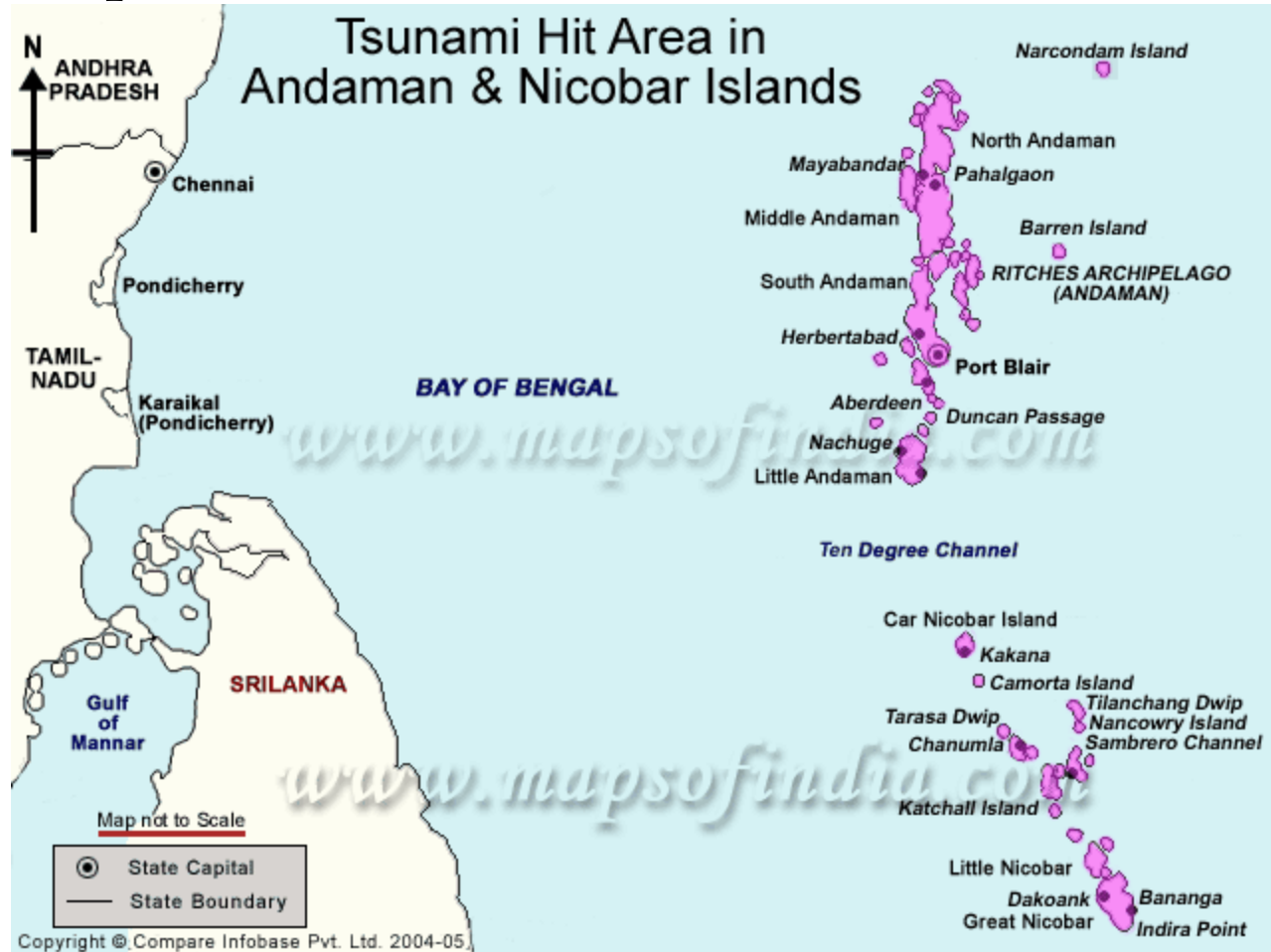
**a) 1 only**

b) 2 and 3

c) 3 only

d) 1 and 3

- Barren Island is India's only active volcano.
- The Barren Island volcano saw a major eruption in 1991. Since then it has shown intermittent activity, including eruptions in 1995, 2005 and 2017.



**Q) Consider the following statements:**

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**Which of the statements given above is/are correct?**

**a) 1 only**

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**Q) With reference to the management of minor minerals in India, consider the following statements:**

- 1) Sand is a 'minor mineral' according to the prevailing law in the country.
- 2) State Governments have the power to grant mining leases of minor minerals, but the powers regarding the formation of rules related to the grant of minor minerals lie with the Central Government.
- 3) State Government have the power to frame rules to prevent illegal mining of minor minerals.

**Which of the statements given above is/are correct?**

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**Which of the statements given above is/are correct?**

**a) 1 and 3 only**

b) 2 and 3 only

c) 3 only

d) 1, 2 and 3

- Sand is a minor mineral, as defined under section 3(e) of the Mines and Minerals Act, 1957 (MMDR Act).
- As per Section 15 of the Mines and Minerals (Development and Regulation) (MMDR) Act, 1957, State Governments have been empowered to frame rules in respect of minor minerals for regulating the grant of quarry leases, mining leases or other mineral concessions in respect of minor minerals and for purposes connected therewith.
- Sec 23C of the MMDR Act, 1957 empowers state governments to frame rules to prevent illegal mining, transportation and storage of minerals and for purposes connected therewith. Control of illegal mining is, therefore, under the legislative and administrative jurisdiction of state governments.

**Q) Consider the following pairs:**

**Famous Place : River**

- 1) Pandharpur : Chandrabhaga
- 2) Tiruchirappalli : Cauvery
- 3) Hampi : Malaprabha

**Which of the pairs given above are correctly matched?**

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

**Q86) Consider the following pairs:**

**Famous Place : River**

- 1) Pandharpur : Chandrabhaga
- 2) Tiruchirappalli : Cauvery
- 3) Hampi : Malaprabha

**Which of the pairs given above are correctly matched?**

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

- **Pandharpur** -pilgrimage town - Chandrabhaga River - Maharashtra
- **Tiruchirapalli** - Kaveri River - Tamil Nadu, India.
- **Hampi** - Tungabhadra River – Temples

**Q) What is common to the places known as Aliyar, Isapur and Kangsabati?**

- a) Recently discovered uranium deposits
- b) Tropical rain forests
- c) Underground cave systems
- d) Water reservoirs

Q) What is common to the places known as Aliyar, Isapur and Kangsabati?

- a) Recently discovered uranium deposits
- b) Tropical rain forests
- c) Underground cave systems
- d) Water reservoirs**



- Aliyar (Tamil Nadu) Isapur (Maharashtra) and Kangsabati (West Bengal) are water reservoirs, where water level reached much below the normal capacity.
- **Note : From Current Affairs :** At present, around 18 reservoirs have water level below 50 per cent of normal storage capacity. Of these, six reservoirs (Sholayar, Lower Bhawani, Vaigai, Mettur Stanley, Aliyar, Parambikulam) are in Tamil Nadu, three (Isapur, Yeldari, Pench (Totaladoh) in Maharashtra, two (Vanivilas Sagar, Tungabhadra) in Karnataka, two (Tawa, Barna) in Madhya Pradesh, one each in Gujarat (Sardar Sarovar), Uttar Pradesh (Matatila), Odisha (Balimela), Jharkhand (Tilaiya) and Andhra Pradesh and Telangana (Nagarjuna Sagar).

**Q) Consider the following pairs:**

**Glacier : River**

- 1) Bandarpunch : Yamuna
- 2) Bara Shigri : Chenab
- 3) Milam : Mandakini
- 4) Siachen : Nubra
- 5) Zemu : Manas

**Which of the pairs given above are correctly matched?**

- a) 1, 2 and 4
- b) 1, 3 and 4
- c) 2 and 5
- d) 3 and 5

**Q91) Consider the following pairs:**

**Glacier : River**

- 1) Bandarpunch : Yamuna
- 2) **Bara Shigri : Chenab – Second One**
- 3) Milam : Mandakini
- 4) Siachen : Nubra
- 5) **Zemu : Manas - State eliminating**

**Which of the pairs given above are correctly matched?**

**a) 1, 2 and 4**

b) 1, 3 and 4

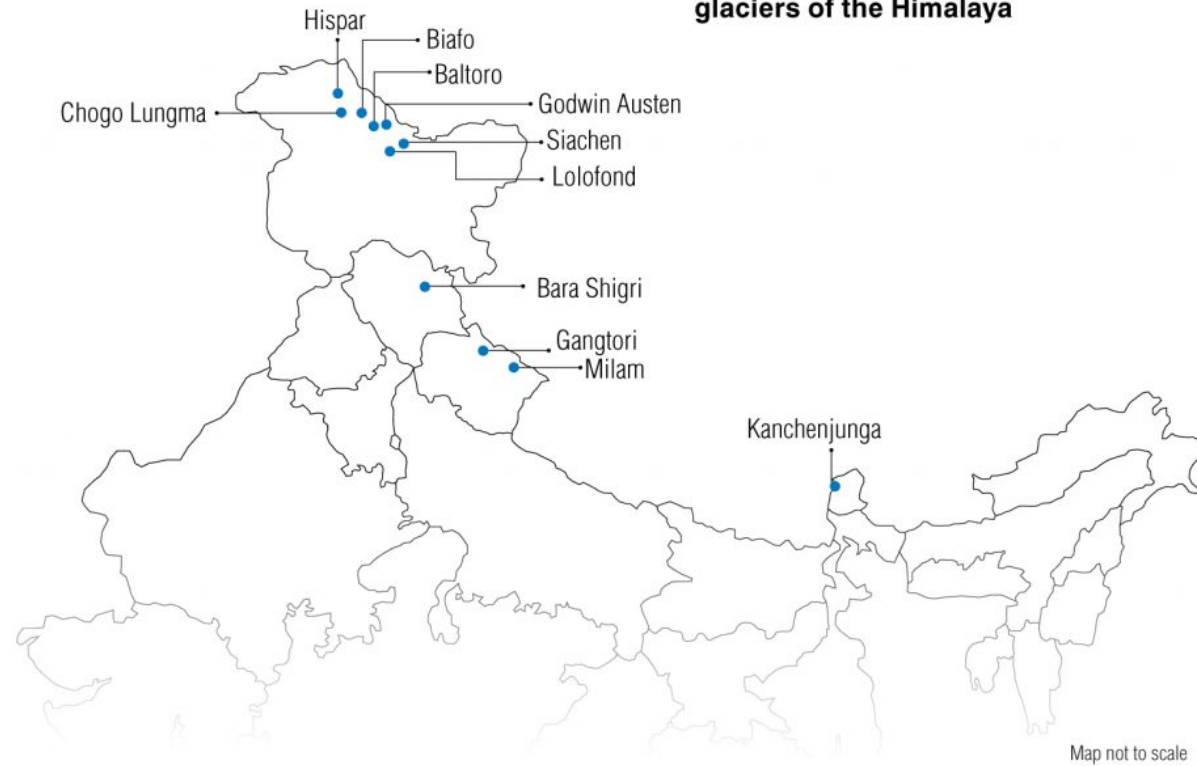
c) 2 and 5

d) 3 and 5

- Bandarpunch - Yamuna River
- Bara -Sigri glacier - Chenab River.
- Milam Glacier – Mandakini
- Siachen Glacier - Nubra River
- Zemu Glacier - Manas River



**Fig. 1: Locations of the largest glaciers of the Himalaya**



**Q92) Consider the following minerals:**

- 1) Bentonite
- 2) Chromite
- 3) Kyanite
- 4) Sillimanite In India

**Which of the above is/are officially designated as major minerals?**

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

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



- Bentonite - 'Minor Mineral' 2015 – GOI notification
- **Note :**
- There is **no official definition** for “major minerals” in the MMDR Act(Mines and Minerals (Development and Regulation) Act, 1957).
- Hence, whatever is not declared as a “minor mineral” may be treated as the major mineral.
- **Major minerals are those specified in the first schedule appended in the MMDR Act 1957**

**Q94) Siachen Glacier is situated to the**

- a) East of Aksai Chin
- b) East of Leh
- c) North of Gilgit
- d) North of Nubra Valley

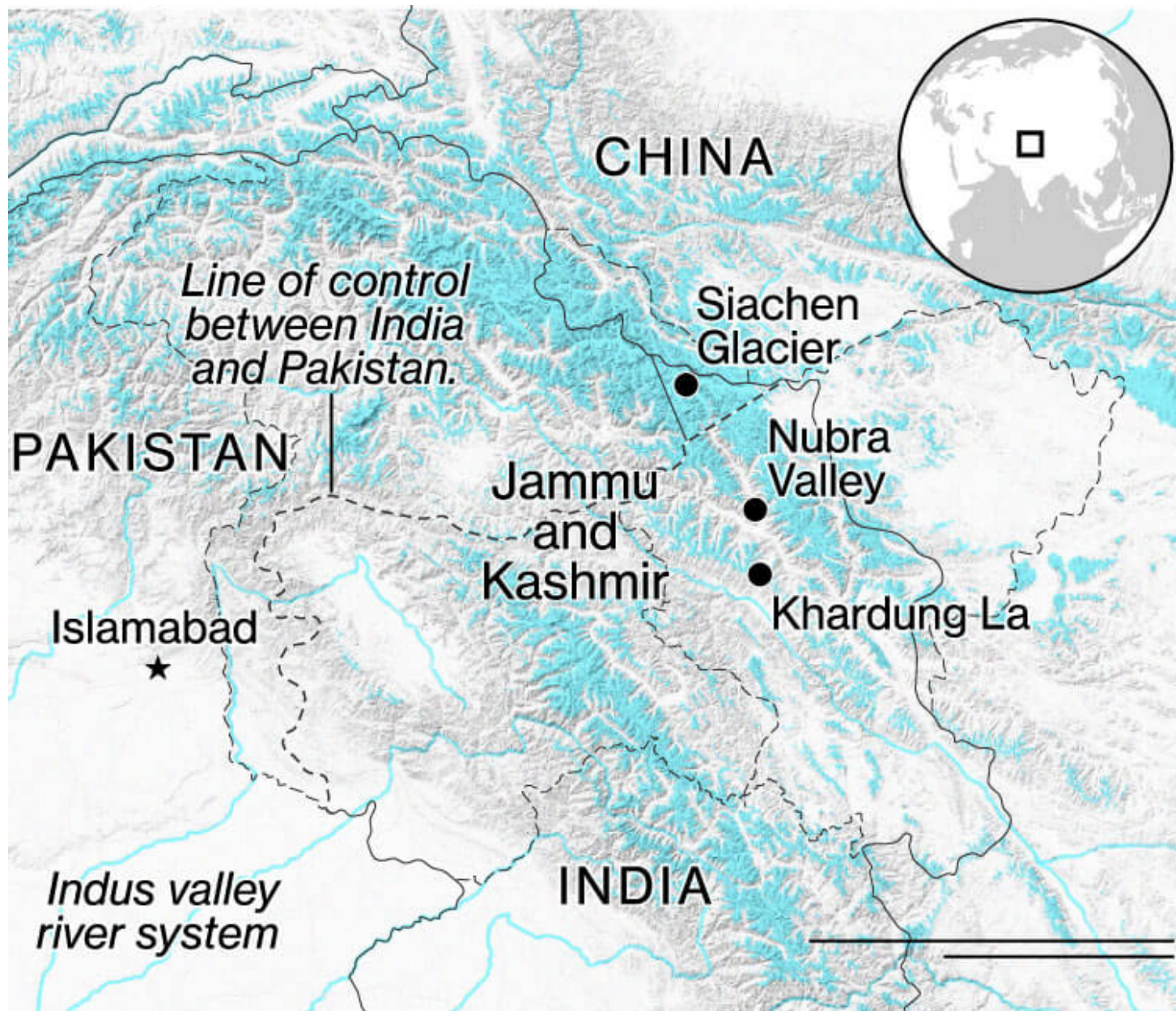
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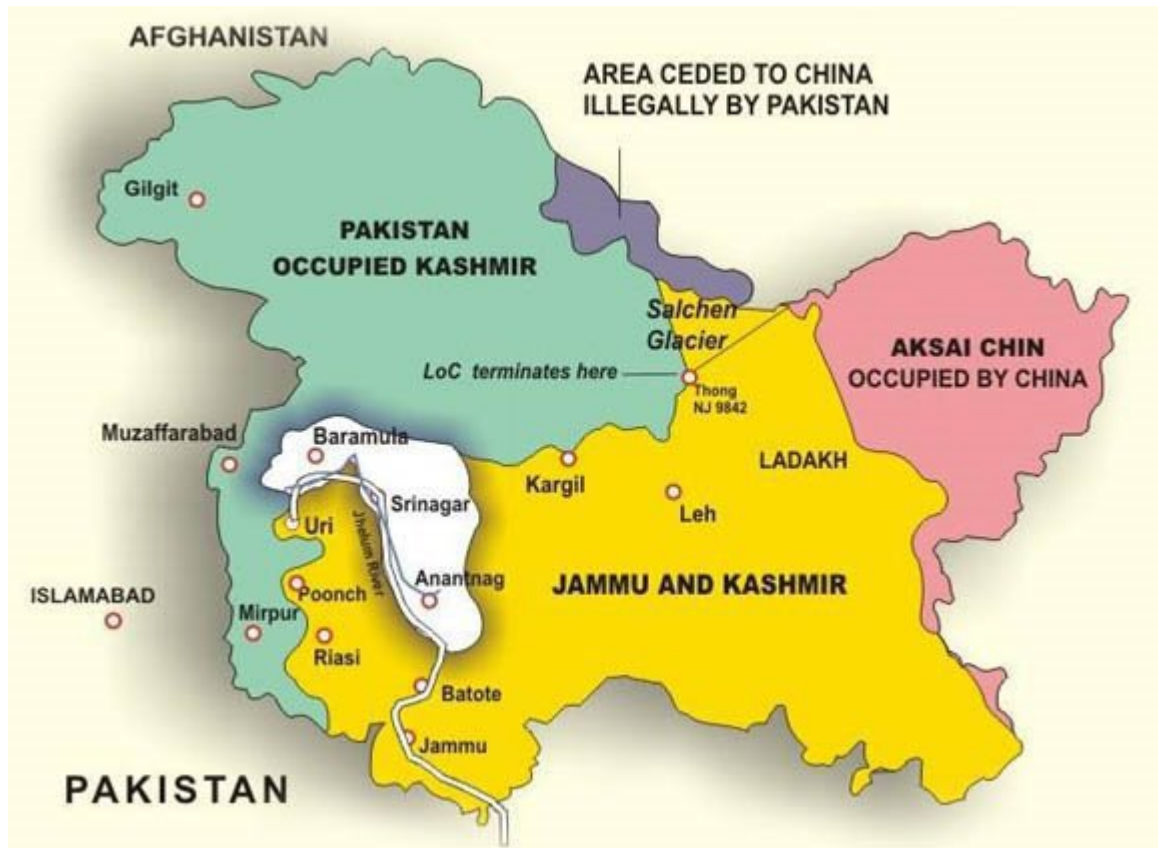
b) East of Leh

c) North of Gilgit

**d) North of Nubra Valley**



# By Elimination







**Q) Siachen Glacier is situated to the**

a) East of Aksai Chin

b) East of Leh

c) North of Gilgit

**d) North of Nubra Valley**

Q) With reference to India, Didwana, Kuchaman, Sargol and Khatu are the names of

- a) Glaciers
- b) mangrove areas
- c) Ramsar sites
- d) Saline lakes



Q) With reference to India, Didwana, Kuchaman, Sargol and Khatu are the names of

- a) Glaciers
- b) mangrove areas
- c) Ramsar sites
- d) Saline lakes**

- Didwana, Kuchaman, Sargol and Khatu are names of towns with or near saline lakes.

**Note :**

- Sambhar, Degana, Didwana Kuchaman, Lunkaransar-Tal, and Pachpadra – **Rajasthan – Salt Water Lakes**

- **Additional Information**

- Wular lake - freshwater lakes - formed as a result of tectonic activity.
- Chilika Lake - Odisha largest saline water lake
- Vembanad Lake in Kerala - longest lake
- Lonar Lake is a notified National Geo-heritage Monument

Q) With reference to India, Didwana, Kuchaman, Sargol and Khatu are the names of

- a) Glaciers
- b) mangrove areas
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Q. The lower Gangetic plain is characterised by humid climate with high temperature throughout the year. Which one among the following pairs of crops is most suitable for this region?

- a) Paddy and cotton
- b) Wheat and Jute
- c) Paddy and Jute
- d) Wheat and cotton

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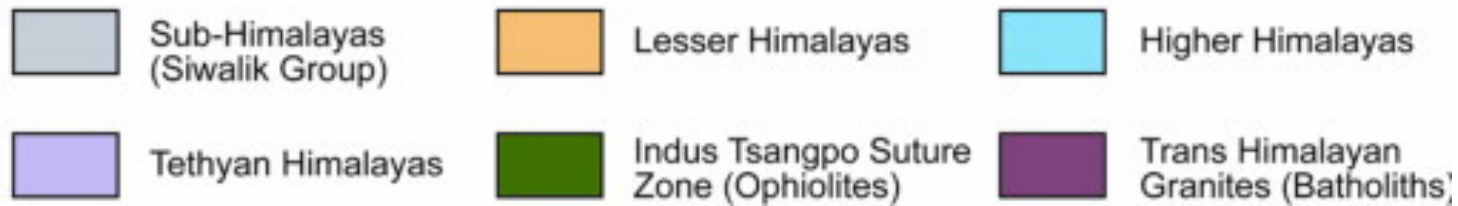
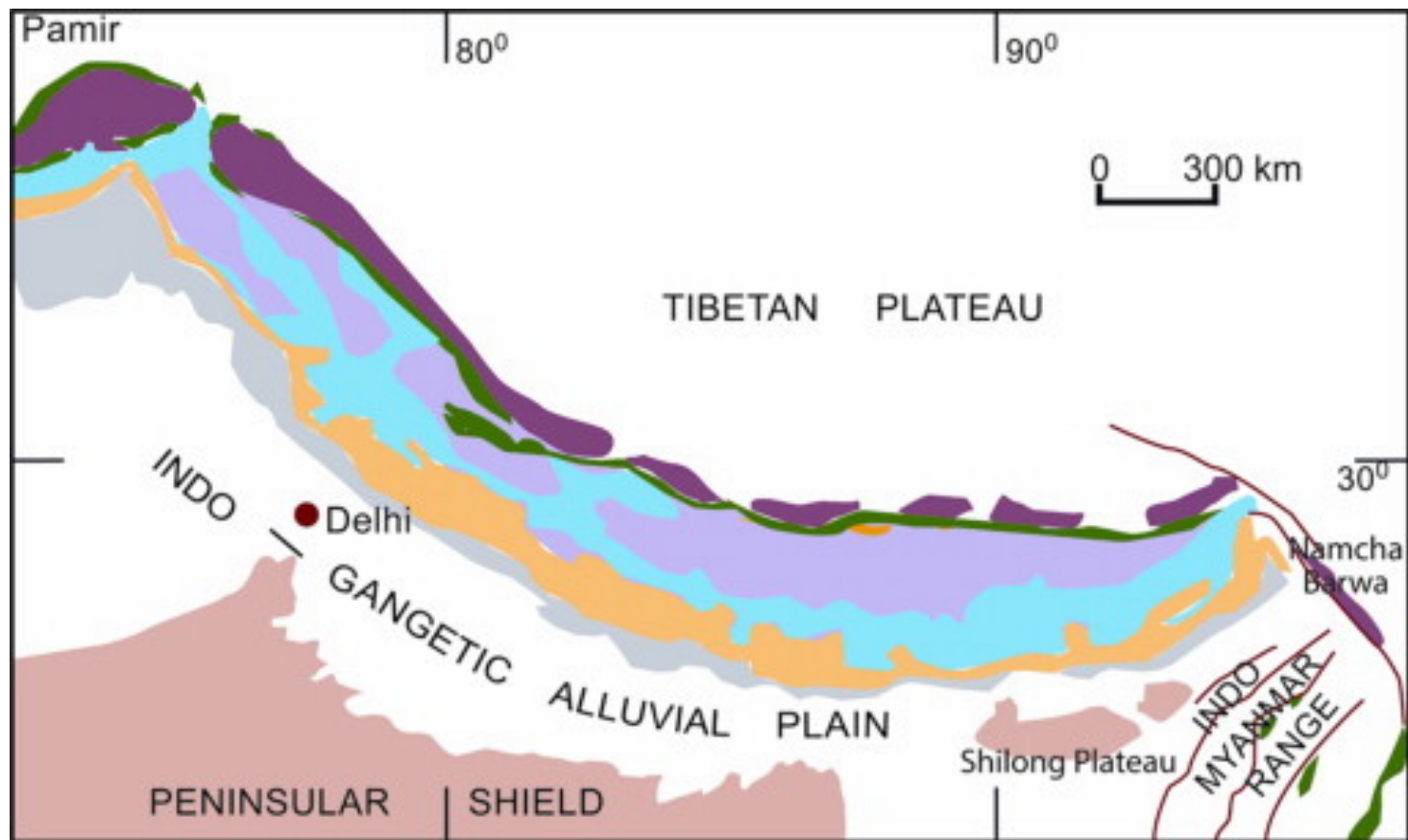
Q. The Brahmaputra, Irrawady and Mekong rivers originate in Tibet and flow through narrow and parallel mountain ranges in their upper reaches. Of these rivers, Brahmaputra makes a “U” turn in its course to flow into India. This “U” turn is due to

- a) Uplift of folded Himalayan series
- b) Syntaxial bending of geologically young Himalayas
- c) Geo-Tectonic disturbance in the tertiary folded mountain chains
- d) Both (a) and (b) above



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## Additional Concept – Snowline

Western Himalayas are above  $36^{\circ}\text{N}$  Lat. (Mt. Godwin-Austin), and eastern Himalayas are below  $28^{\circ}\text{N}$  Lat. (Kanchenjunga). Thus the  $8^{\circ}$  difference in the latitude between the two ends of the Himalayas has affected the altitude of the regional snowline so that it is lower in western Himalayas and higher in the east.



**Q. A state in India has the following characteristics:**

1. Its northern part is arid and semi-arid.
2. Its central part produces cotton.
3. Cultivation of cash crops is predominant over food crops.

**Which one of the following states has all of the above characteristics?**

- a) Andhra Pradesh
- b) Gujarat
- c) Karnataka
- d) Tamil Nadu

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Q. Among the following States, which one has the most suitable climatic conditions for the cultivation of a large variety of **orchids** with minimum cost of production, and can develop an export oriented industry in this field?

- a) Andhra Pradesh
- b) Arunachal Pradesh
- c) Madhya Pradesh
- d) Uttar Pradesh

Q. Among the following States, which one has the most suitable climatic conditions for the cultivation of a large variety of orchids with minimum cost of production, and can develop an export oriented industry in this field?

a) Andhra Pradesh

**b) Arunachal Pradesh – Orchid State of India**

c) Madhya Pradesh

d) Uttar Pradesh

- Arunachal Pradesh has the highest number of orchid species (around 622 species) reported from the state.
- Arunachal Pradesh has also been termed as 'Orchid Paradise of India' because of the maximum concentration of orchid species (about 40% of the country) in the State.



Q.) With reference to the Indus river system, of the following four rivers, three of them pour into one of them which joins the Indus direct. Among the following, which one is such river that joins the Indus direct?

- a) Chenab
- b) Jhelum
- c) Ravi
- d) Sutlej

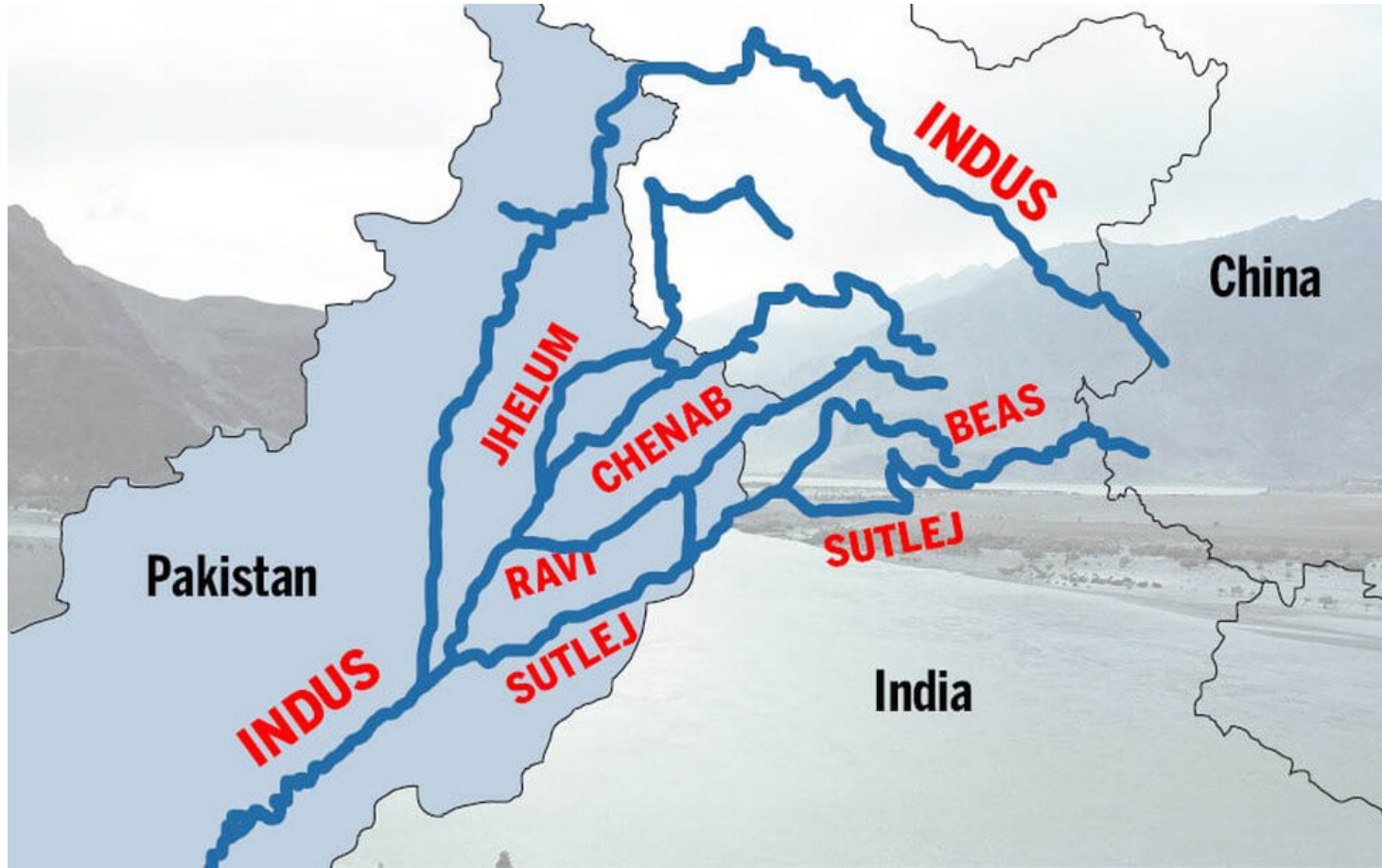
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a) Chenab

b) Jhelum

c) Ravi

**d) Sutlej**



**Q.) Consider the following rivers:**

1. Brahmani
2. Nagavali
3. Subarnarekha
4. Vamsadhara

**Which of the above rise from the Eastern Ghats?**

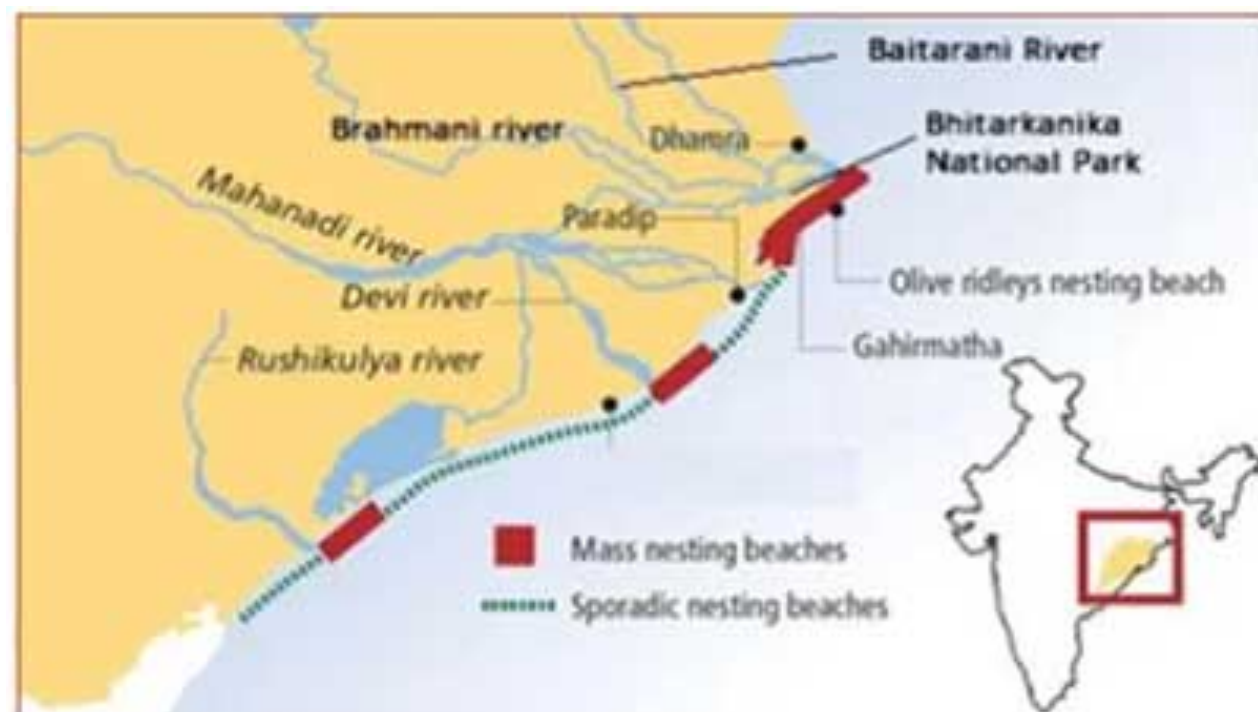
- a) 1 and 2
- b) 2 and 4
- c) 3 and 4
- d) 1 and 3

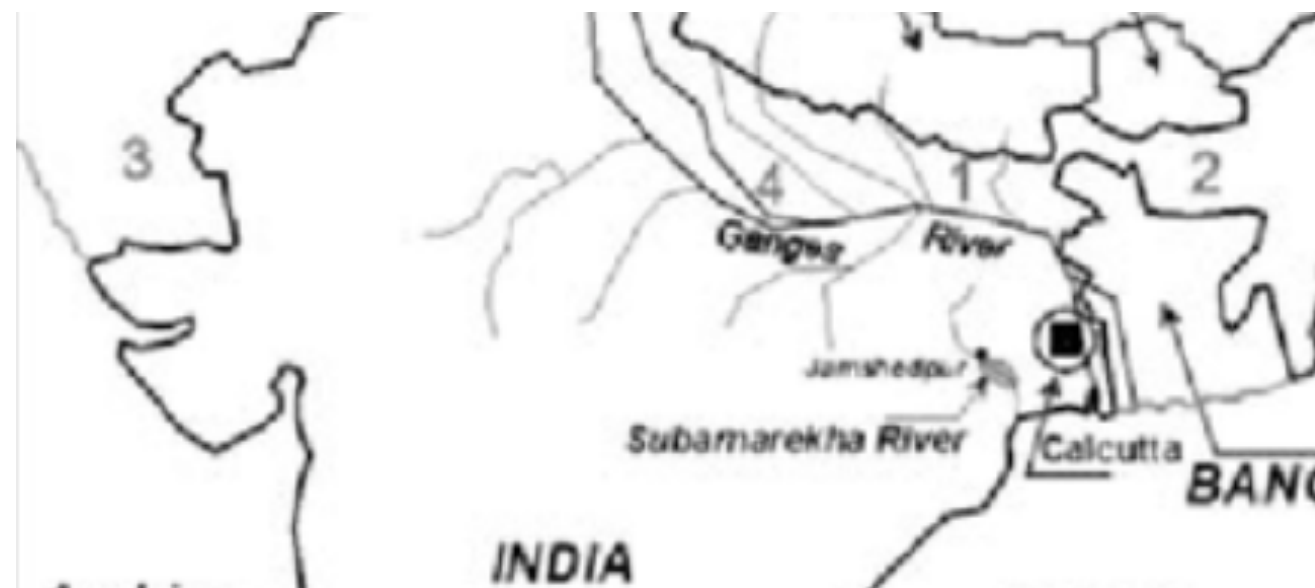
**Q.) Consider the following rivers:**

1. Brahmani - **Start Eliminating**
2. Nagavali
3. Subarnarekha
4. Vamsadhara

**Which of the above rise from the Eastern Ghats?**

- a) 1 and 2
- b) 2 and 4**
- c) 3 and 4
- d) 1 and 3





- Nagavali River forms a prime river of north eastern Andhra Pradesh and southern Odisha. The origin of Nagavali River lies in the eastern slopes of the Eastern Ghats near Lakhbahal.
- Vamsadhara river rises in the Eastern Ghats on the border Kalahandi district and Rayagada district of Odisha.



**Q.) The black cotton soil of India has been formed due to the weathering of**

- a) brown forest soil
- b) fissure volcanic rock
- c) granite and schist
- d) shale and limestone

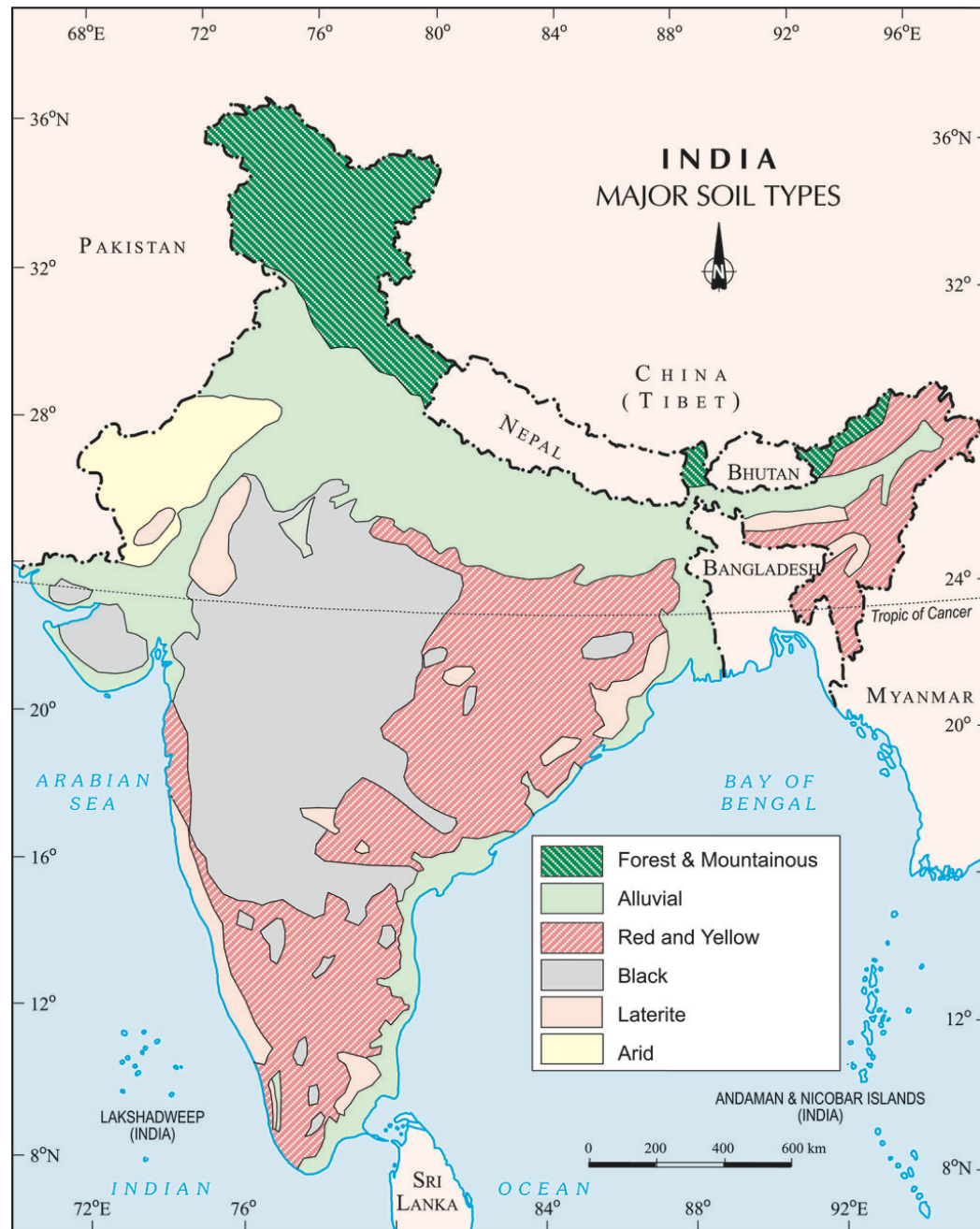
Q.) The black cotton soil of India has been formed due to the weathering of

a) brown forest soil

**b) fissure volcanic rock**

c) granite and schist

d) shale and limestone



- Deccan Plateau was as formed by volcanic activity that lasted millions of years, causing the deposition of lava.
- After the volcanoes became extinct, the layers of lava transformed into a region of highland known as the Deccan plateau.
- Black soils are mineral soils which have a black surface horizon, enriched with organic carbon that is at least 25 cm deep. Black soil is formed due to the weathering or erosion of the basalt rocks. Hence, option (b) is the correct answer.

**Q. Gandikota canyon of South India was created by which one of the following rivers.**

- a) Cauvery
- b) Manjira
- c) Pennar
- d) Tungabhadra

Q. Gandikota canyon of South India was created by which one of the following rivers.

- a) Cauvery
- b) Manjira
- c) Pennar**
- d) Tungabhadra

- Gandikota is a village and historical fort on the right bank of the Pennar river, in Kadapa district, Andhra Pradesh, India. The fort was the centre of power for various dynasties, such as the Kalyani Chalukyas, Pemmasani Nayakas, and the Golconda Sultanate.

**Q. Consider the following pairs : Peak Mountains**

1. Namcha Barwa — Garhwal Himalaya
2. Nanda Devi — Kumaon Himalaya
3. Nokrek — Sikkim Himalaya

**Which of the pairs given above is/are correctly matched ?**

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

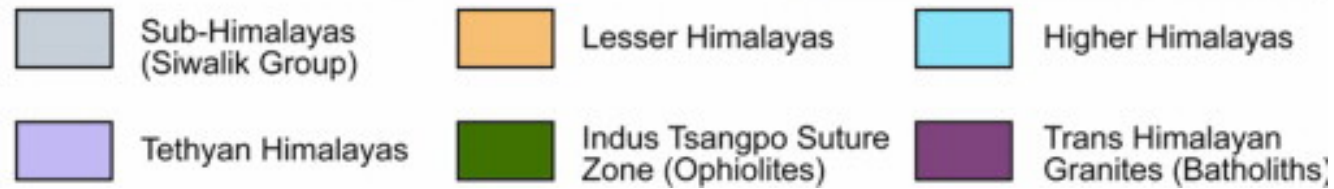
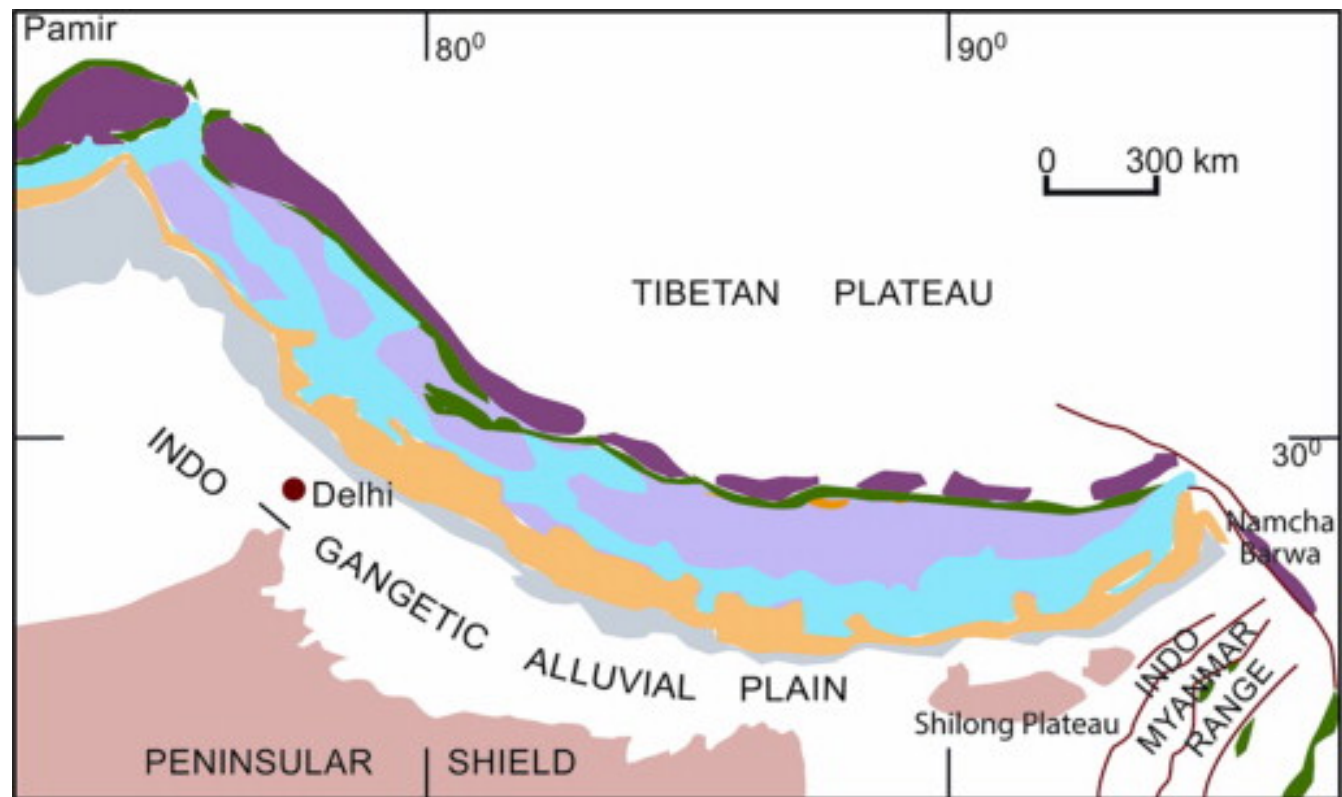


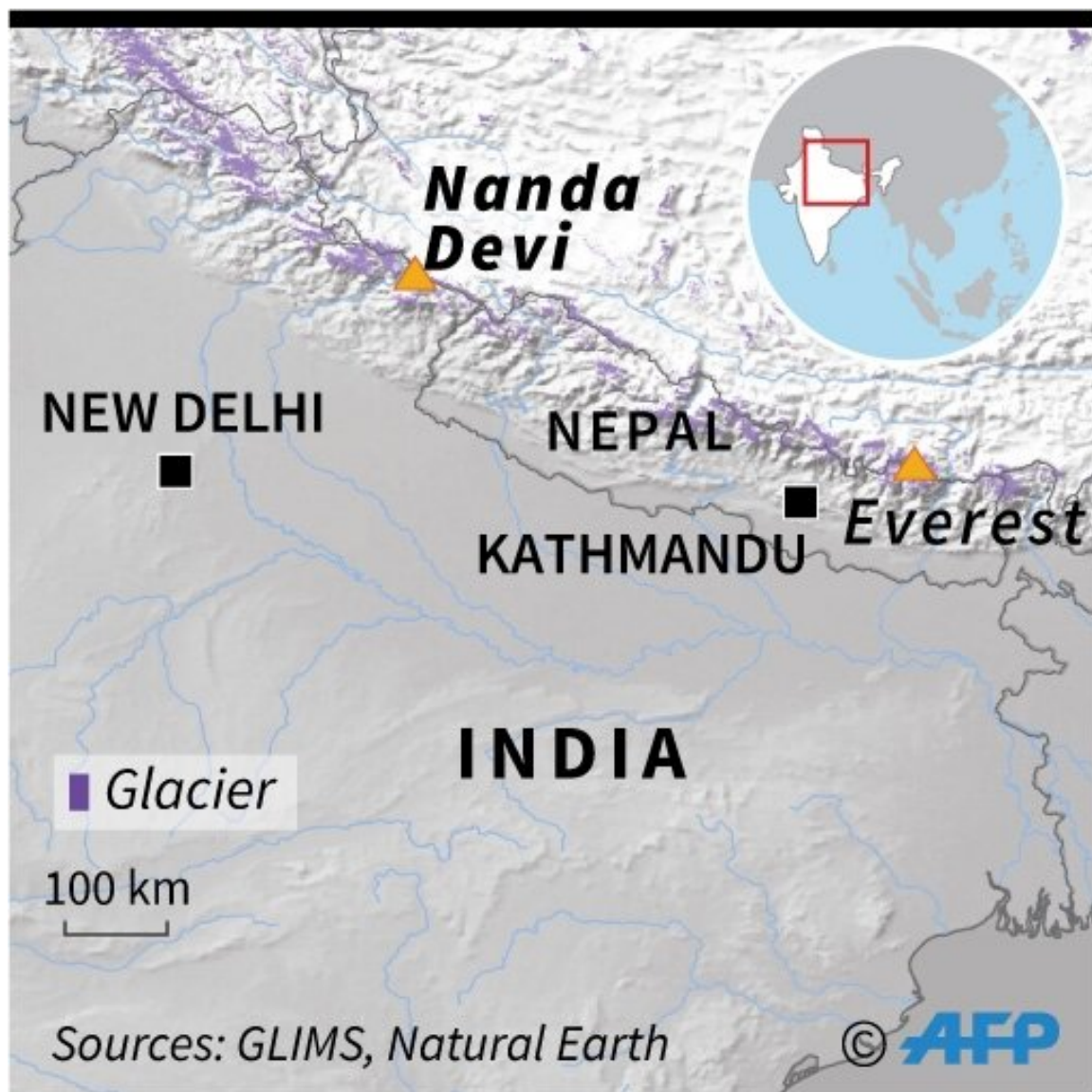
**Q. Consider the following pairs : Peak Mountains**

- 1. Namcha Barwa — Garhwal Himalaya - Giveway**
- 2. Nanda Devi — Kumaon Himalaya - The part of the Himalayas lying between Satluj and Kali rivers is known as Kumaon Himalayas.**
- 3. Nokrek — Sikkim Himalaya**

**Which of the pairs given above is/are correctly matched ?**

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





- **Pair 3 is not correctly matched:** Nokrek is the highest peak in West Garo Hills of Meghalaya.



**Q. Consider the following pairs : Peak Mountains**

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**Which of the pairs given above is/are correctly matched ?**

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# ECONOMIC GEOGRAPHY

Q) Which of the following is the chief characteristic of 'mixed farming'?

- a) Cultivation of both cash crops and food crops.
- b) Cultivation of two or more crops in the same field.
- c) Rearing of animals and cultivation of crops together.
- d) None of the above.

Q) Which of the following is the chief characteristic of 'mixed farming'?

- a) Cultivation of both cash crops and food crops.
- b) Cultivation of two or more crops in the same field.
- c) Rearing of animals and cultivation of crops together.**
- d) None of the above.



- Mixed farming is a type of farming which involves both the growing of crops and the raising of livestock.

Note :

Mixed Cropping: Two or more crops are grown on a same piece of land simultaneously.

Q)Which of the following is/are the characteristic/characteristics of Indian coal?

- 1) High ash content
- 2) Low sulphur content
- 3) Low ash fusion temperature

**Select the correct answer using the codes given below:**

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

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- 1) High ash content
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**Select the correct answer using the codes given below:**

**a) 1 and 2 only**

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c) 1 and 3 only

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- The most significant characteristic of Indian coal is its high ash content, which varies from 35 to 45 per cent, compared with that of coal in other parts of the world, which is around 15 per cent - Note : Theories of Coal Formation
- 1) Insitu 2) Drift Theory
- Besides high ash content, another reason for entrained gasifiers (that operate at higher temperatures than fluidised bed gasifiers), commonly used in IGCC plants abroad, being not suitable for Indian coal is its high ash fusion temperature of about 1,500
- However, Indian coal's sulphur content is low, about 0.5 per cent.

**Q) Consider the following crops:**

- 1) Cotton
- 2) Groundnut
- 3) Rice
- 4) Wheat

**Which of these are Kharif crops?**

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

**Q) Consider the following crops:**

- 1) Cotton
- 2) Groundnut
- 3) Rice
- 4) Wheat - **Giveaway**

**Which of these are Kharif crops?**

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

## **Rabi Crops**

- **BMW LPG -**
- Wheat
- Barley
- Gram
- Pulses
- Mustard
- Linseed

## **Kharif Crops**

- Rice
- Maize
- Sorghum
- Bajra
- Soybean
- Cotton



**Q) Consider the following crops:**

- 1) Cotton
- 2) Groundnut
- 3) Rice
- 4) Wheat

**Which of these are Kharif crops?**

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

**Q) Consider the following pairs:**

National Highway Cities connected

- 1) NH4 : Chennai and Hyderabad
- 2) NH6 : Mumbai and Kolkata
- 3) NH15: Ahmedabad and Jodhpur

**Which of the above pairs is/are correctly matched?**

- a) 1 and 2 only
- b) 3 only
- c) 1, 2 and 3
- d) None

**Q) Consider the following pairs:**

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**Which of the above pairs is/are correctly matched?**

- a) 1 and 2 only
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- c) 1, 2 and 3
- d) None**

- NH4 - Bengaluru-Chennai
- NH6 - Surat-Kolkata
- NH15 - Samakhiali in Gujarat with Pathankot in Punjab

Q) In India, the steel production industry requires the import of

- a) saltpetre
- b) rock phosphate
- c) coking coal
- d) All of the above.

Q) In India, the steel production industry requires the import of

- a) saltpetre
- b) rock phosphate
- c) coking coal**
- d) All of the above.

- The coal found in India is mainly of non-coking quality and hence coking coal has to be imported.
- Coke is used as a **fuel and as a reducing agent in smelting iron ore in a blast furnace.**
- **Note :** Metallurgical coal or coking coal is a grade of coal that can be used to produce good-quality coke – **naturally occurring sedimentary rock – key material in the production of steel.**

Q)

- I. "The crop is subtropical in nature.
- II. A hard frost is injurious to it. It requires at least 210 frost -free days and 50 to 100 centimeters of rainfall for its growth.
- III. A light well -drained soil capable of retaining moisture is ideally suited for the cultivation of the crop."

Which one of the following is that crop?

- a) Cotton
- b) Jute
- c) Sugarcane
- d) Tea



Q.)

- I. "The crop is subtropical in nature.
- II. A hard frost is injurious to it. It requires at least 210 frost -free days and 50 to 100 centimeters of rainfall for its growth.
- III. A light well -drained soil capable of retaining moisture is ideally suited for the cultivation of the crop."

Which one of the following is that crop?

a) Cotton

b) Jute

c) Sugarcane

d) Tea

- Giveaway Point - 200 Frost Free Days : Cotton
- Temperature: Between 21-30°C
- Rainfall: Around 50-100cm –Light Rainfall
- Soil Type: Well-drained black cotton soil of Deccan Plateau.
- Hard-frost is injurious to cotton cultivation and it requires at least 210 frost-free days.
- It requires high temperature and bright sunshine for its growth.

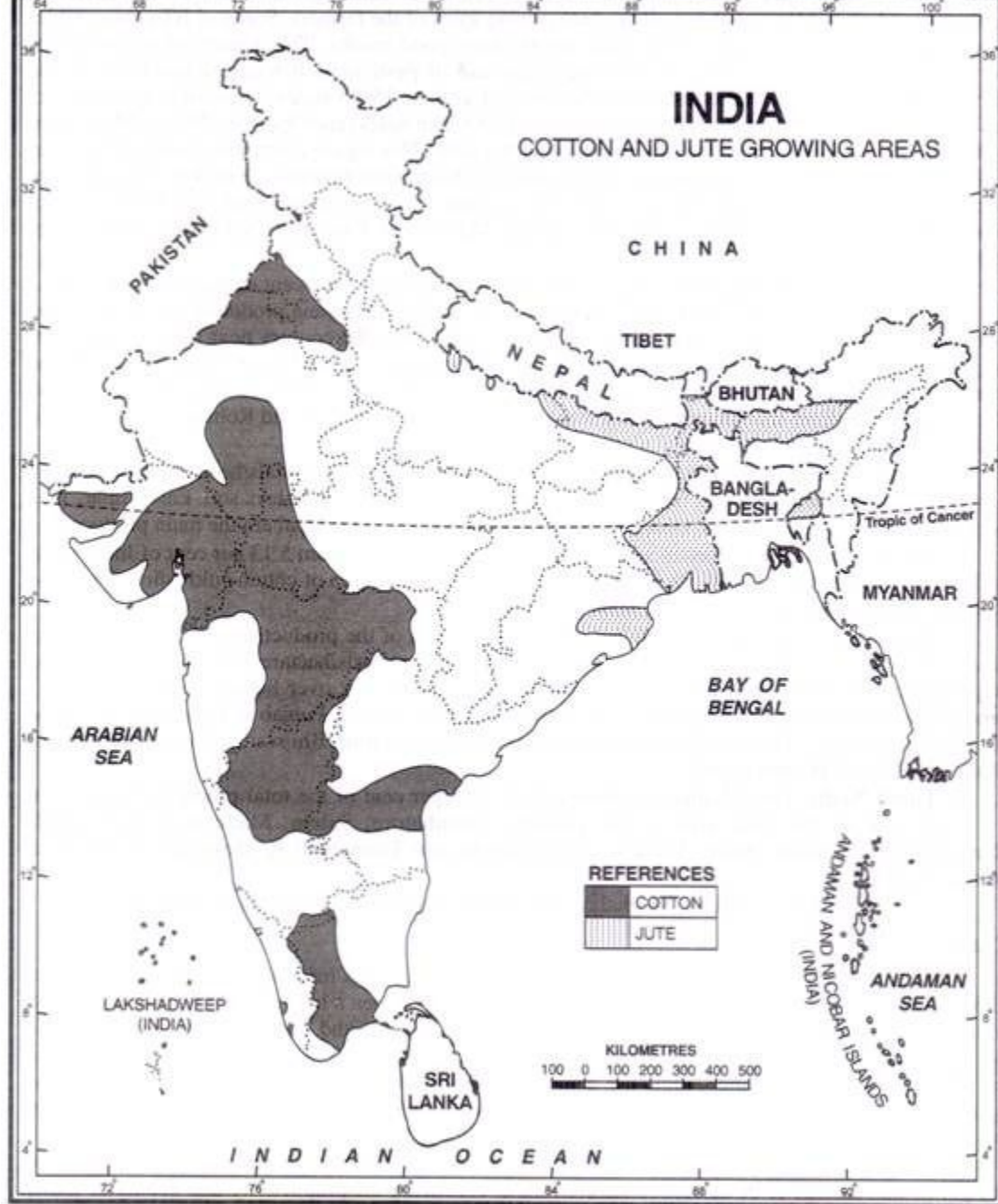


FIG. 24.3. India : Fibre Crops (Cotton & Jute)

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Which one of the following is that crop?

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Q.) Among the following, which one is the least water efficient crop?

- a) Sugarcane
- b) Sunflower
- c) Pearl millet
- d) Red gram

Q.) Among the following, which one is the least water efficient crop?

a) Sugarcane

b) Sunflower

c) Pearl millet

d) Red gram

- Among the given options, its water requirement is 1800-2200 mm/season which is highest. It takes about 210 litres of water to produce 1 kg of sugar cane.
- Water footprint of sunflower is 7– 9 litre per kg.
- Millets are sown in dry areas with minimal irrigation. Pearl millet is a drought tolerant crop.
- As Red gram is a rain-fed crop grown in assured rainfall areas, usually it does not need any irrigation.

**Q. With reference to India, consider the following statements:**

1. Monazite is a source of rare earths.
2. Monazite contains thorium.
3. Monazite occurs naturally in the entire Indian coastal sands in India.
4. In India, Government bodies only can process or export monazite.

**Which of the statements given above are correct ?**

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



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- Monazite is a mineral mainly containing rare earths and thorium-a prescribed substance to be handled by the Department of Atomic Energy (DAE). Accordingly, Indian Rare Earths Ltd. (IREL) wholly owned by the Govt. of India, under the administrative control of the Dept. of Atomic Energy (DAE) utilises monazite mainly for production of rare earth compounds, and thorium, as needed in the Department of Atomic Energy.

# MAP BASED QUESTIONS

**Q10) Consider the following protected areas:**

1. Bandipur
2. Bhitarkanika
3. Manas
4. Sunderbans

**Which of the above are declared Tiger Reserves?**

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

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**Which of the above are declared Tiger Reserves?**

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List of tiger reserves [\[ edit \]](#)

Si No. ♦	Tiger Reserve (Year of Creation) ♦	State ♦
1	<a href="#">Bandipur</a> (1973–74)	Karnataka
2	<a href="#">Corbett</a> (1973–74)	Uttarakhand
3	<a href="#">Kanha</a> (1973–74)	Madhya Pradesh
4	<a href="#">Manas</a> (1973–74)	Assam
5	<a href="#">Melghat</a> (1973–74)	Maharashtra
6	<a href="#">Palamau</a> (1973–74)	Jharkhand
7	<a href="#">Ranthambore</a> (1973–74)	Rajasthan
8	<a href="#">Similipal</a> (1973–74)	Odisha
9	<a href="#">Sunderbans</a> (1973–74)	West Bengal
10	<a href="#">Periyar</a> (1978–79)	Kerala
11	<a href="#">Sariska</a> (1978–79)	Rajasthan
12	<a href="#">Buxa</a> (1982–83)	West Bengal
13	<a href="#">Indravati</a> (1982–83)	Chhattisgarh
14	<a href="#">Namdapha</a> (1982–83)	Arunachal Pradesh
15	<a href="#">Dudhwa</a> (1987–88)	Uttar Pradesh
16	<a href="#">Kalakad-Mundanthurai</a> (1988–89)	Tamil Nadu

17	Valmiki (1989–90)	Bihar
18	Pench (1992–93)	Madhya Pradesh
19	Tadoba-Andhari (1993–94)	Maharashtra
20	Bandhavgarh (1993–94)	Madhya Pradesh
21	Panna (1994–95)	Madhya Pradesh
22	Dampa (1994–95)	Mizoram
23	Bhadra (1998–99)	Karnataka
24	Pench (1998–99)	Maharashtra
25	Pakke (1999–2000)	Arunachal Pradesh
26	Nameri (1999–2000)	Assam
27	Satpura (1999–2000)	Madhya Pradesh
28	Anamalai (2008–09)	Tamil Nadu
29	Sitanadi (2008–09)	Chhattisgarh
30	Satkosia (2008–09)	Odisha
31	Kaziranga (2008–09)	Assam
32	Achanakmar (2008–09)	Chhattisgarh
33	Dandeli-Anshi Tiger Reserve(Kali) (2008–09)	Karnataka
34	Sanjay (2008–09)	Madhya Pradesh

35	<a href="#">Mudumalai</a> (2007)	Tamil Nadu
36	<a href="#">Nagarhole</a> (2008–09)	Karnataka
37	<a href="#">Parambikulam</a> (2008–09)	Kerala
38	<a href="#">Sahyadri</a> (2009–10)	Maharashtra
39	Biligiri Ranganatha Temple (2010–11)	Karnataka
40	<a href="#">Kawal</a> (2012–13)	Telangana
41	<a href="#">Sathyamangalam</a> (2013–14)	Tamil Nadu
42	Mukandra Hills (2013–14)	Rajasthan
43	<a href="#">Nawegaon</a> (2013–14)	Maharashtra
44	<a href="#">Nagarjunsagar-Srisaïlam</a> (1982–83)	Andhra Pradesh
45	Amrabad (2014)	Telangana
46	<a href="#">Pilibhit</a> (2014)	Uttar Pradesh
47	<a href="#">Bor</a> (2014)	Maharashtra
48	<a href="#">Rajaji</a> (2015)	Uttarakhand
49	<a href="#">Orang</a> (2016)	Assam
50	<a href="#">Kamlang</a> (2016)	Arunachal Pradesh
51	<a href="#">Srivilliputhur - Megamalai</a> (2021)	Tamil Nadu
52	Ramgarh Vishdhari (2021)	Rajasthan
53	Guru Ghasidas National Park and <a href="#">Tamor Pingla Wildlife Sanctuary</a> (2021)	Chhattisgarh



54	<a href="#">Sunabeda</a>	2022	Odisha
55	Male Mahedeshwara Hills	2022	Karnataka

**Q) Which one of the following pairs is correctly matched?**  
**Geographical Feature Region**

- a) Abyssinian Plateau : Arabia
- b) Atlas Mountains : North-Western Africa
- c) Guiana Highlands : South-Western Africa
- d) Okavango Basin: Patagonia

Q) Which one of the following pairs is correctly matched?  
Geographical Feature Region

a) Abyssinian Plateau : Arabia

**b) Atlas Mountains: North-Western Africa**

c) Guiana Highlands : South-Western Africa

d) Okavango Basin: Patagonia

## Atlas Mountains: North-Western Africa - correct



# Guiana Highlands : South-Western Africa - Incorrect

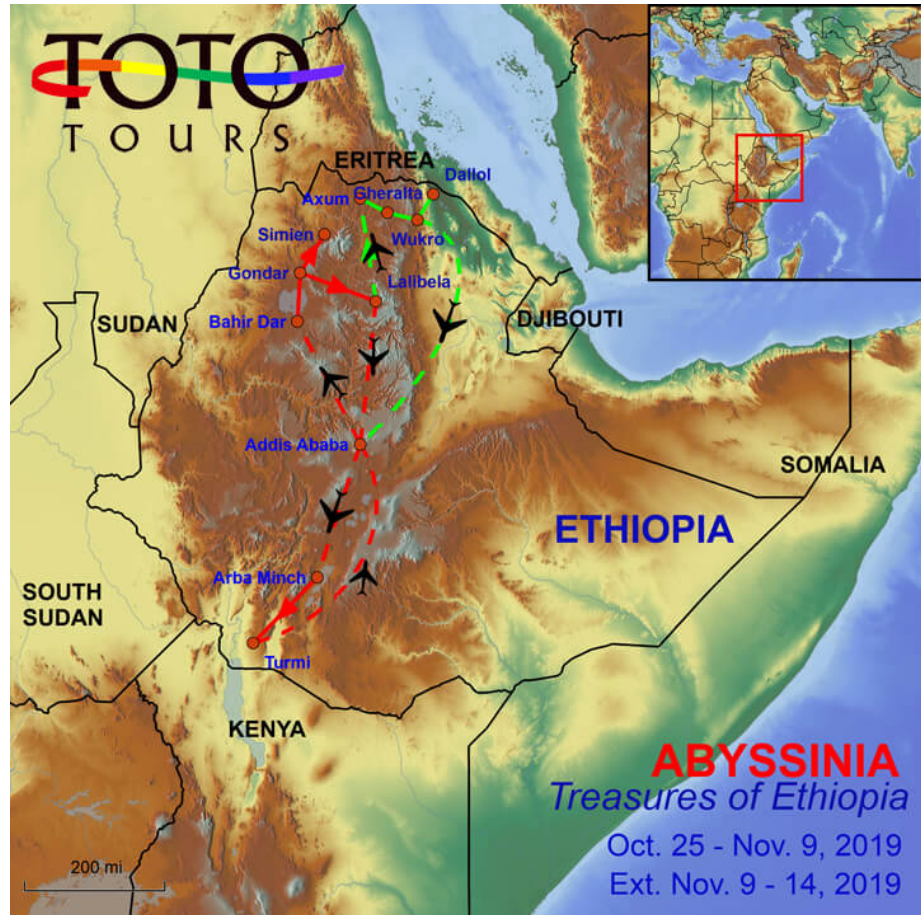


# Pantagonia - Incorrect





# Abyssinian Plateau - Ethiopia



## **Additional Information – Issues with Territories**

- Hala'ib Triangle : Sudan & Egypt
- Shatt al-Arab : Iran & Iraq
- Abu Musa : Iran & UAE
- Bakassi : Nigeria & Cameroon



**Q) Consider the following pairs:**

- 1) Nokrek Biosphere Reserve Garo Hills
- 2) Logtak (Loktak): Lake Barail Range
- 3) Namdapha National Park : Dafla Hills

**Which of the above pairs is/are correctly matched?**

- a) 1 only
- b) 2 and 3 only
- c) 1, 2 and 3
- d) None

**Q) Consider the following pairs:**

- 1) Nokrek Biosphere Reserve : Garo Hills
- 2) Logtak (Loktak)-(Manipur) : Lake Barail Range (Assam )
- 3) Namdapha National Park Dafla Hills

**Which of the above pairs is/are correctly matched?**

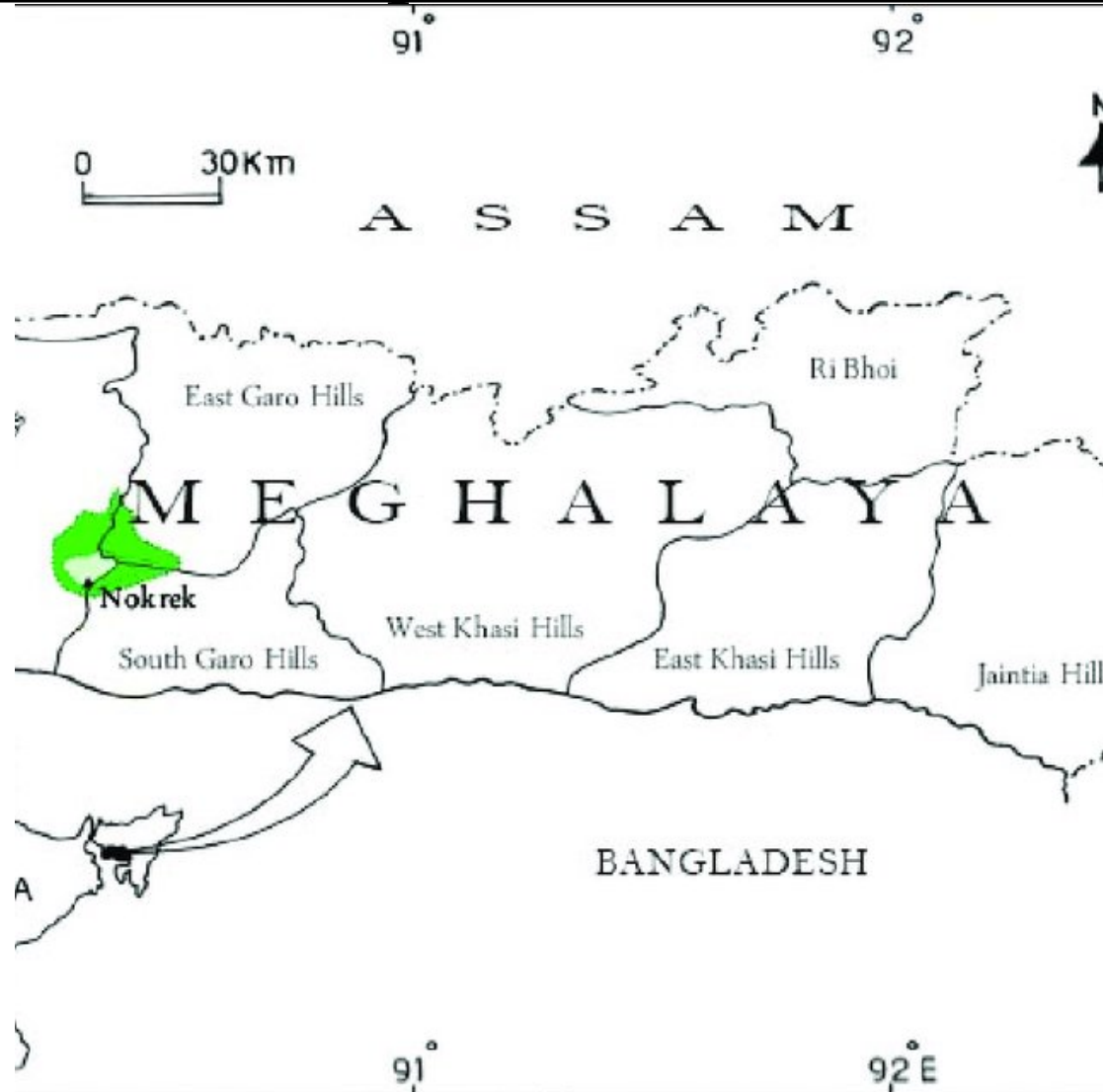
**a) 1 only**

b) 2 and 3 only

c) 1, 2 and 3

d) None

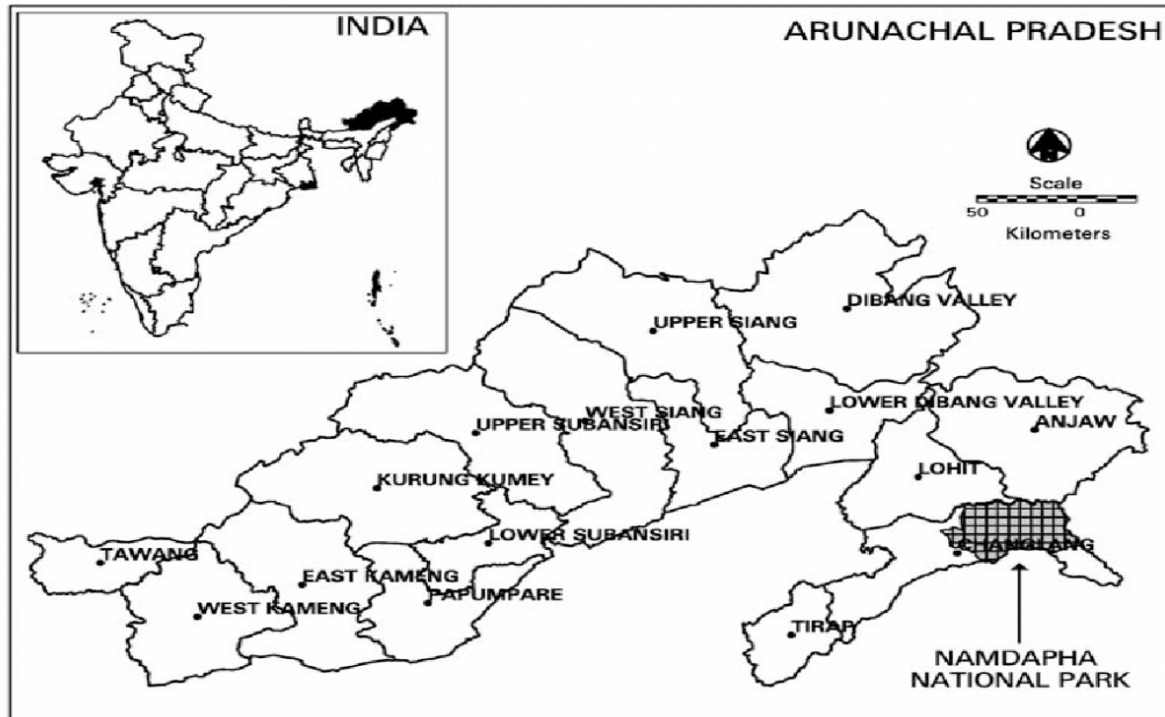
# Nokrek Biosphere Reserve : Garo Hills



## Logtak (Loktak): Lake Barail Range



# Namdapha National Park : Dafla Hills



**Q29) Consider the following pairs:**

- 1) Nokrek Biosphere Reserve : Garo Hills
- 2) Logtak (Loktak) Lake Barail Range
- 3) Namdapha National Park Dafla Hills

**Which of the above pairs is/are correctly matched?**

**a) 1 only**

b) 2 and 3 only

c) 1, 2 and 3

d) None

**Q) Consider the following pairs:**

**National Park : River flowing through the Park**

- 1) Corbett National Park : Ganga
- 2) Kaziranga National Park : Manas
- 3) Silent Valley National Park : Kaveri

**Which of the above pairs is/are correctly matched?**

- a) 1 and 2
- b) 3 only
- c) 1 and 3
- d) None

**Q) Consider the following pairs:**

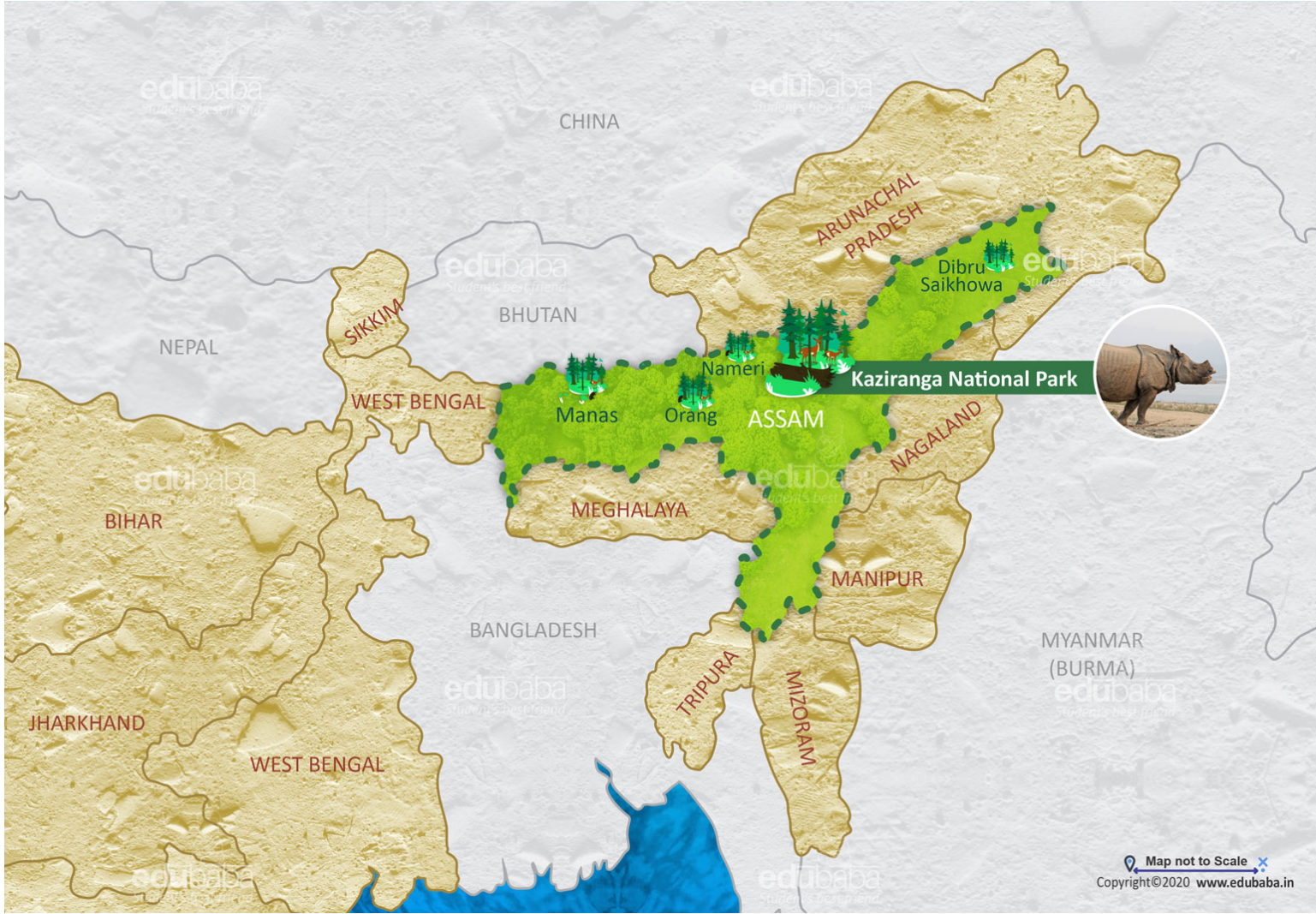
**National Park : River flowing through the Park**

- 1) Corbett National Park : Ganga
- 2) Kaziranga National Park : Manas
- 3) Silent Valley National Park : Kaveri

**Which of the above pairs is/are correctly matched?**

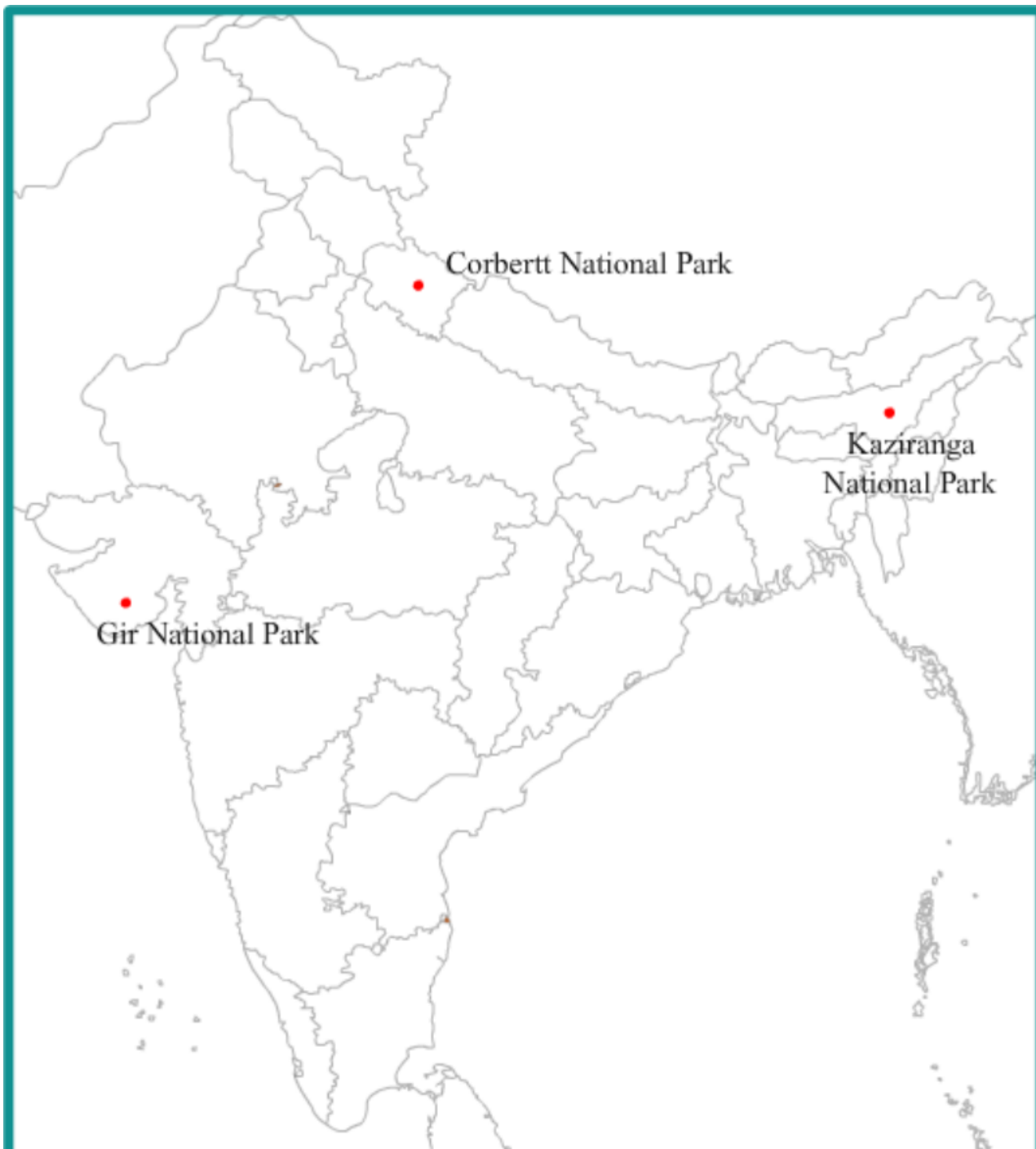
- a) 1 and 2
- b) 3 only
- c) 1 and 3
- d) None**



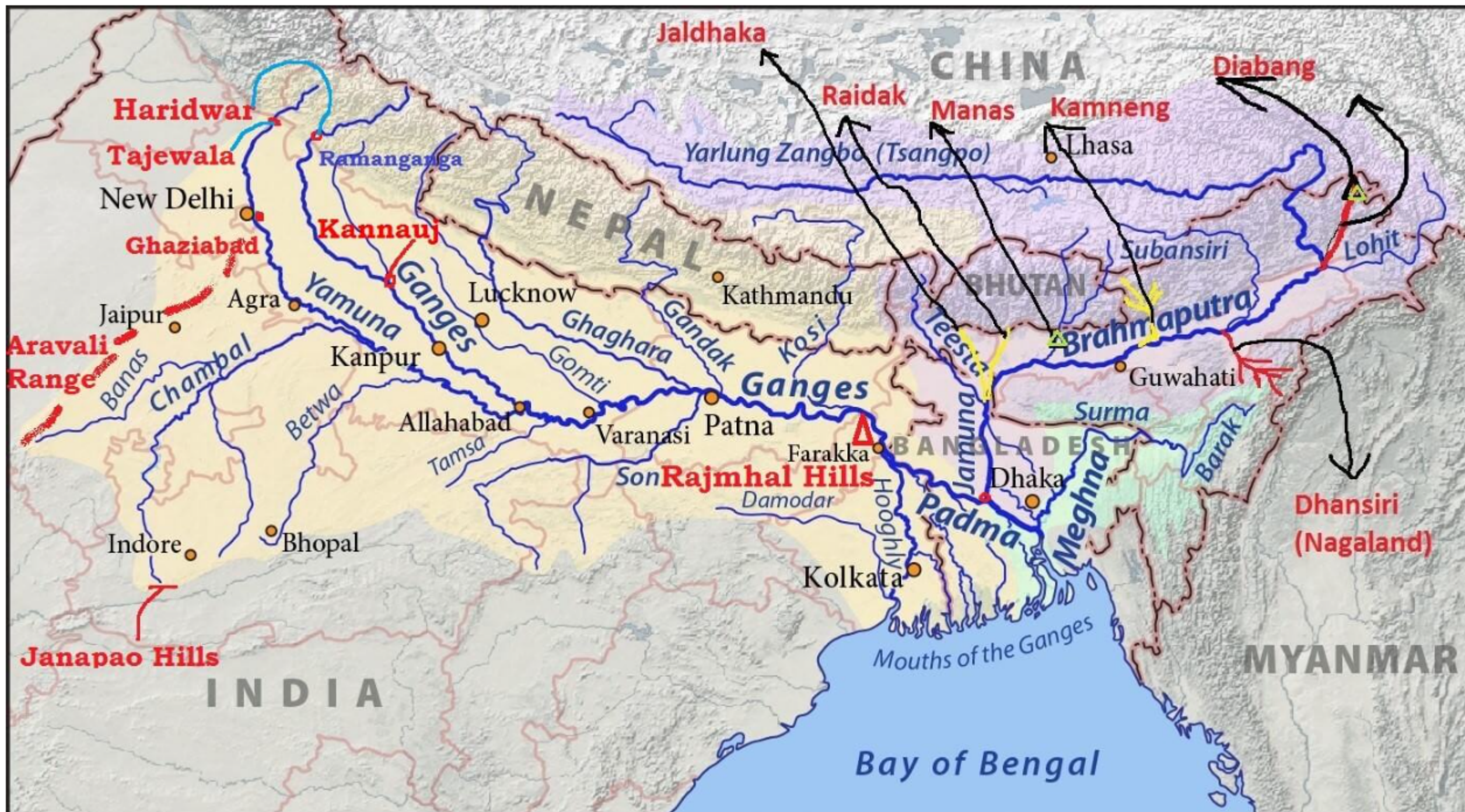




Map data © OpenStreetMap contributors









**Q) Which of the following adds/add nitrogen to the soil?**

- 1) Excretion of urea by animals
- 2) Burning of coal by man
- 3) Death of vegetation

**Select the correct answer using the codes given below:**

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

**Q) Which of the following adds/add nitrogen to the soil?**

- 1) Excretion of urea by animals
- 2) Burning of coal by man
- 3) Death of vegetation

**Select the correct answer using the codes given below:**

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

- Excretion of urea by animals adds nitrogen to the soil
  - Death of vegetation adds up in soil organic matters including humus.
  - **Remember** : Decomposers – Bacteria and Fungi
- 
- Statement 2 is *wrong* as burning of coal does not produce Nitrogen of its compounds.

**Q33) Which of the following adds/add nitrogen to the soil?**

- 1) Excretion of urea by animals
- 2) Burning of coal by man
- 3) Death of vegetation

**Select the correct answer using the codes given below:**

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



**Q) Consider the following pairs :**

- 1) Dampa Tiger Reserve : Mizoram
- 2) Gumti Wildlife Sanctuary : Sikkim
- 3) Saramati Peak : Nagaland

**Which of the above pairs is/are correctly matched ?**

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

**Q) Consider the following pairs :**

1) Dampa Tiger Reserve : Mizoram

**2) Gumti Wildlife Sanctuary : Sikkim**

3) Saramati Peak : Nagaland

**Which of the above pairs is/are correctly matched ?**

a) 1 only

b) 2 and 3 only

**c) 1 and 3 only**

d) 1, 2 and 3

- 1) Dampa Tiger Reserve : Mizoram
- 2) Gumti Wildlife Sanctuary : Tripura
- 3) Saramati Peak : Nagaland



# Dampa Tiger Reserve : Mizoram



**Q42) Consider the following pairs :**

- 1) Dampa Tiger Reserve : Mizoram
- 2) Gumti Wildlife Sanctuary : Sikkim
- 3) Saramati Peak : Nagaland

**Which of the above pairs is/are correctly matched ?**

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

**Q) Turkey is located between**

- a) Black Sea and Caspian Sea
- b) Black Sea and Mediterranean Sea
- c) Gulf of Suez and Mediterranean Sea
- d) Gulf of Aqaba and Dead Se

**Q) Turkey is located between**

a) Black Sea and Caspian Sea

**b) Black Sea and Mediterranean Sea**

c) Gulf of Suez and Mediterranean Sea

d) Gulf of Aqaba and Dead Se





# Additional Information



Source: BBC research, Ministry of Defence, Institute for the Study of War  
(as of 23:00 GMT, 2 March)

**Q) What is the correct sequence of occurrence of the following cities in South-East Asia as one proceeds from south to north?**

- 1) Bangkok
- 2) Hanoi
- 3) Jakarta
- 4) Singapore

**Select the correct answer using the code given below:**

- a) 4-2-1-3
- b) 3-2-4-1
- c) 3-4-1-2
- d) 4-3-2-1

**Q) What is the correct sequence of occurrence of the following cities in South-East Asia as one proceeds from south to north?**

- 1) Bangkok
- 2) Hanoi
- 3) Jakarta
- 4) Singapore

**Select the correct answer using the code given below:**

- a) 4-2-1-3
- b) 3-2-4-1
- c) 3-4-1-2**
- d) 4-3-2-1



**Q) The area known as 'Golan Heights' sometimes appears in the news in the context of the events related to**

- a) Central Asia
- b) Middle East
- c) South-East Asia
- d) Central Africa

Q) The area known as 'Golan Heights' sometimes appears in the news in the context of the events related to

- a) Central Asia
- b) Middle East**
- c) South-East Asia
- d) Central Africa







The Economist



Q) Which one of the following countries of South-West Asia does *Not* open out to the Mediterranean Sea?

- a) Syria
- b) Jordan
- c) Lebanon
- d) Israel

Q) Which one of the following countries of South-West Asia does *Not* open out to the Mediterranean Sea?

a) Syria

**b) Jordan**

c) Lebanon

d) Israel



**Q) Consider the following pairs:**

**Towns sometimes mentioned in news – Country**

- 1) Aleppo - Syria
- 2) Kirkuk - Yemen
- 3) Mosul - Palestine
- 4) Mazar-i-sharif - Afghanistan

**Which of the pairs given above are correctly matched?**

- a) 1 and 2
- b) 1 and 4
- c) 2 and 3
- d) 3 and 4

Q) Consider the following pairs:

**Towns sometimes mentioned in news – Country**

1) Aleppo - Syria

2) Kirkuk - Yemen

3) Mosul - Palestine

4) Mazar-i-sharif - Afghanistan

**Which of the pairs given above are correctly matched?**

a) 1 and 2

**b) 1 and 4**

c) 2 and 3

d) 3 and 4

- Aleppo - Syria,
- Kirkuk and Mosul -Iraq
- Majar - i - Sharif - Afghanistan.

**Q) Consider the following pairs:**

**Regions Sometimes Mentioned in News - Country**

- 1) Catalonia - Spain
- 2) Crimea - Hungary
- 3) Mindanao - Philippines
- 4) Oromia - Nigeria

**Which of the pair given above are correctly matched?**

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

**Q84) Consider the following pairs:**

**Regions Sometimes Mentioned in News - Country**

**1) Catalonia - Spain**

2) Crimea - Hungary

**3) Mindanao - Philippines**

4) Oromia - Nigeria

**Which of the pair given above are correctly matched?**

a) 1, 2 and 3

b) 3 and 4 only

**c) 1 and 3 only**

d) 2 and 4 only

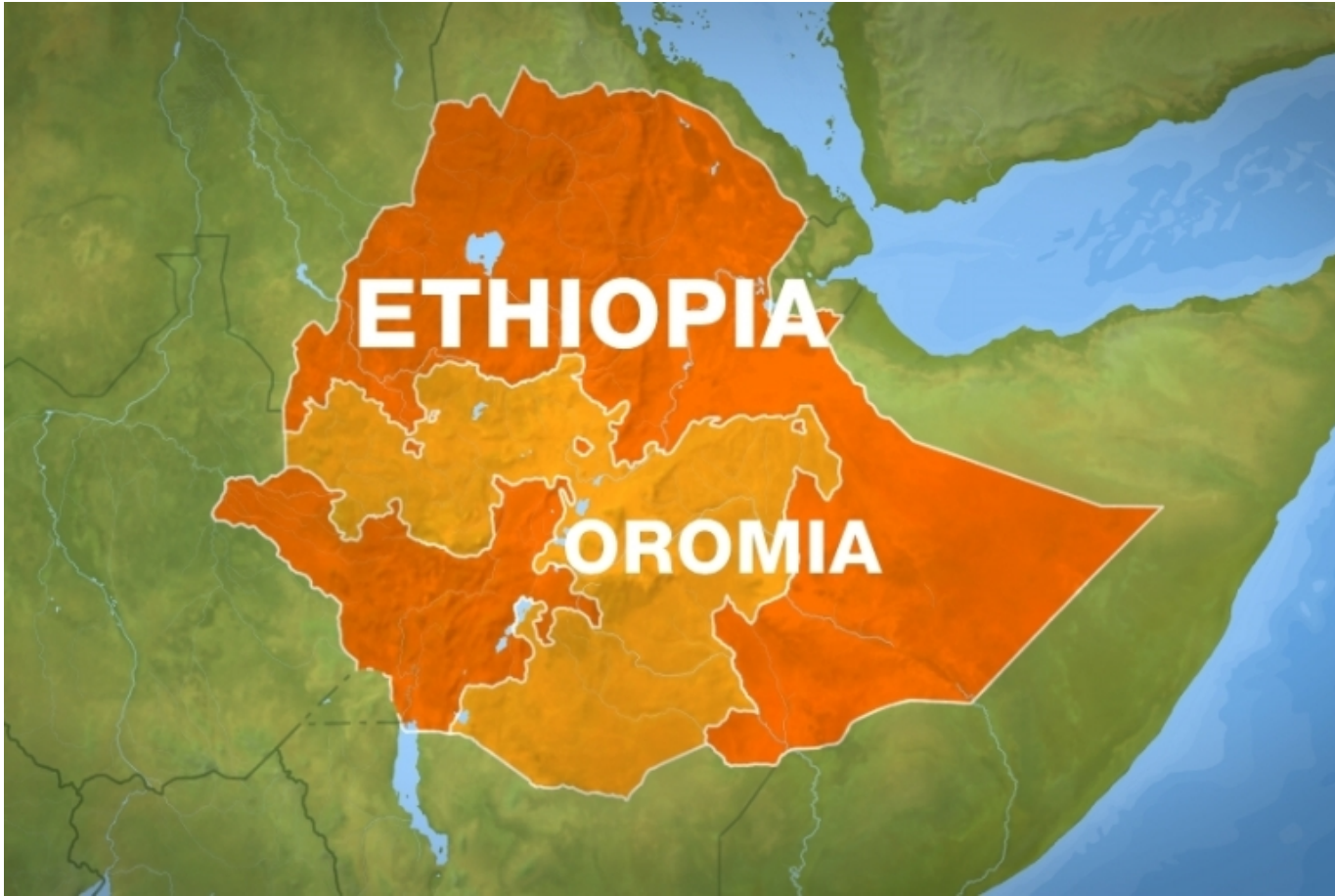


- Catalonia - Spain – Referendum
- Crimea – Ukraine – Russia
- Mindanao - Philippines - Insurgency.
- Oromia - Ethiopia - Ethnic clashes.

# Catalonia - Spain - Referendum



## Oromia - Ethiopia - Ethnic Clashes



# Mindanao - Philippines



## Crimea - Ukraine - Russia



**Q) Consider the following pairs:**

**Regions Sometimes Mentioned in News - Country**

- 1) Catalonia - Spain
- 2) Crimea - Hungary
- 3) Mindanao - Philippines
- 4) Oromia - Nigeria

**Which of the pair given above are correctly matched?**

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

**Q) Consider the following pairs:**

**Sea Bordering : Country**

- 1) Adriatic Sea : Albania
- 2) Black Sea : Croatia
- 3) Caspian Sea : Kazakhstan
- 4) Mediterranean Sea : Morocco
- 5) Red Sea : Syria

**Which of the pairs given above are correctly matched?**

- a) 1, 2 and 4 only
- b) 1, 3 and 4 only
- c) 2 and 5 only
- d) 1, 2, 3, 4 and 5

**Q90) Consider the following pairs:**

**Sea Bordering : Country**

- 1) Adriatic Sea : Albania
- 2) Black Sea : Croatia
- 3) **Caspian Sea : Kazakhstan - Second- this one**
- 4) Mediterranean Sea : Morocco
- 5) **Red Sea : Syria - Start with this**

**Which of the pairs given above are correctly matched?**

- a) 1, 2 and 4 only
- b) 1, 3 and 4 only**
- c) 2 and 5 only
- d) 1, 2, 3, 4 and 5





1) Red Sea : Syria



## 1) Caspian Sea : Kazakhstan

**Q) Consider the following pairs:**

**Sea Bordering : Country**

- 1) Adriatic Sea : Albania
- 2) Black Sea : Croatia
- 3) Caspian Sea : Kazakhstan
- 4) Mediterranean Sea : Morocco
- 5) Red Sea : Syria

**Which of the pairs given above are correctly matched?**

- a) 1, 2 and 4 only
- b) 1, 3 and 4 only**
- c) 2 and 5 only
- d) 1, 2, 3, 4 and 5

**Q) Consider the following pairs:**

**River : Flows into**

- 1) Mekong : Andaman Sea
- 2) Thames : Irish Sea
- 3) Volga : Caspian Sea
- 4) Zambezi : Indian Ocean

**Which of the pairs given above is/are correctly matched?**

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

**Q) Consider the following pairs:**

**River : Flows into**

- 1) Mekong : Andaman Sea
- 2) Thames : Irish Sea
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- 4) Zambezi : Indian Ocean

**Which of the pairs given above is/are correctly matched?**

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

# Andaman Sea



## Mekong River : South China Sea



Trick - Mekong Ganga Co-operation

LIMCa TV

1. L- Laos
2. I- India
3. M- Myanmar
4. Ca- Cambodia
5. T- Thailand
6. V- Vietnam

# Volga : Caspian Sea



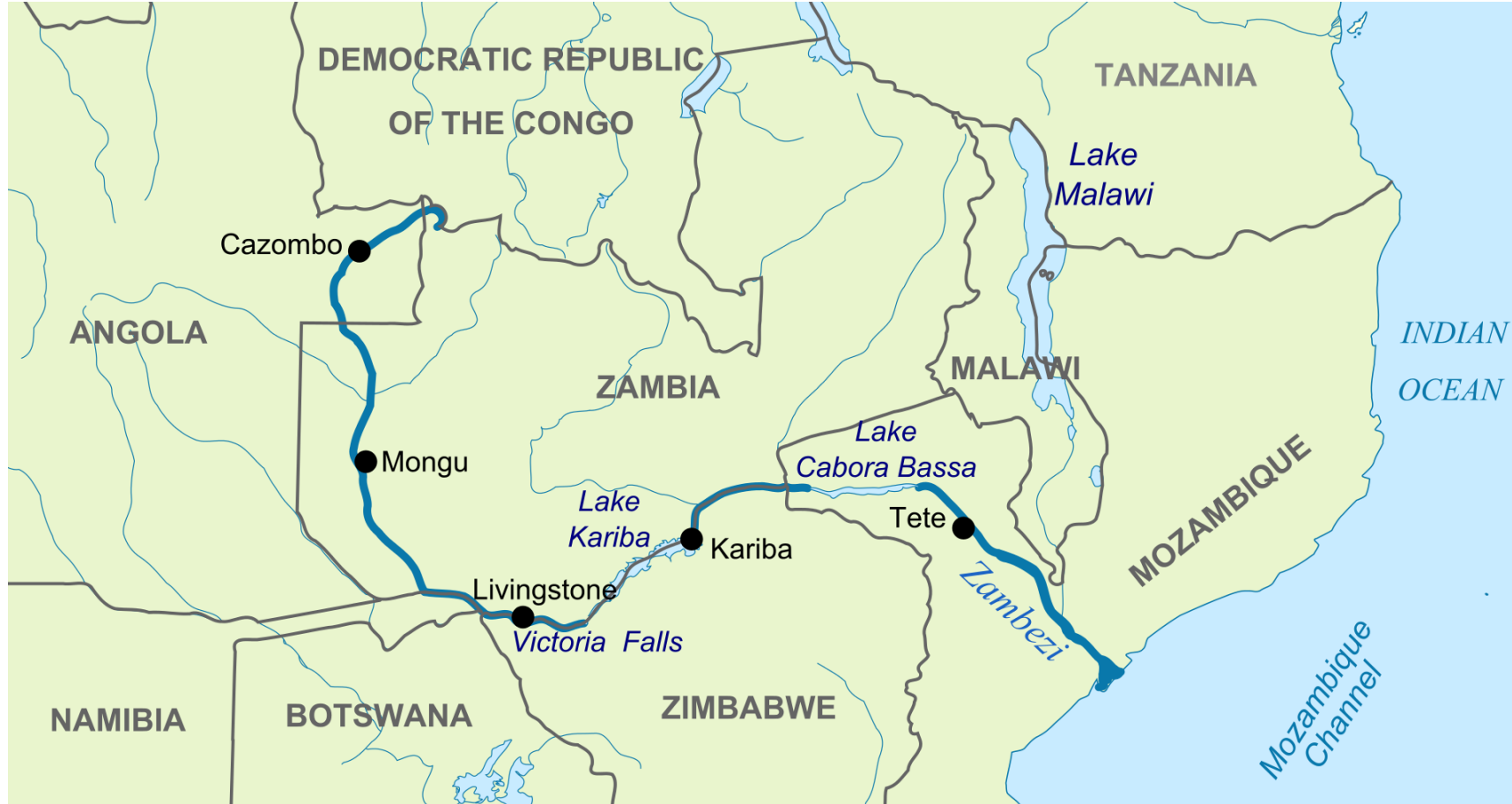
Trick – Caspian Sea

TARIK

1. T- Turkmenistan
2. A- Azerbaijan
3. R- Russia
4. Iran
5. Kazakhstan



# Zambezi : Indian Ocean



# Thames : Irish Sea



# Countries Surrounding Baltic Sea



**Q) Consider the following pairs:**

**River : Flows into**

- 1) Mekong : Andaman Sea
- 2) Thames : Irish Sea
- 3) Volga : Caspian Sea
- 4) Zambezi : Indian Ocean

**Which of the pairs given above is/are correctly matched?**

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

**Q) Which of the following Protected Areas are located in Cauvery basin?**

- 1) Nagarhole National park
- 2) Papikonda National Park
- 3) Sathyamagalam Tiger Reserve
- 4) Wayanad Wildlife Sanctuary

**Select the correct answer using the code given below:**

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

**Q98) Which of the following Protected Areas are located in Cauvery basin?**

- 1) Nagarhole National park**
- 2) Papikonda National Park
- 3) Sathyamagalam Tiger Reserve**
- 4) Wayanad Wildlife Sanctuary**

**Select the correct answer using the code given below:**

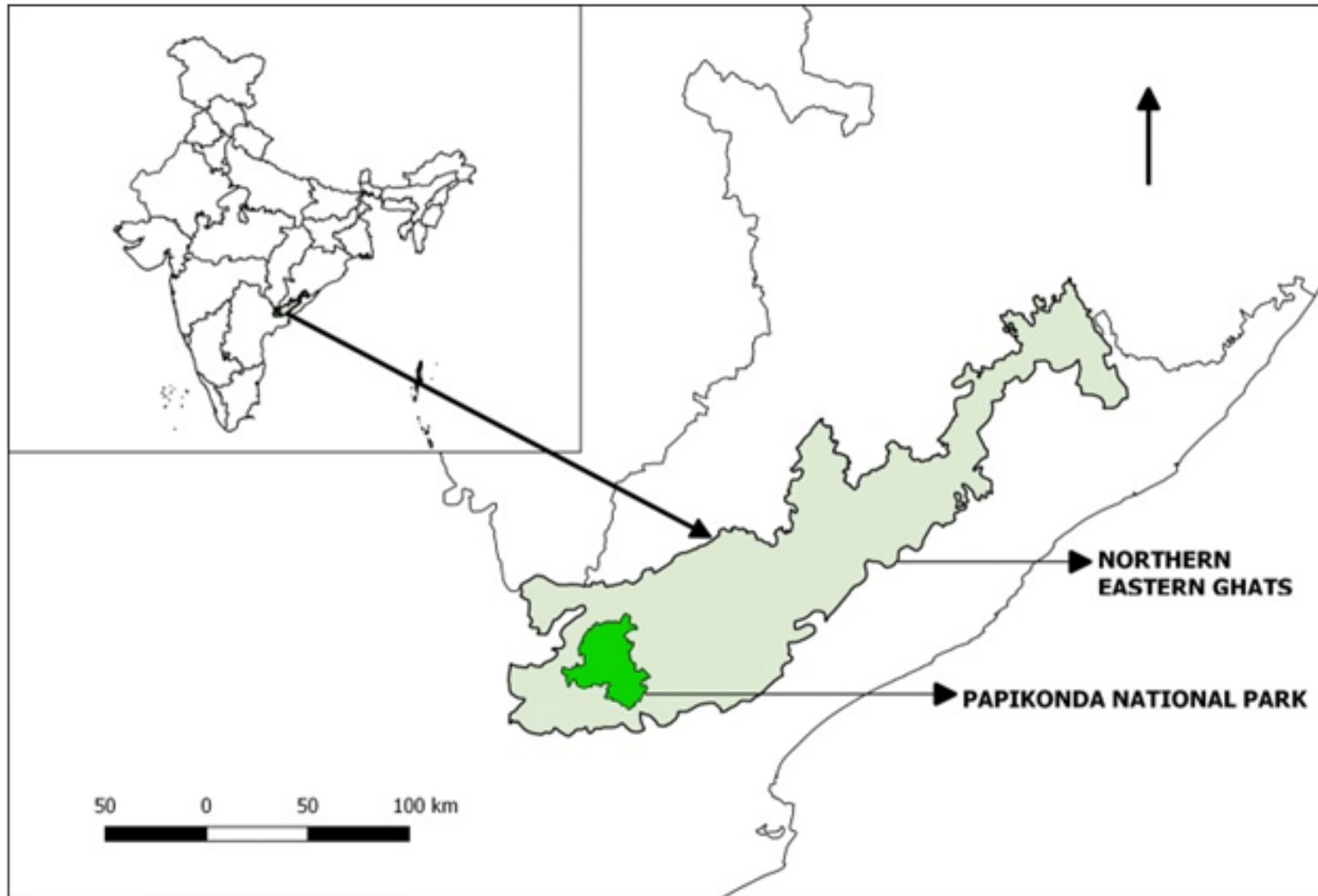
- a) 1 and 2 only
- b) 3 and 4 only
- c) 1, 3 and 4 only**
- d) 1, 2, 3 and 4

# Kaveri River Basin

Note : River Basin - Area of land drained by a river and its branches



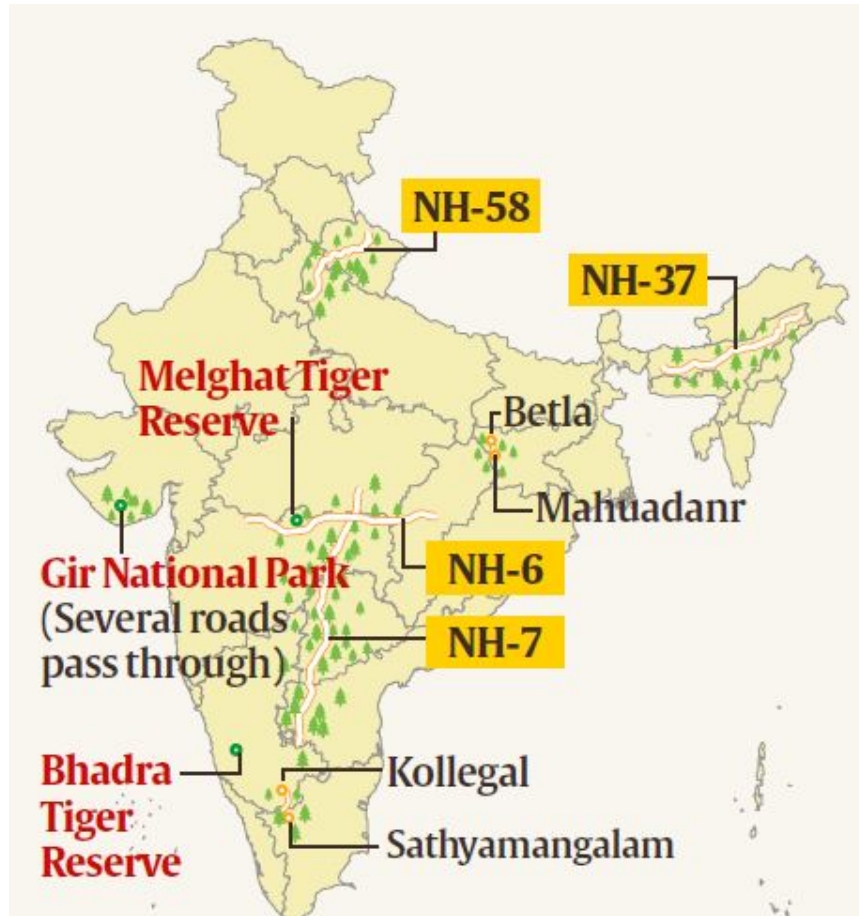
# Papikonda National Park





- Nagarhole National Park - Karnataka.
- Papikonda National Park - Andhra Pradesh. River Godavari flows through Papikonda National Park.
- Sathyamangalam Tiger Reserve - Tamil Nadu. It is located at the confluence of two distinct geographical regions of bio diversity landscape; Western Ghat and Eastern Ghat.
- Wayanad Wildlife- Kerala

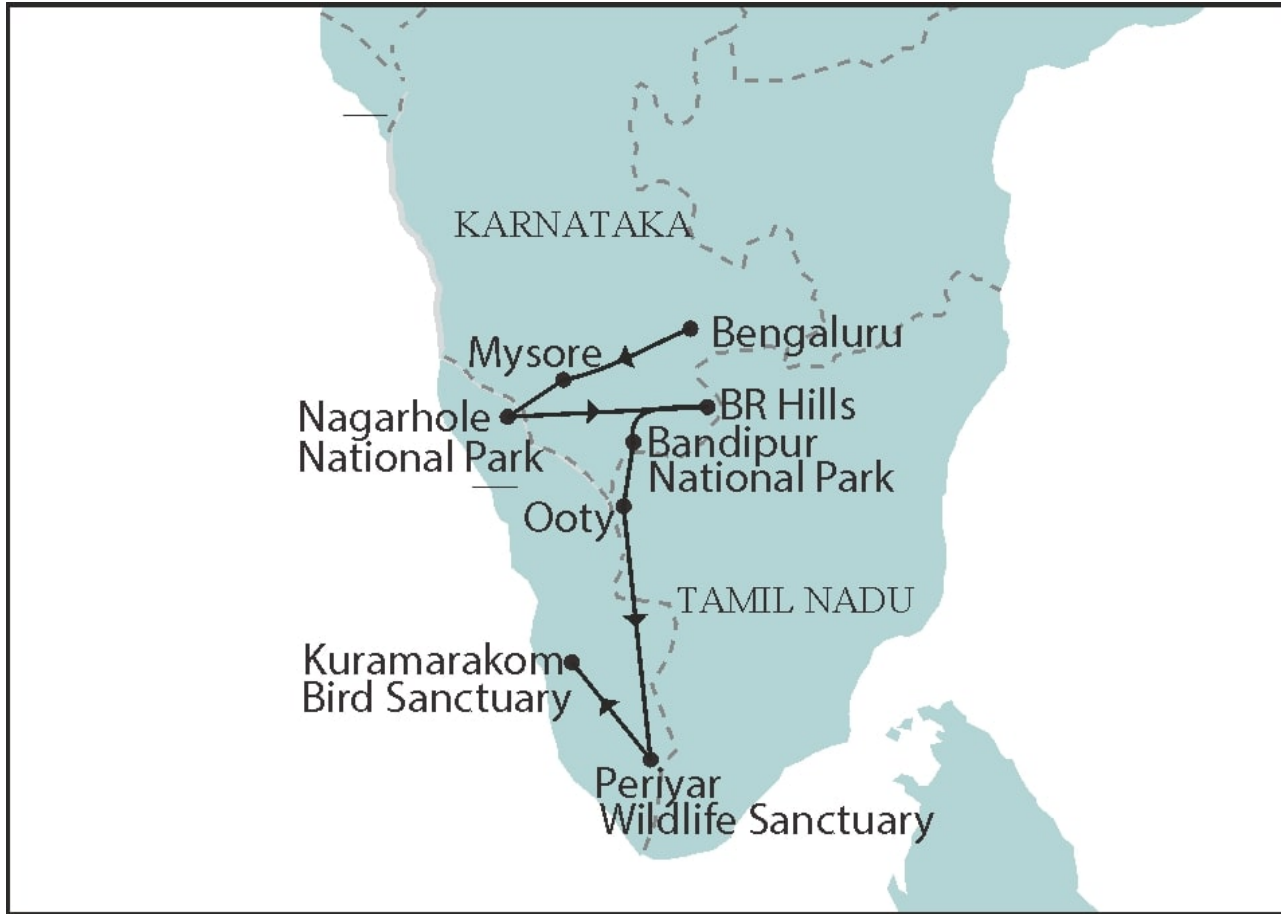
# Sathyamangalam Tiger Reserve



# Wayanad WLS – Kerala



# Nagarhole National Park



**Q) Which of the following Protected Areas are located in Cauvery basin?**

- 1) Nagarhole National park
- 2) Papikonda National Park
- 3) Sathyamagalam Tiger Reserve
- 4) Wayanad Wildlife Sanctuary

**Select the correct answer using the code given below:**

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

**Q. Consider the following pairs:**

**Region often mentioned in the news Country**

1. Anatolia – Turkey
2. Amhara – Ethiopia
3. Cabo Delgado –Spain
4. Catalonia – Italy

**How many pairs given above are correctly matched?**

- a) Only one pair
- b) Only two pairs
- c) Only three pairs
- d) All four pairs

Q. Consider the following pairs:

Region often mentioned in the news Country

1. Anatolia – Turkey

2. Amhara – Ethiopia

3. Cabo Delgado –Spain

4. Catalonia – Italy - ~~Spain~~

How many pairs given above are correctly matched?

a) Only one pair

**b) Only two pairs**

c) Only three pairs

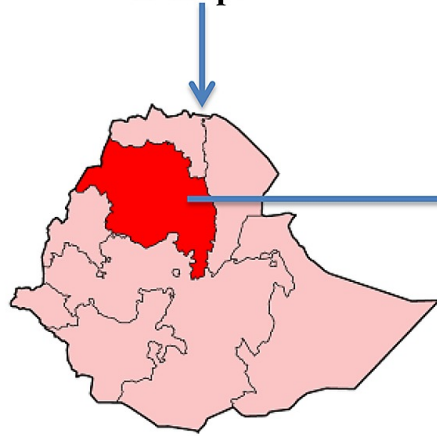
d) All four pairs



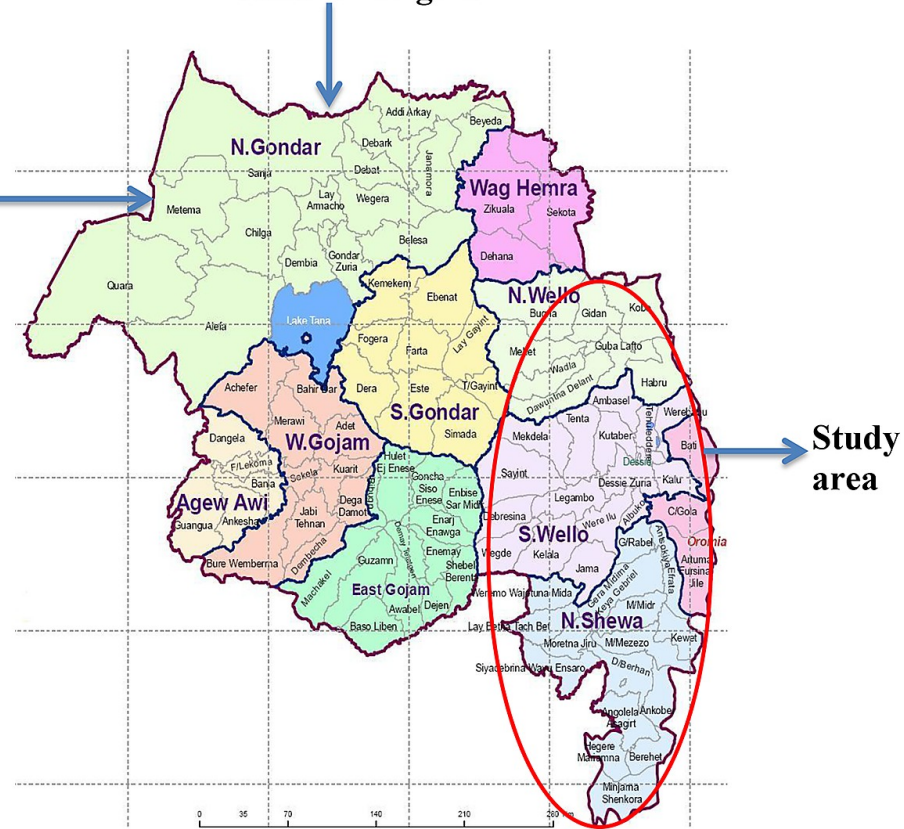




**Ethiopia**

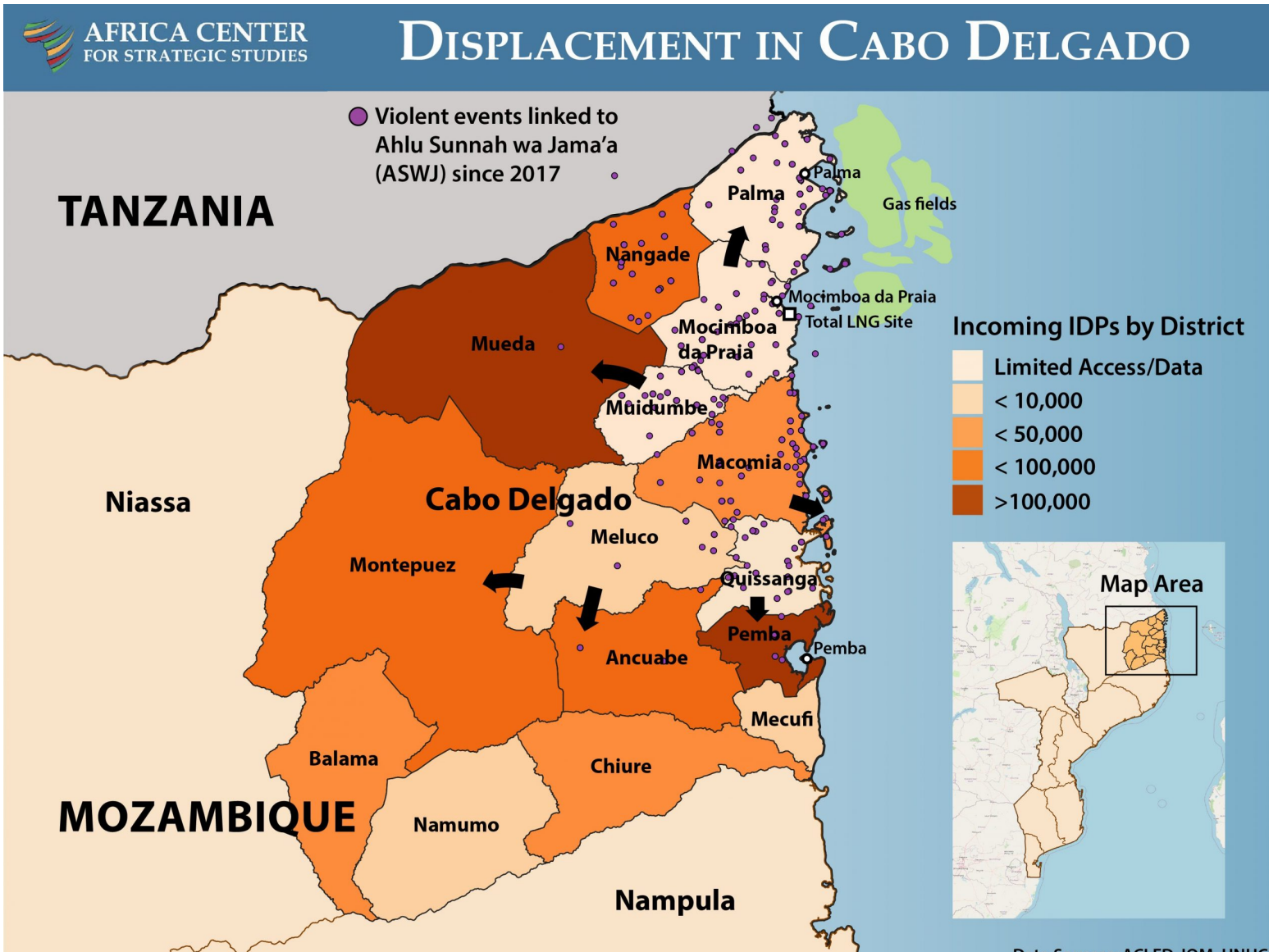


**Amhara Region**





# Cabo Delgado is the northernmost province of Mozambique.



Q. Consider the following pairs:

Region often mentioned in the news Country

1. Anatolia – Turkey

2. Amhara – Ethiopia

3. Cabo Delgado –Spain

4. Catalonia – Italy - ~~Spain~~

How many pairs given above are correctly matched?

a) Only one pair

**b) Only two pairs**

c) Only three pairs

d) All four pairs

**Q. Consider the following pairs: Reservoirs States**

1. Ghataprabha – Telangana
2. Gandhi Sagar –Madhya Pradesh
3. Indira Sagar –Andhra Pradesh
4. Maithon –Chhattisgarh

**How many pairs given above are not correctly matched?**

- a) Only one pair
- b) Only two pairs
- c) Only three pairs
- d) All four pairs

**Q. Consider the following pairs: Reservoirs States**

1. Ghataprabha – Telangana – North Karnataka

**2. Gandhi Sagar –Madhya Pradesh**

3. Indira Sagar –Andhra Pradesh – Madhya Pradesh

4. Maithon –Chhattisgarh - Jharkhand

**How many pairs given above are not correctly matched?**

a) Only one pair

b) Only two pairs

**c) Only three pairs**

d) All four pairs



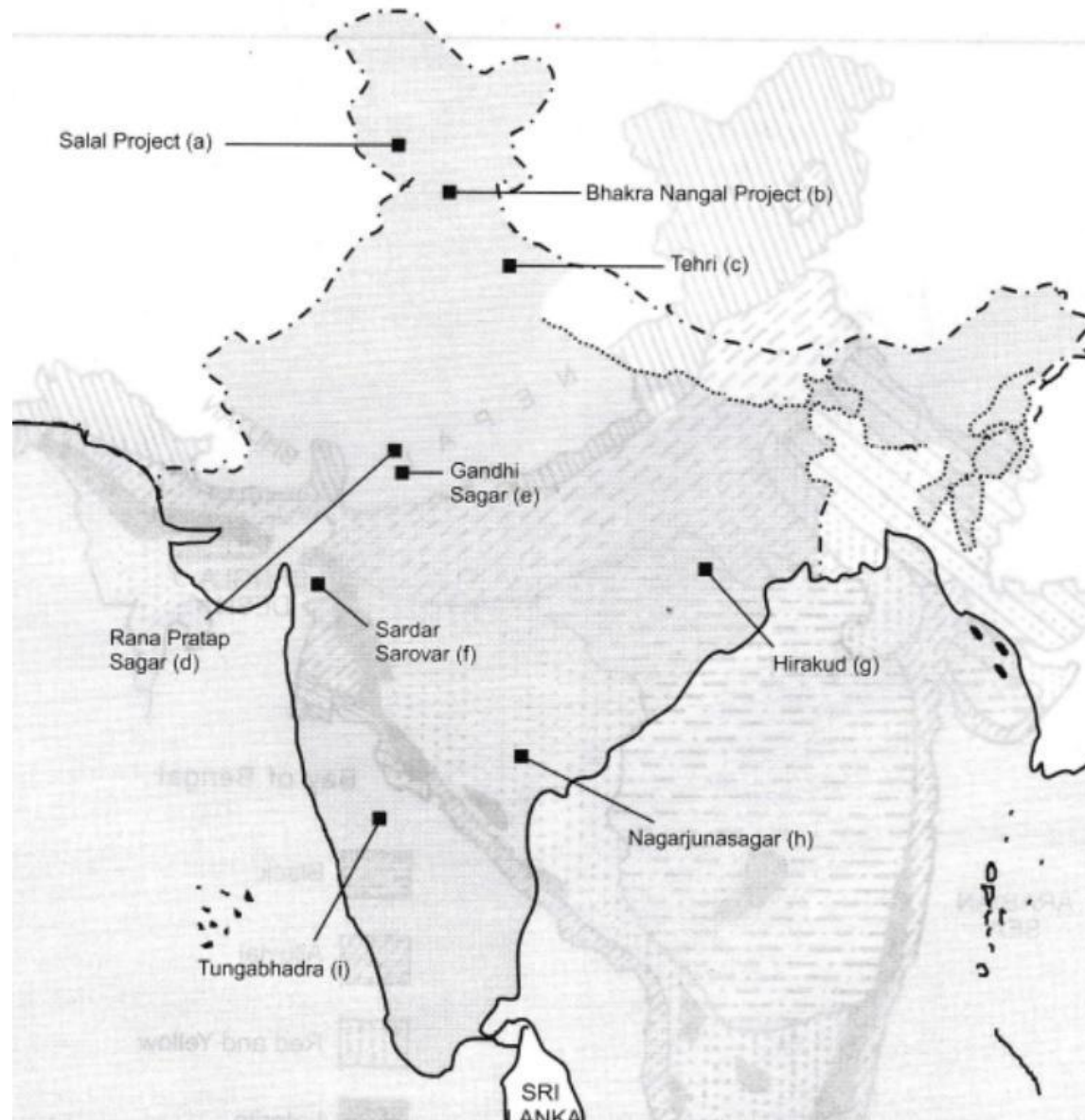
# Indira Sagar –Madhya Pradesh



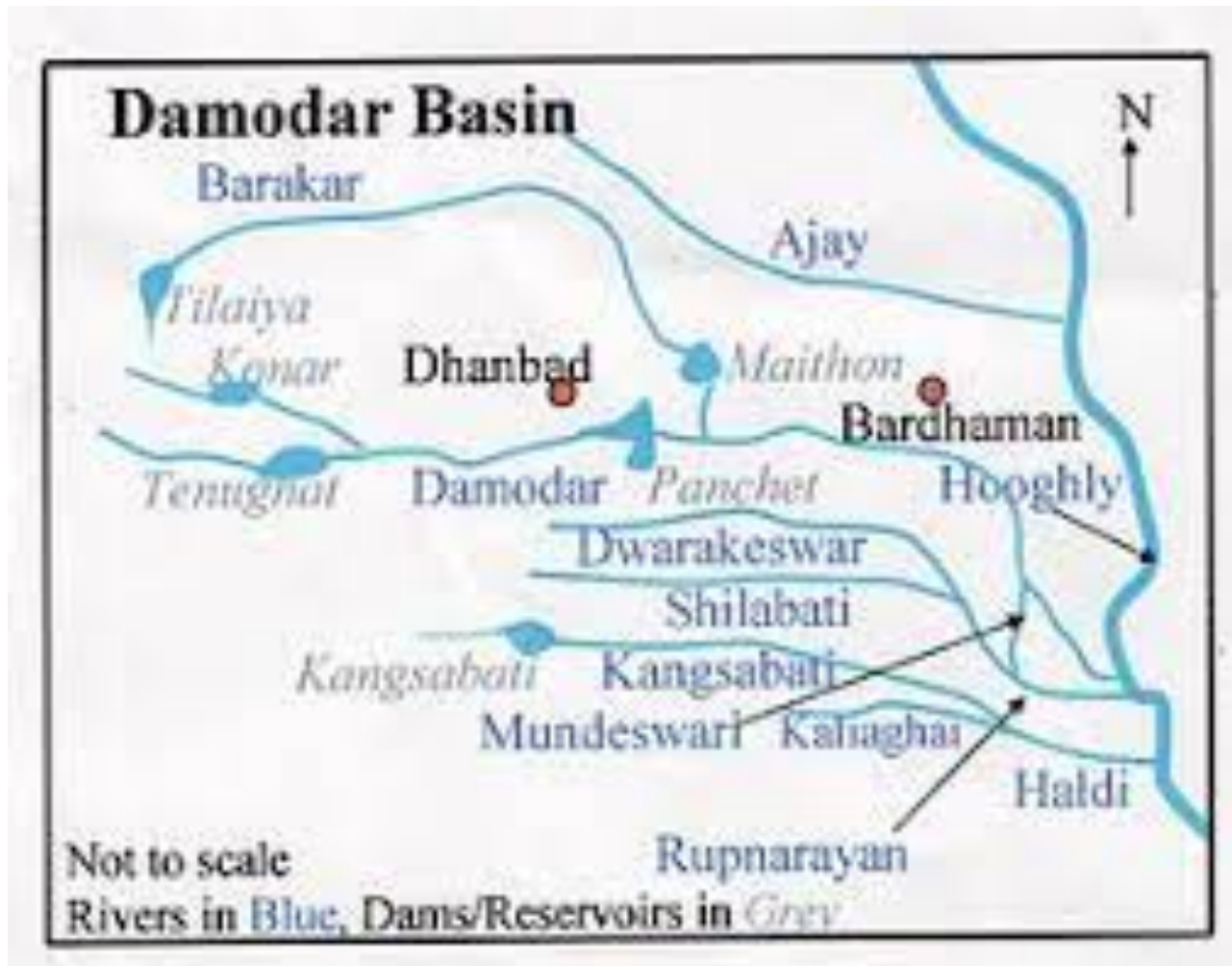
## National Parks & Sanctuaries of Karnataka







# Maithon - Jharkhand



**Q. The term "Levant" often heard in the news roughly corresponds to which of the following regions ?**

- a) Region along the eastern Mediterranean shores
- b) Region along North African shores stretching from Egypt to Morocco
- c) Region along Persian Gulf and Horn of Africa
- d) The entire coastal areas of Mediterranean Sea

Q. The term "Levant" often heard in the news roughly corresponds to which of the following regions ?

- a) **Region along the eastern Mediterranean shores**
- b) Region along North African shores stretching from Egypt to Morocco
- c) Region along Persian Gulf and Horn of Africa
- d) The entire coastal areas of Mediterranean Sea



**The Levant is an old term referring to countries of the eastern Mediterranean.** Some scholars include in it Cyprus and a small part of Turkey. But basically the Levant has throughout history meant Syria, Lebanon and Palestine. This means Jordan, the West Bank (now under Israeli occupation) and Israel itself are part of the Levant.

**Q. Consider the following countries :**

1. Azerbaijan
2. Kyrgyzstan
3. Tajikistan
4. Turkmenistan
5. Uzbekistan

Which of the above have borders with Afghanistan ?

- a) 1, 2 and 5 only
- b) 1, 2, 3 and 4 only
- c) 3, 4 and 5 only
- d) 1, 2, 3, 4 and 5

**Q. Consider the following countries :**

1. Azerbaijan
2. Kyrgyzstan
3. Tajikistan
- 4. Turkmenistan – TAPI Pipeline**
5. Uzbekistan

Which of the above have borders with Afghanistan ?

- a) 1, 2 and 5 only
- b) 1, 2, 3 and 4 only
- c) 3, 4 and 5 only**
- d) 1, 2, 3, 4 and 5



Route of the Turkmenistan-Afghanistan-Pakistan-India (TAPI) natural gas pipeline





**Afghanistan** is bounded to the east and south by Pakistan (including those areas of Kashmir administered by Pakistan but claimed by India), to the west by Iran, and to the north by the Central Asian states of Turkmenistan, Uzbekistan, and Tajikistan.

# MISCELLANEOUS

**Q. Between India and East Asia, the navigation-time and distance can be greatly reduced by which of the following?**

1. Deepening the Malacca straits between Malaysia and Indonesia.
2. Opening a new canal across the Kra isthmus between the Gulf of Siam and Andaman Sea.

**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

**Q. Between India and East Asia, the navigation-time and distance can be greatly reduced by which of the following?**

1. Deepening the Malacca straits between Malaysia and Indonesia.
2. Opening a new canal across the Kra isthmus between the Gulf of Siam and Andaman Sea.

**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

# PROPOSED ROUTE FOR THAILAND CANAL





- The Malacca strait is the main shipping channel between the Indian Ocean and the Pacific Ocean and links the India, China, Japan and South Korea. The issue of deepening of the Malacca strait is linked to its economic importance rather than “time of navigation and distance”.
- The issue is that most of the ships cannot pass through it and the size of the biggest ships which can enter through it is called Malaccamax. Now the deepening of the strait would certainly help in “Increasing the volume of the business” because ships of larger sizes can pass thru it, there is no significance of distance and navigation



Q) Electrically charged particles from space travelling at speeds of several hundred km/sec can severely harm living beings if they reach the surface of the Earth.

What prevents them from reaching the surface of the Earth?

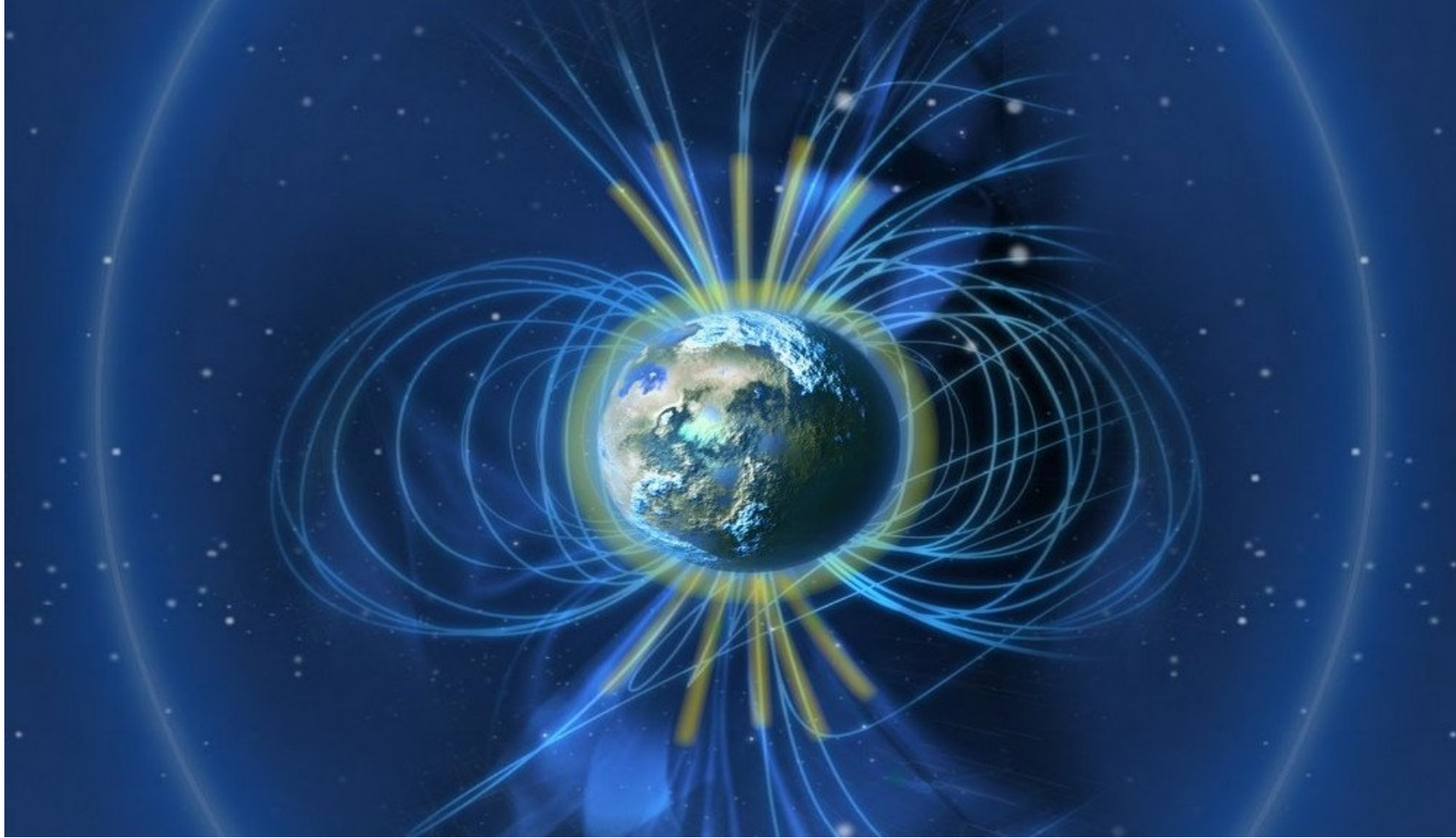
- a) The Earth's magnetic field diverts them towards its poles.
- b) Ozone layer around the Earth reflects them back to outer space.
- c) Moisture in the upper layers from reaching the surface of the Earth.
- d) None of the statements (a), (b), and (c) given above is correct.

Q) Electrically charged particles from space travelling at speeds of several hundred km/sec can severely harm living beings if they reach the surface of the Earth.

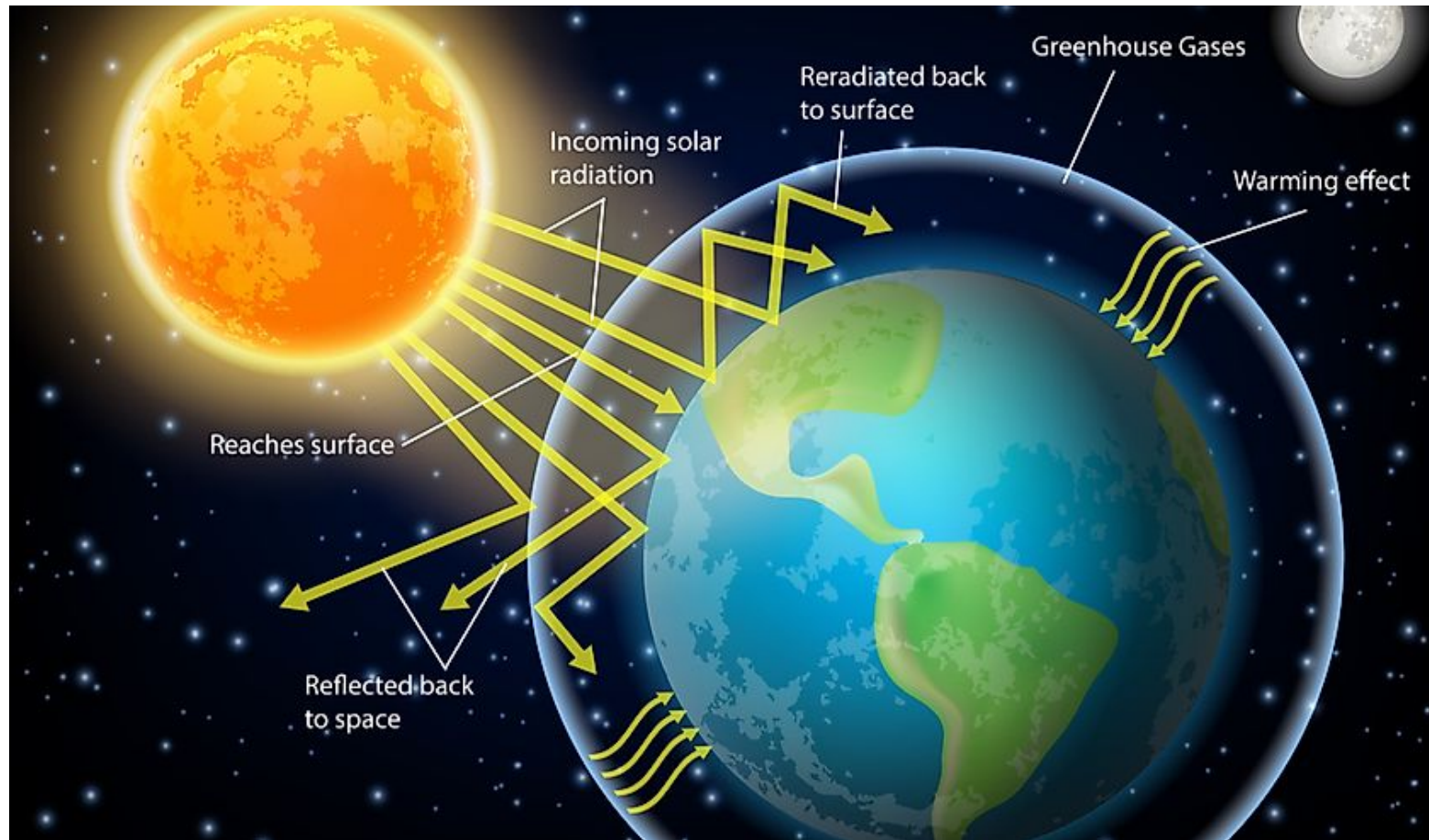
What prevents them from reaching the surface of the Earth?

- a) The Earth's magnetic field diverts them towards its poles.
- b) Ozone layer around the Earth reflects them back to outer space.
- c) Moisture in the upper layers from reaching the surface of the Earth.
- d) None of the statements (a), (b), and (c) given above is correct.

# Earth's Magnetic Field

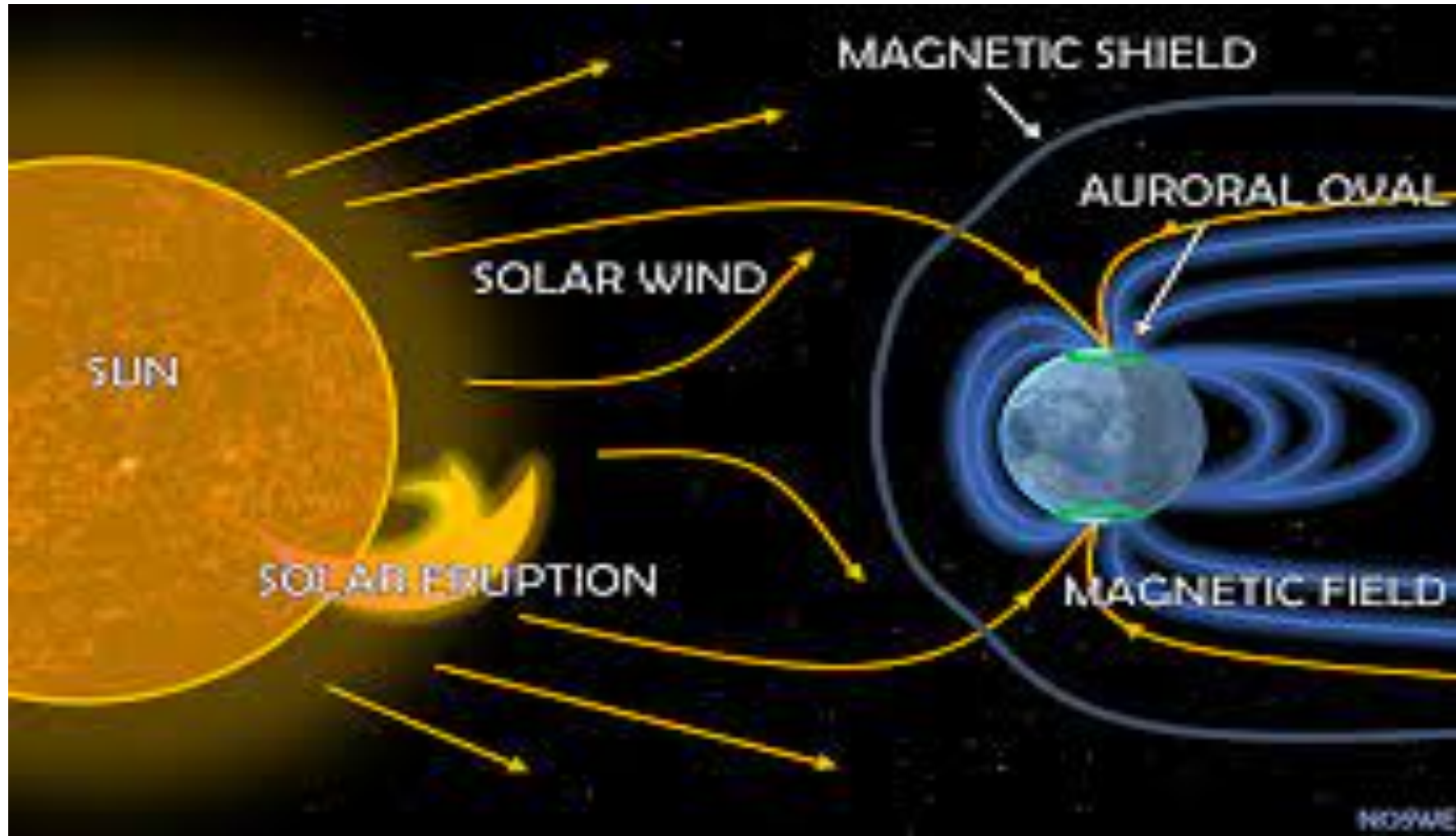


# Electrically charged particles from space





# Aurora



- Earth's magnetic field, also known as the geomagnetic field, is the magnetic field that extends from y, where it interacts with the solar wind, a stream of charged particles emanating from the Sun.
- The magnetic field is generated by electric currents due to the motion of convection currents of a mixture of molten iron and nickel in Earth's outer core.
- Earth's magnetic field deflects most of the solar wind, whose charged particles would otherwise strip away the ozone layer that protects the Earth from harmful ultraviolet radiation.

- Note

## AURORA

- The typical aurora is caused by collisions between fast-moving electrons from space with the oxygen and nitrogen in Earth's upper atmosphere.



Q1) Electrically charged particles from space travelling at speeds of several hundred km/sec can severely harm living beings if they reach the surface of the Earth.

What prevents them from reaching the surface of the Earth?

- a) The Earth's magnetic field diverts them towards its poles.
- b) Ozone layer around the Earth reflects them back to outer space.
- c) Moisture in the upper layers from reaching the surface of the Earth.
- d) None of the statements (a), (b), and (c) given above is correct.

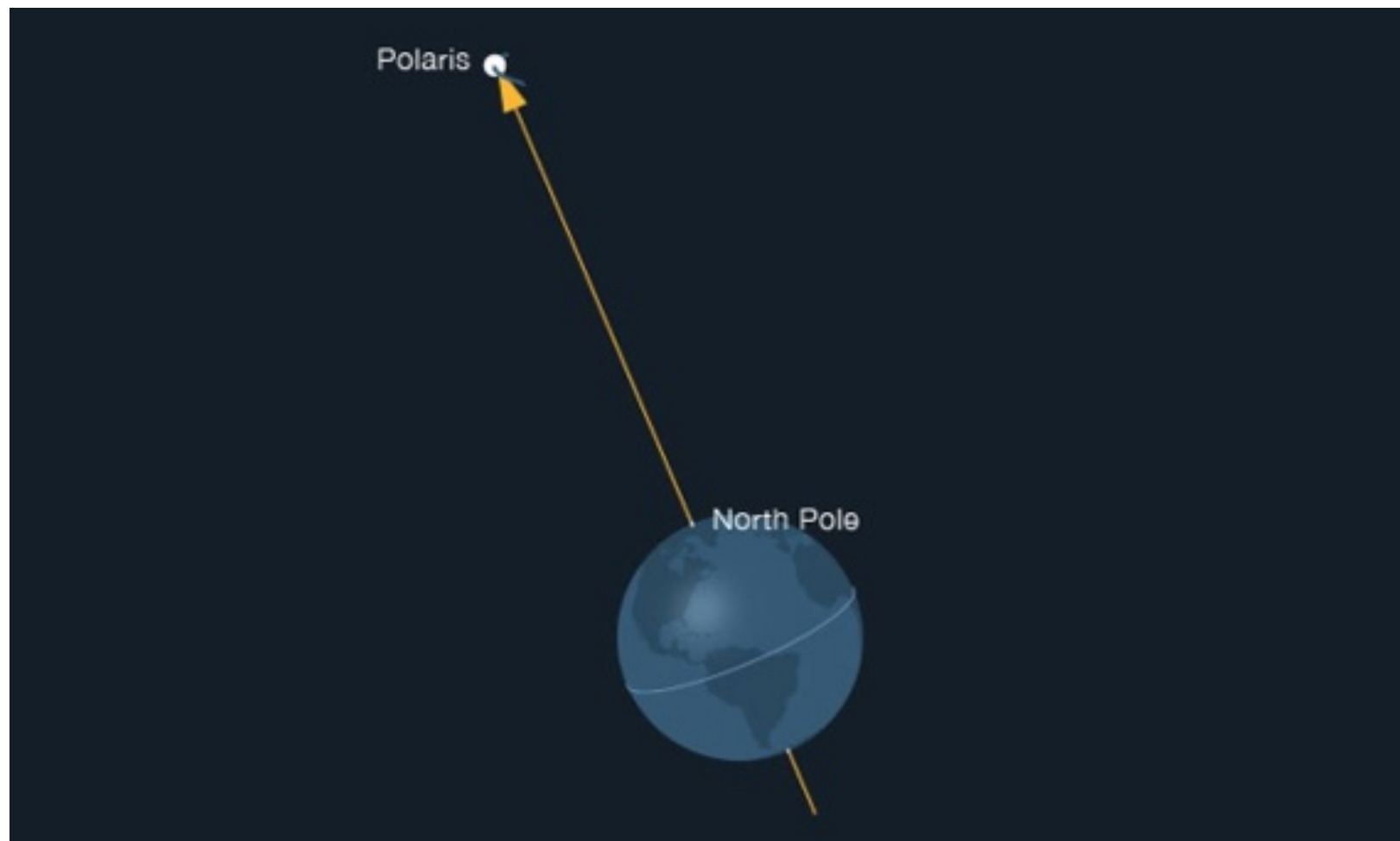


Q) A person stood alone in a desert on a dark night and wanted to reach his village which was situated 5 km east of the point where he was standing. He had no instruments to find the direction but he located the polestar. The most convenient way now to reach his village is to walk in the

- a) direction facing the polestar
- b) direction opposite to the polestar
- c) direction keeping the polestar to his left
- d) direction keeping the polestar to his right

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- The Pole Star - North Star or Polaris that lies closely in line with the axis of the Earth's rotation "above" the North Pole, i.e., the north celestial pole.
- Therefore, it makes an excellent fixed point from which scientists draw measurements for celestial navigation and astrometry.

**Q) In which one among the following categories of protected areas in India are local people not allowed to collect and use the biomass?**

- a) Biosphere Reserves
- b) National Parks
- c) Wetlands declared under Ramsar Convention
- d) Wildlife Sanctuaries

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## **Biosphere Reserves :**

The Indian government has established 18 biosphere reserves to protect **larger areas of natural habitat than a typical national park or animal sanctuary**, and that often include one or more national parks or reserves, **along with buffer zones that are open to some economic uses.**

Protection is granted not only to the flora and fauna of the protected region, but also to the human communities who inhabit these regions, and their ways of life.

## **Giveaway Point :**

**MAB** ( Man and Biosphere Reserves)

**Current Affairs** – Tribes in news - **Agasthyamala Biosphere Reserve** : Kani Tribe

**Ramsar Convention:** The Ramsar Convention on Wetlands of International Importance is an **international treaty for the conservation and sustainable use of wetlands.** It is **named after the city of Ramsar in Iran,** **where the convention was signed in 1971.**

### **Wetlands under Ramsar Convention**

Any wetland site which has been **listed under the Ramsar Convention** that aims to conserve it and promote sustainable use of its natural resources is called a Ramsar Site.

**According to the 2011 Census,** the tribal population of the Sunderbans was 2,11,927. This comprises chiefly four groups — the Munda, Santhal, Bhumij and Oraon tribes



BASIS FOR COMPARISON	WILDLIFE SANCTUARY	NATIONAL PARK
Meaning	Wildlife Sanctuary, is a natural habitat, owned by the government or private agency, that safeguards particular species of birds and animals.	National park is the protected area, which are established by the government, to conserve wildlife and also develop them.
Preserves	Animals, birds, insects, reptiles, etc.	Flora, fauna, landscape, historic objects, etc.
Objective	To make sure that viable population of the wildlife and their habitats are maintained.	To protect the natural and historic objects and wildlife of an area.
Restriction	Restrictions are less and it is open to public.	Highly restricted, random access to people is not allowed.

Official Permission	Not required	Required
Boundaries	Not fixed	Fixed by legislation
Human activity	Allowed but up to a certain extent.	Not allowed at all.

Q) Which of the following has/have shrunk immensely/dried up the recent past due to human activities?

- 1) Aral Sea
- 2) Black Sea
- 3) Lake Baikal

**Select the correct answer using the code given below:**

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

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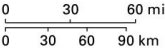
d) 1 and 3



# THE SHRINKING ARAL SEA 1960–2014

It was once the world's fourth largest body of inland water but has shrunk to a fraction of its former size because of the diversion of its inflowing rivers for agricultural irrigation.

- Land submerged in 1960
- 1960 coastline
- International boundary on former seabed



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- Aral Sea has shrunk by about 75% of its original size mainly because of water diversion for agricultural usages in surrounding areas.
- The depth of Aral Sea has also decreased from 68 meters in the 1960 s to less than 10 m in the present day.
- Lake Baikal- water level has gone below critical mark multiple times ( Basically there is fluctuation in levels but not shrinkage)
- Black Sea – 40% habitable space compression – due to eutrophication and global warming ( again not shrinkage )



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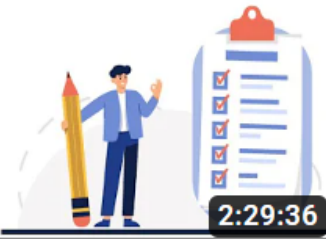
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